

PTZ Remote Control

Protocol Descriptions of compatible PTZ Systems

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1 Generic Protocol Description

The Remote Adapter Generic is a protocol implementer that can be used to control any remote system. The commands are forwarded to the remote system as specified by the user. This eliminates the need for translation into prescribed, system-specific commands. The systems are controlled as usual through the HeiTel user interfaces.

When using the generic protocol, all remote commands are saved in an R01 control file in the receiver (see 3 "Commands"). This also applies to the basic command set for the PTZ control window (pan/tilt and zoom/focus). As these basic commands have not been included in the R01 files up until now, these must be defined in the corresponding camera section as needed.

Note: If the generic protocol is enabled for controlling a PTZ system, the PTZ functions cannot be accessed through a Web browser when the internal device Web server is being used (**svr** units and **CamMobile**)!

1.1 Interfaces

HeiTel offers four different generic protocols that are adapted to a specific interface operating mode and data rate:

Binary file name	R01 file code	Operating mode	Data format	Baud rate
generic1.bin	036	RS485	8/N/1	4800
generic2.bin	038	RS485	8/N/1	9600
generic3.bin	039	RS232	8/N/1	4800
generic4.bin	040	RS232	8/N/1	9600

Note: When using **svr**-series devices or **CamMobile** units, you can also redirect the output from the internal adapter to the transparent serial interface to directly control external devices with a serial interface.

2 Connections and Configuration

Selecting the protocol (generic1 to generic4) specifies the transmission type and interface speed (see 1.1 "Interfaces"). Please consult the corresponding hardware description for information on connecting systems from other manufacturers. The pin assignments of the corresponding HeiTel device interfaces are described in the device manuals.

3 Commands

The basic functions of the R01 files for the selection of the operating window and saving commands and the basic procedures for creating these files have not changed. For further information, please consult the **Remote Adapter** manual, chapter 4.4 "Control file (R01) structure" or the current software manuals for **CamControl LITE** or **CamControl PRO** chapter 8.4.1 "Function and structure of R01 files".

The line "Generic=1" must be entered in the header of the R01 files. This ensures that your **CamControl LITE** or **CamControl PRO** receiver software operates in generic mode for the corresponding

device. This means that that commands in the R01 file are transmitted in unencrypted form. The commands in the R01 file are also assigned to the PTZ controls in **CamControl LITE** or **CamControl PRO**.

Important entries in the R01 control file:

- In the [ADAPTER] section, the entry "Generic=1" means that the generic protocol is used.
- The default address "ADDRESS=0001001" must be used for each section [CAMx] in which the camera is to be controlled using the generic protocol.
- The commands for the basic command set "pan/tilt and zoom/focus" must be added if needed.

3.1 Command Structure

The Remote Adapter Generic transmits commands of up to 25 hexadecimal characters in length, whereby any characters can be used. ASCII characters must be converted to hexadecimal notation. You can use corresponding programs (HEX editors) to convert these characters. Chapter 4.2 of this document also contains a conversion table for converting ASCII characters into hexadecimal values.

A command is initiated with the start code and closed with the end code.

The start code is: "#"

The end code is: "y"

The start and end codes are entered in clear text and replace the codes "*" and "!xy" from the standard R01 files. The command string must be entered in hexadecimal notation and without spaces between these two codes.

3.2 Sample R01 file

The following example illustrates the structure of an R01 file for a transmitter with the serial number CV123456.

The example is based on the following assumptions:

Transmitter: CV123456	→ R01 file name: CV123456.R01
Interface requirements: RS485, 4800 baud	→ selected protocol type: generic1.bin
Controls in the receiver software:	→ Mode=3
<ul style="list-style-type: none">• Call only camera 1• PTZ controls• 1-line window for other functions	

Commands for this example – the individual characters for the commands are first converted into hexadecimal values (see 4.2 "ASCII-hexadecimal conversion table"):

Function	Command (ASCII)	Command (hexadecimal) [Prefix 0x as code for hexadecimal values]
Tilt up	UP	0x55, 0x50
Tilt down	DOWN	0x44, 0x4F, 0x57, 0x4E
Pan left	LEFT	0x4C, 0x45, 0x46, 0x54
Pan right	RIGHT	0x52, 0x49, 0x47, 0x48, 0x54
Stop pan/tilt	STOP	0x53, 0x54, 0x4F, 0x50
Set preset 1	SETPRE1	0x53, 0x45, 0x54, 0x50, 0x52, 0x45, 0x31
Call preset 1	CALLPRE1	0x43, 0x41, 0x4C, 0x4C, 0x50, 0x52, 0x45, 0x31

Using this information, the R01 file CV123456.R01 would be as follows:

```
[ADAPTER]                                ; Section: Adapter settings
GENERIC=1                                ; Enable generic protocol

[CAM1]                                    ; Section: Controls for camera 1
MODE=3                                    ; PTZ controls and 1-line window
ADDRESS=0001001                          ; Default address

UP_P=#5550y                              ; Arrow up, left mouse button depressed
DN_P=#444F574Ey                          ; Arrow down, left mouse button depressed
LT_P=#4C454654y                          ; Arrow left, left mouse button depressed
RT_P=#5249474854y                        ; Arrow right, left mouse button depressed
UPLT_P=                                  ; Arrow up left, left mouse button depressed
DNLT_P=                                  ; Arrow down left, left mouse button depressed
UPRT_P=                                  ; Arrow up right, left mouse button depressed
DNRT_P=                                  ; Arrow down right, left mouse button depressed
ZP_P=                                    ; Zoom plus, left mouse button depressed
ZM_P=                                    ; Zoom minus, left mouse button depressed
FP_P=                                    ; Focus plus, left mouse button depressed
FM_P=                                    ; Focus minus, left mouse button depressed

UP_R=#53544F50y                          ; Arrow up, left mouse button not depressed
DN_R=#53544F50y                          ; Arrow down, left mouse button not depressed
LT_R=#53544F50y                          ; Arrow left, left mouse button not depressed
RT_R=#53544F50y                          ; Arrow right, left mouse not button depressed
```


UPLT_R=	; Arrow up left, left mouse button not depressed
DNLT_R=	; Arrow down left, left mouse button not depressed
UPRT_R=	; Arrow up right, left mouse button not depressed
DNRT_R=	; Arrow down right, left mouse button not depressed
ZP_R=	; Zoom plus, left mouse button not depressed
ZM_R=	; Zoom minus, left mouse button not depressed
FP_R=	; Focus plus, left mouse button not depressed
FM_R=	; Focus minus, left mouse button not depressed
CT1= Set preset 1	; Text list box 1
CMD1=#53455450524531y	; Command list box 1
CT2 = Preset 1	; Text list box 2
CMD2=#43414C4C50524531y	; Command list box 2

This R01 file can now be copied directly into the program directory and will be applied automatically the next time that transmitter CV123456 is accessed.

Creating generally valid R01 files for the selection dialogue

In order for the new file to be generally available for further transmitters in the **CamControl LITE** or **CamControl PRO** selection dialogue when the protocol **generic1** (RS485, 4800 baud) is being used, an extension must be added to this file that corresponds with this protocol type.

The protocol, **generic1** in this example, has the code 036 (see 1.1 "Interfaces"). A *generally valid* R01 file could simply be named CV123456.036 and would appear in the list. But, because the file extension alone determines which files are shown in the list, the file can be assigned any name that describes its contents. For example, the file could be called "Customer1.036" or "Device1.036".

3.3 Included R01 control files

There are three example R01 files included for each of the four protocol types. These files can be found in the file [protocols.zip](#) or in the receiver software sub-directory \RM\RM01 and can be used to create your own control files:

File name	Operating mode	Baud rate	Type	Functions
4854800A.036	RS485	4800	A	PTZ functions; 2-line window, 10 functions each; button panel with 16 buttons;
4854800B.036			B	PTZ functions; 2-line window
4854800C.036			C	PTZ functions; 1-line window
4859600A.038	RS485	9600	A	PTZ functions; 2-line window, 10 functions each; button panel with 16 buttons;
4859600B.038			B	PTZ functions; 2-line window
4859600C.038			C	PTZ functions; 1-line window
2324800A.039	RS232	4800	A	PTZ functions; 2-line window, 10 functions each; button panel with 16 buttons;
2324800B.039			B	PTZ functions; 2-line window
2324800C.039			C	PTZ functions; 1-line window
2329600A.040	RS232	9600	A	PTZ functions; 2-line window, 10 functions each; button panel with 16 buttons;
2329600B.040			B	PTZ functions; 2-line window
2329600C.040			C	PTZ functions; 1-line window

4 Other

4.1 Controlling systems with an RS232 port through the transparent channel

Devices from the **svr** series and **CamMobile** can also receive control signals for RS232 remote systems directly from the transparent serial interfaces starting with software version 3.50. No special remote adapter is needed. An entry must simply be added to the R01 file to redirect the data stream to this interface.

As no remote adapter is used, no generally valid R01 files can be provided in the software. This means that the R01 file must be created individually for each transmitter and copied into the program directory.

The required operating mode of the transparent serial interface (SIO) and the transmission speed and data format (parities and stop bits) are configured in the transmitter settings.

The following entry must also be added to the R01 file to redirect the data:

[ADAPTER]

TRANSSIO=1 ; 0 = default (output internal adapter)
; 1 = output to transparent SIO

4.2 ASCII-hexadecimal conversion table

You can use the following table to convert ASCII characters to hexadecimal values. You can also use corresponding programs (HEX editors) to convert these characters.

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0_	NUL	SOH	STX	ETX	EOT	ENQ	ACK	BEL	BS	HT	LF	VT	FF	CR	SO	SI
1_	DLE	DC1	DC2	DC3	DC4	NAK	SYN	ETB	CAN	EM	SUB	ESC	FS	GS	RS	US
2_	SP	!	"	#	\$	%	&	'	()	*	+	,	-	.	/
3_	0	1	2	3	4	5	6	7	8	9	:	;	<	=	>	?
4_	@	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
5_	P	Q	R	S	T	U	V	W	X	Y	Z	[\]	^	_
6_	`	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o
7_	p	q	r	s	t	u	v	w	x	y	z	{		}	~	DEL
8_	x	y	z													

5 Baxall Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

This version of the Remote Adapter supports the the video matrix Baxall ZTX6 and models which are compatible to it. The video matrix works with the pan-and-tilt receivers Baxall ZR3M, ZR4M, ZRM.

Alternatively, domes from other manufacturers can also be connected to the Baxall video matrix by connecting a Baxall Dome Interface to the video matrix.

The dome's functions are described in detail, sorted according to their scope and the way in which their functions are called up, in the respective Baxall Dome Interface manual.

The following domes can be controlled by the Baxall Dome Interface:

Baxall Dome Interface	Manufacturer	Model
DAX/DMA	Star Micronics Sanyo Computar	MD-100,MD-800,MD-1200S,MD-2000,MD-1200H VCC-9200P SMD-08,SMD-08II,SMD-12,AMD-12II,SMD-20
DAX/DEN	Dennard	2050
DAX/JVC	JVC	TK-C675
DAX/MM	Mark Mercer	D250mpT,D4/500mpT,etc
DAX/PAN	Panasonic	WV-CSR400,WV-CSR600
DAX/VIC	Vicon Industries	V7UVS,V15UVS,Surveyor99,Surveyor2000
DAX/PEL	Pelco	All Pelco domes that support the 'D' protocol
DAX/PHIL	Philips/Burle	TC750-4-2, TC750-6-2, TC750-9-2, TC750X-2-2, TC750X-6-2, TC750X-9-2,TC770-4-2, TC770-6-2, TC770-9-2, TC770X-4-2, TC770X-6-2, TC770X-9-2 Burle requires an appropriate back box
DAX/UL	Ultrak	All Ultrak domes that support the fastscan/smartscan protocol
DAX/KEN	Kenko	DMP16-H3

5.1 Functions

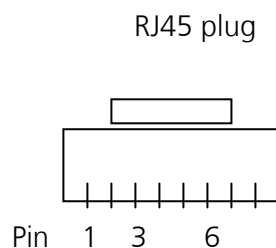
The Baxall remote adapter, version 1.00, supports the following functions:
(For some connected domes and telemetry receivers, only some of these functions are used.)

- Up to 16 video crossbars can be connected
- pan, tilt, zoom, focus (pan and tilt speeds can be set separately)
- iris control (open, close, stop, Iris+, Iris-)
- 255 fixed positions can be set and called up
- autopan
- switch camera/monitor
- trigger alarm
- multiscreen
- freeze (freeze multiplexer picture)
- videorecorder control (play, record, stop, pause, forward, rewind, fast forward)
- camera relay on/off
- light relay on/off
- wiper relay on/off
- windscreen wiper on/off

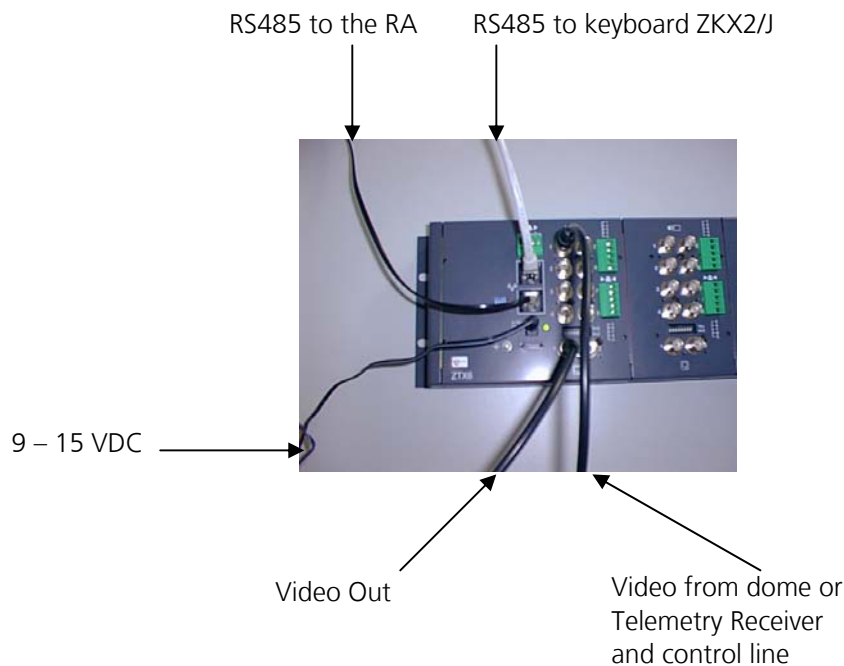
6 Connections and Configuration

You must establish the connection (9600 baud) between the remote adapter and the Baxall ZTX6 video matrix using an RS485 cable. Connect as follows:

Remote Adapter	Baxall ZTX6 Video Matrix
D-	Connect pin 6 of the RJ45 plug (8 pin RJ45 plug)
D+	Pin 3 of the RJ45 plug



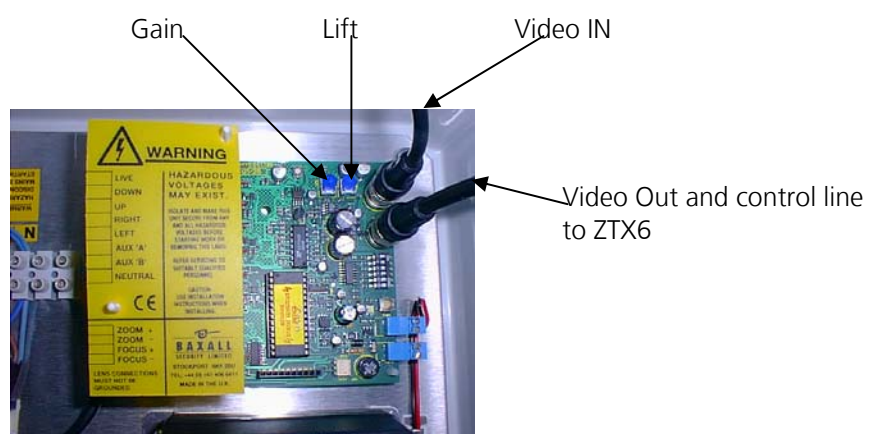
Connecting the ZTX6 video matrix



The connections for the ZTX6 video crossbar to the pan- and tilt system (telemetry receiver ZR3M/WBX) and to a Baxall Dome Interface (DAX/VIC) for Vicon are shown in the following examples.

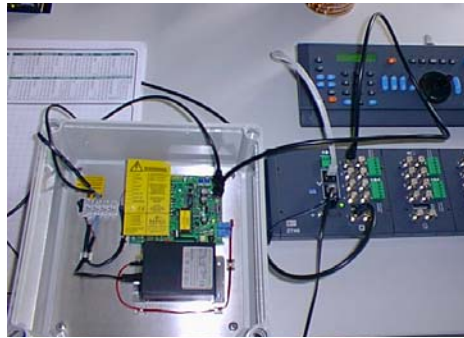
6.1 Connecting the ZTX6 video matrix to pan- and tilt systems

a) Example: Connecting to Telemetry Receiver ZR3M/WBX:



Note: The ZR3M/WBX only receives the remote control data correctly when, in addition to the Video Out/control line, there is also a video signal at Video IN. Gain and lift may need to be balanced.

Global view: ZKX2/J Keyboard, ZTX6 video matrix, ZR3M/WBX telemetry receiver:



6.2 Connecting the ZTX6 video crossbar to the Baxall Dome Interface

Example: Connecting to the Baxall Dome Interface (DAX/VIC)

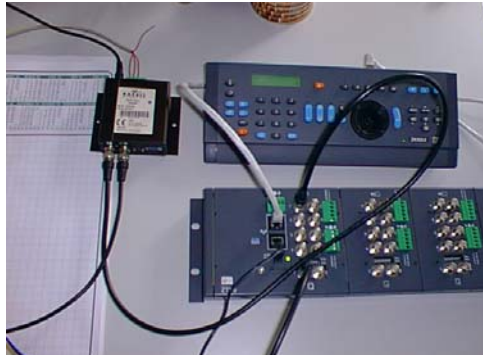


DIP switch: The dome's functions are activated or deactivated by the DIP switches. The exact functions are contained in the corresponding manual for the Baxall Dome Interface (DAX).

Make the connection between the Baxall Dome Interface and the Vicon Dome as follows:

Baxall Dome Interface	Vicon Dome
DATA (-)	Comm In (-)
DATA (+)	Comm In (+).

Global view: ZKX2/J Keyboard, Baxall Dome Interface (DAX), ZTX6 video matrix.



6.3 Configuring the Vicon Dome

Set the unit address (S1) of the Vicon Dome to address 3 (DIP 1 and 2 to ON).

DIP switch S2 must be set as follows:

PAL (DIP 1/8 off)

VPS (DIP 2/8 off)

SIMPLEX (DIP 3/8 on)

RS485 (DIP 4/8 on)

The remaining DIP switches on S2 (5/8 to 8/8) off.

- The RA and the video matrix support the setting and calling up of up to 255 fixed positions. In contrast, the Baxall Dome Interface supports a maximum of 16 fixed positions, independent of the dome.
- The PAN/TILT speeds are not transmitted by the Baxall Dome Interface. These must be set in the respective dome menu.

7 Commands

7.1 S Command (pan-/tilt speed)

The pan-/tilt speed is set separately using the S command. The speed applies globally for all connected domes.

General construction of the S command:

CT1 = "description text for command"

CMD1 = *00010AAS0003XYY!xy

AA = camera address (01 to 10, any, because global)

X = sub-function

X = 0 (set the pan speed)

X = 1 (set the tilt speed)

YY = 01 to FF, sets the speed directly in hexadecimal form (capital letters)

01 (slow) <-----> FF (fast)

Examples: S command, all domes

Set pan speed to 12

CT1=PanSpd 12

CMD1=*0001001S0003012!xy

Set tilt speed to B5

CT2=TiltSpd B5

CMD2=*0001001S00031B5!xy

7.2 G Command (iris)

The iris can be controlled using the G command. The G command is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010**AA**G0003**XY**!xy

AA = camera address (01 to 10)

YY = irrelevant

X = (1 to 5)

1 = open iris

2 = stop iris

3 = close iris

4 = auto iris

5 = iris + (iris is opened a little and then automatically stopped)

6 = iris - (iris is closed a little and then automatically stopped)

Example for G command, camera 1:

CT1 = Iris open

CMD1 = *0001001G0003100!xy (Iris open)

7.3 D Command (various functions)

CT1=Function

CMD1=*00010AAD0003XYY!xy

AA = camera address (01 to 10)

X = irrelevant

The two letters "YY" indicate the function in question.

Function Number YY	Description
01	Wipe ON/OFF, wiper function toggles on/off
02	Light ON/OFF, light function toggles on/off
03	,RECORD' key has been pressed
04	,LIVE' key has been pressed
05	,PLAY' key has been pressed
06	,ALARM ACKNOWLEDGE' key has been pressed
07	,MENU' key has been pressed
08	,ENTER' key has been pressed
09	,TELE SET' key has been pressed
0A	,ELECTRONIC ZOOM' key has been pressed
0B	,LOG OFF' key has been pressed
0C	,ESCAPE' key has been pressed
0D	,AUX 4 SELECT' key has been pressed
0E	,REVERSE PLAY' key has been pressed
0F	,PAUSE' key has been pressed
10	,FORWARD/ REVERSE' key has been pressed
11	,FAST REWIND' key has been pressed
12	,FAST FORWARD' key has been pressed
13	,AUDIO' key has been pressed
14	,TIME LAPSE INCREMENT' key has been pressed
15	,TIME LAPSE DECREMENT' key has been pressed
16	AUX 4 ON/OFF, AUX 4 function toggles on/off
17	Camera Power ON/OFF, camera function toggles on/off
18	Autopan ON/OFF, autopan function toggles on/off
19	Washer ON, wash function on
1A	Washer OFF, wash function off

1B	Autofocus, sets the focus
1C	Short Washer, the wash function is automatically switched on and off

7.4 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AA0003XYY!xy

AA = Camera address (01 to 10)

X = Sub-function

0 = call up fixed position

1 = set fixed position

YY = 01 to 99, indicates the fixed position number

Examples for setting and calling up fixed positions at camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F0003110!xy

Domes that are connected via the Baxall Dome Interface can set or call up a maximum of 16 fixed positions (depending on the dome used).

7.5 E Command (set the monitor output)

The E command sets the monitor output of the video crossbar and is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AAE0003XYY!xy

AA = camera address (01 to 10)

X = value is irrelevant

YY = 01 to FF indicates the number of the monitor output

Examples for the monitor output number, camera 1:

CT1 = monitor 2

CMD1 = *0001001E0003002!xy

7.6 B Command (set camera input)

The B command sets the camera input of the video matrix and is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AAB0003XYY!xy

AA = camera address (01 to 10)

X = value is irrelevant

YY = 01 to FF indicates the number of the camera input

Examples for camera input number, camera 1:
 CT1 = camera 7
 CMD1 = *0001001B0003007!xy

7.7 H Command (special key commands)

CT1=function
 CMD1=*00010AAH0003XYY!xy

AA = camera address (01 to 10)

The character "X" indicates the function in question.

YY = parameter value for the respective function

Function Number X	Description
1	Sequence Telemetry Parameter YY: 01 – FF, sequence number
2	Global Telemetry Parameter YY: 01 – FF, sequence number
3	Function, 'multiple key sequence' has been pressed Parameter YY: 01 – FF, key sequence (value)
4	Function Modifier, Function Preset Parameter YY: 01 – FF, preset number
5	Function Modifier, Function Enter Parameter YY: 01 – FF, enter number
6	Function Modifier, Function Play Parameter YY: 01 – FF, play number
7	Dump Keypress, Keyboard code Parameter YY: 00 – FF, keyboard code Keyboard code: 00 : '0' key 01 : '1' key 02 : '2' key 03 : '3' key 04 : '4' key 05 : '5' key 06 : '6' key 07 : '7' key 08 : '8' key 09 : '9' key 0A : 'Joystick/Control up' 0B : 'Joystick/Control down' 0C : 'Joystick/Control left' 0D : 'Joystick/Control right' 0E : 'Enter' key

	0F : 'Menu' key 10 : 'Monitor select' key 11 : 'Camera select' key 12 : 'Sequence' key 13 : 'Alarm acknowledge' key 14 : 'Escape' key 15 : 'Electronic Zoom' key 16 : 'Telemetry' key 17 : 'Function' key
8	Function: Switch monitor to camera Parameter YY: 01 – FF, monitor number
9	Function: Switch Monitor to Camera Parameter YY: 01 – FF, camera number

7.8 P Command (tour and key commands)

CT1=function

CMD1=*00010AAP0003XYY!xy

AA = camera address (01 to 10)

The character "X" indicates the function in question.

YY = parameter value for the respective function

Function Number X	Description
1	Tour select, Parameter YY: 01 – F9, tour number
2	View tour Parameter YY: 01 – F9, view tour number
3	Program tour Parameter YY: 01 – FF, program tour number
4	,FREEZE' key has been pressed
5	,MULTISCREEN' key has been pressed
6	,ENHANCE' key has been pressed
7	,ALARM SELECT' key has been pressed
8	,PHONE' key has been pressed
9	,DIGITAL KEY#1' key has been pressed
A	,DIGITAL KEY#2' key has been pressed

8 BBV Tx1000 Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

This version of the Remote Adapter (1.00) supports the BBV Tx1000 video matrix. The Tx1500 video matrix is also supported in accordance to the specifications of the manufacturer.

8.1 Functions

The remote adapter, version 1.00, supports the following functions:

- Pan and tilt functions with 16 adjustable speeds for each
- Up to 8 video crossbars can be connected (by means of the BBV EX-4 or the EX-8 Expander)
- 64 cameras can be controlled
- pan, tilt, zoom, focus (pan and tilt speeds can be set separately)
- autopan on/off
- zoom / focus control
- iris control (open, close, stop)
- set / call-up 16 fixed positions
- 2 camera tours
- monitor swapping
- light relay on/off
- wiper relay on/off
- windscreen wiper on/off

9 Connections and Configuration

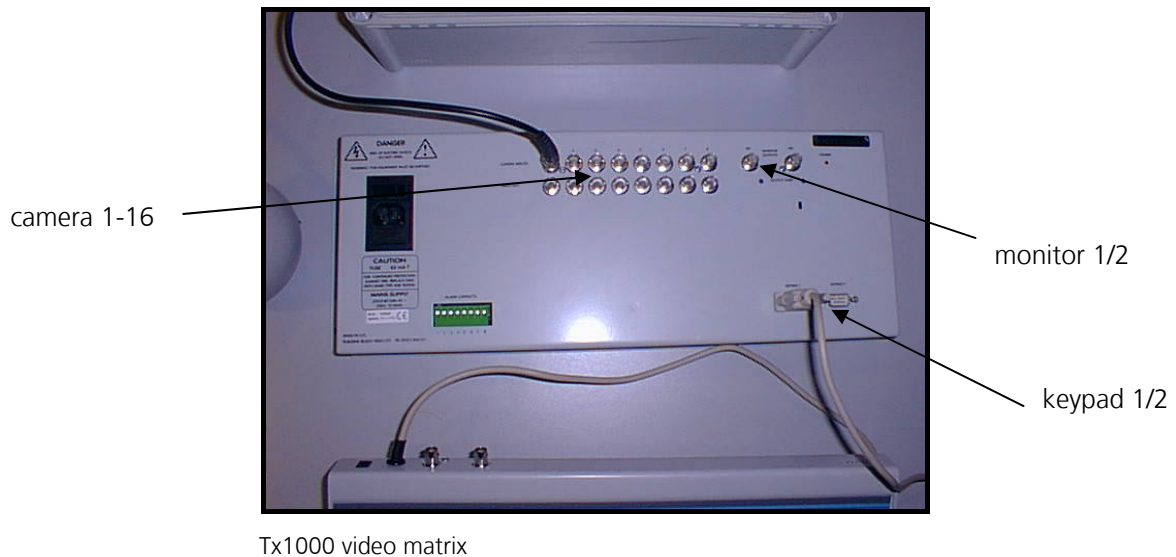
The description of the connections and the configuration is made based on video matrix Tx1000.

You must establish the RS-232 connection (9600 baud) between the remote adapter and the BBV Tx1000 video matrix as follows.

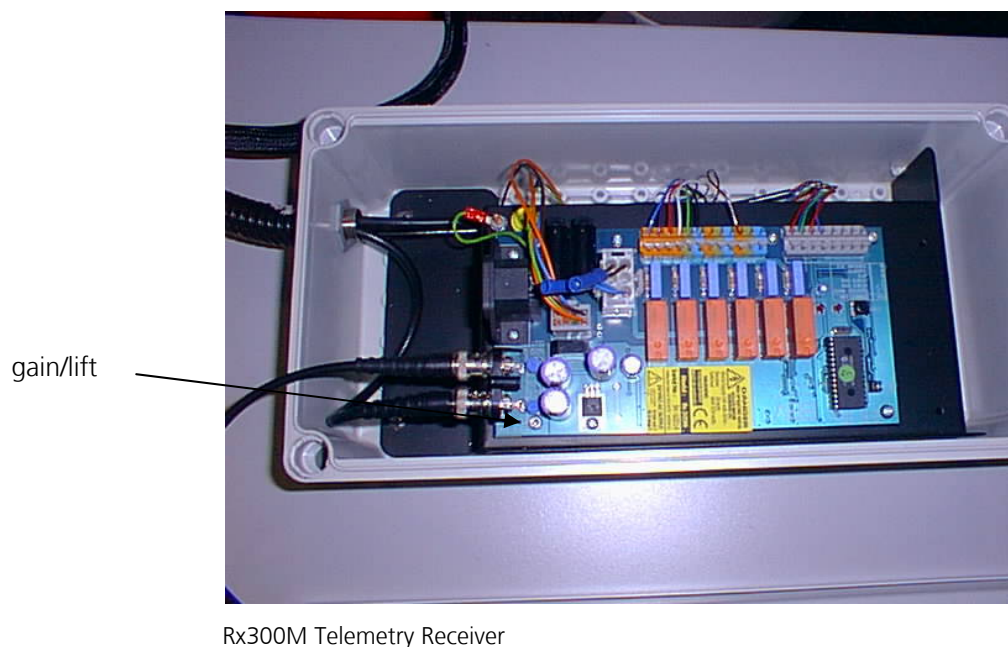
- First connect the remote adapter with a SUB-D plug.

Remote Adapter	9 pin SUB-D plug
TxD	Pin 2
RxD	Pin 3

- Then subsequently connect the SUB-D plug to the keypad 1 or keypad 2 input of the Tx1000 video matrix.



- Connect the Rx300M Telemetry Receiver via a video connection to a camera input (camera 1-16) of the Tx1000 video matrix.



Note: If, even when the system has been correctly configured, the control signals are not correctly received from Rx300M Telemetry Receiver then you must balance the gain and the lift.

Details of how to do this are contained in the BBV manufacturer's manual.

10 Commands

10.1 S Command (pan-/tilt speed)

The pan-/tilt speed is set separately using the S command. The speed applies globally for all connected domes.

General construction of the S command:

CT1 = "description text for command"

CMD1 = *00010AA S0003XYY!xy

AA = camera address (01 to 10, any, because global)

X = sub-function

X = 0 (set the pan speed)

X = 1 (set the tilt speed)

YY = 01 to FF, sets the speed directly in hexadecimal form

01 (slow) <-----> 0F (fast)

Examples: S command, all domes

Set pan speed to 8:

CT1= PanSpd 8

CMD1= *0001001S0003008!xy

Set tilt speed to 10 (0x0A):

CT2= TiltSpd 10

CMD2= *0001001S000310A!xy

10.2 G Command (iris)

The iris can be controlled using the G command. The G command is constructed as follows:

CT1 = „ description text for command“

CMD1 = *00010AAG0003XYY!xy

AA = camera address (01 to 10)

YY = irrelevant

X = (1 to 4)

1 = open iris

2 = stop iris opening

3 = close iris

4 = stop iris closing

Example for the G command, camera 1

CT1 = Iris open

CMD1 = *0001001G0003100!xy (Iris open)

10.3 D Command (diverse functions)

CT1= function

CMD1= *00010AAD0003XYY!xy

AA = camera address (01 to 10)

X = not relevant

The two letters "YY" indicate the function in question:

Function Number YY	Description
01	Function 1 (#Wash)
02	Function 2 (#Wipe)
03	Function 3 (#AP)
04	Function 4 (#Lights)
05	Wiper ON
06	Wiper OFF
07	Washer ON
08	No function
09	Washer OFF
0A	Autopan ON
0B	Autopan OFF
0C	Light ON
0D	Light OFF
0E	Triangle Relay ON
0F	Triangle Relay OFF
10	Start Patrol 1, camera tour 1 on
11	Start Patrol 2, camera tour 2 on
12	Stop Patrol, camera tour 1 or 2 off
13	Start Sequence
14	Stop Sequence

10.4 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AA0003XY!xy

AA = Camera address (01 to 16)

X = Sub-function

0 = call up fixed position

1 = set fixed position

YY = 01 to 16, indicates the fixed position number

Examples for setting and calling up fixed positions at camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F0003110!xy

10.5 E Command (set the monitor output)

The E command sets the monitor output of the video crossbar and is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AAE0003XY!xy

AA = camera address (01 to 10)

X = not relevant

YY = 01 to 02 (indicates the number of the monitor output)

Examples for setting the monitor output, camera 1:

CT1 = monitor 2

CMD1 = *0001001E0003002!xy

10.6 B Command (set camera input)

The B command sets the camera input of the video matrix and is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AAB0003XY!xy

AA = camera address (01 to 10)

X = not relevant

YY = 01 to 64, (indicates the number of the monitor input)

Example for camera input number, camera 1:

Camera 14 of the video matrix:

CT1 = Camera 14

CMD1 = *0001001B0003014!xy

10.7 H Command (special key commands)

CT1 = function

CMD1 = *00010AAH0003XYY!xy

AA = camera address (01 to 10)

X = sub-function

1 = switches over to video matrix YY

YY = parameter value of the respective function

Example for switching over to the 5th video matrix:

CT1 = video matrix 5

CMD1 = *0001001H0003105!xy

11 Dennard Protocol Description

The Remote Adapter (RA) is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbars). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video crossbar. For some pan-and-tilt devices, additional fixed positions can also be called up using the RA. These functions are called up by the Windows Receiver software from Version 1.69.

In this version of the Remote Adapter (1.00), Type 2050 Surveillance from Dennard is supported.

11.1 Functions

Version 1.00 of the Remote Adapter supports the following functions:

- Pan, tilt, zoom, focus (pan and/or tilt speeds can be set in 127 steps)
- Iris control (open, close, auto, stop)
- Set/call up 250 fixed positions
- 255 camera numbers
- Wiper on/off
- Water pump on/off
- Light on/off
- Menu Control
- Home Axis
- Test functions
- Extend and AUX on/off

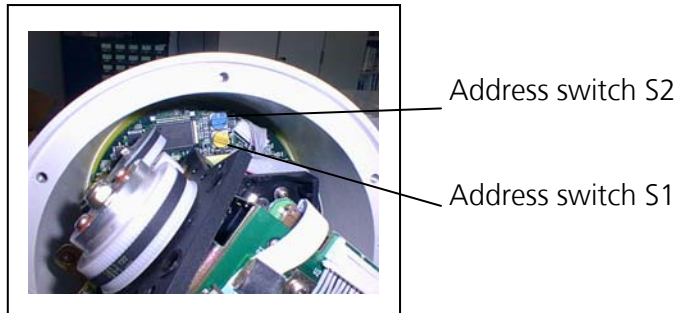
12 Connections

Establish the RS485 connection (9600 baud) between the Remote Adapter and the Dennard Dome as follows:

Dennard Dome	Remote Adapter
RS485- (also referred to as R.S. 485 ,B' in the manual)	D-
RS485- (also referred to as R.S. 485 ,A' in the manual)	D+

13 Configuration

To make sure that the commands from the RA only address one DOME, each DOME must be assigned a different address. The receiver address is set using address switches S1 and S2 (Fig. 1).



Address switch S1 sets the low-byte and switch S2 sets the high-byte of the hexadecimal address.

We recommend that you use addresses with the camera numbers of the receiver software (1-4 or 1-10) so that the preconfigured (default) files can be used immediately.

13.1 Menu



The Type 2 Dennard menu is called up by the "User Menu" or "Start User Menu" commands (refer to Fig. 2). You can navigate through the menu using the direction keys (pan and tilt) and the „Accept Selection" or „Accept Current Selection" command.

Attention!

Navigation within the menu of the Dennard Dome is carried out using the direction keys (pan and tilt). To successfully navigate within the menu, you must make sure that the "PAN/TILT high" mode is activated. If this mode is not active then you can activate it by clicking on the "Pan/Tilt high" button.

14 Commands

14.1 S Command (Pan/Tilt/Zoom/Focus speeds)

You can set the Pan/Tilt/Zoom/Focus speeds using the S Command. The speed set applies globally for all connected domes.

General construction of the S command:

CT1 = "description text for the command"

CMD1 = *00010AA50003XY!xy

AA = Camera address (01 to FF (hexadecimal value))

X = Sub-function

Function number X	Description
0	Set the pan speed
1	Set the tilt speed
2	Set the zoom speed
3	Set the focus speed
4	Low speed mode for pan/tilt
5	High speed mode for pan/tilt
6	Low speed mode for zoom/focus
7	High speed mode for zoom/focus

YY = 01 to 7F, indicates the speed (hexadecimal values)

01 (slow) <-----> 7F (fast)

Examples: S-command, all domes and/or pan-and-tilt heads

Set pan speed to 12

CT1=PanSpd 12

CMD1=*0001001S000300C!xy

Set tilt speed to B5

CT2=TiltSpd B5

CMD2=*0001001S00031B5!xy

14.2 D Command (various functions)

CT1=function

CMD1=*00010AAD0003XYY!xy

AA = Camera address (01 to FF (hexadecimal values))

X = don't care

The two letters "**YY**" indicate the respective function.

Function Number YYY	Description
01	AUX ON
02	AUX OFF
03	Wiper ON
04	Wiper OFF
05	Washer ON
06	Washer OFF
07	Extend ON
08	Extend OFF
09	Extend toggle
0A	Lamp ON
0B	Lamp OFF
0C	Resume

14.3 P Command (position and test functions)

CT1=function

CMD1=*00010AAD0003XYY!xy

AA = camera address (01 to FF (hexadecimal values))

X = don't care

The three letters "**YYY**" indicate the function in question.

Function Number YYY	Description
01	Home Axis PAN
02	Home Axis Tilt
03	Home Axis Focus
04	Home Axis Zoom
05	Reset Dome
06	Check Dome
07	Test PAN variable moves
08	Test PAN constant move
09	Test TILT variable moves
0A	Test TILT constant move
0B	Test PAN and TILT
0C	Test PAN slow speed move
0D	Test Tilt slow speed move
0E	Stop Test
0F	Start User Menu
10	Start Supervisor Menu
11	Start Service Menu
12	Accept current selection
13	PCB Test: Do all Tests
14	PCB Test: Test PAN Motor
15	PCB Test: Test TILT Motor
16	PCB Test: Test Hall Effect Sensor
17	PCB Test: camera zoom
18	PCB Test: mono mode

19	PCB Test: address switch
1A	PCB Test: coax control

14.4 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „Description text for command“

CMD1 = *00010AA F0003XYY!xy

AA = Camera address (01 to FF (hexadecimal value))

X = Sub-function

0 = call up fixed position

1 = set fixed position

YY = 01 to FA (only decimal values), indicates the fixed position number

Examples for setting and calling up fixed positions at camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F000310A!xy

15 Digital Sprite Protocol Description

The Remote Adapter (RA) is a protocol converter that is connected between the transmitter and the video multiplexer. The adapter is used for remotely controlling the video multiplexer (playback, telemetry, calling up preset positions, etc.). These functions are called up by the Windows Receiver software (Version 1.69 onwards).

The Digital Sprite and Digital 4 Machine Control Interface (MCI) from Dedicated Micros is supported in this version of the Remote Adapter.

The following Dedicated Micros Video multiplexers can be controlled via the Digital Sprite RA:

Dedicated Micros Video Multiplexer	Model
D4	D4DX4C
Digital Sprite 2	D2ADX9C, D2ADX12C

You require the 485-bus e-support Adapter CC01A and a 485-bus cable from Dedicated Micros to control the multiplexer.

Using a Digital Sprite Remote Adapter, you can control exactly one video multiplexer at a 485-bus.

You must address this multiplexer as device 1 (identical to 485-bus address 16). To assign this address, enter the device number *01* in the system options of the multiplexer.

Adapter CC01A is in the same address range of the 485-bus as the keyboards. Connecting a remote keyboard may therefore terminate the connection between the CC01A adapter and the remote adapter.

15.1 Functions

The range and type of the multiplexer's functions are described in detail in the respective Dedicated Micros manual.

The Digital Sprite Remote Adapter, version 1.00, supports the following functions:

- Control the display (main monitor)
 - Live / playback
 - Mode of displaying frames (freeze frame, picture-in-picture, quad-screen, multi-screen)
 - Playback of sequences

- Control the display (spot monitor)
 - Camera
 - Playback of sequences
- Setting the playback parameters
 - Playback speed
 - Time of playback
 - Event evaluation
- Control the dome (telemetry)
 - Pan/Tilt
 - Zoom / Focus / Iris
 - Auto Pan / Patrol
 - Presets

The functions for dome control are only available for the Digital Sprite 2 Multiplexer.

16 Connections and Configuration

16.1 Connecting the Remote Adapter

The connection (9600 Baud) between the Remote Adapter (RA) and the CC01A 485-bus e-support adapter must be established via the RS-232 interface of the RA. To establish this connection, you require a connection cable with a 25-pin SUB-D socket that is wired as described in the following:

- Connect pins 4 and 5 of the socket to each other.
- Connect pins 6, 8 and 20 of the socket to each other.
- Connect pin 2 of the socket to connection *RxD* of the RS-232 interface at the remote adapter.
- Connect pin 3 of the socket to connection *TxD* of the RS-232 interface at the remote adapter.
- Connect pin 7 of the socket to connection *GND* of the RS-232 interface at the remote adapter.

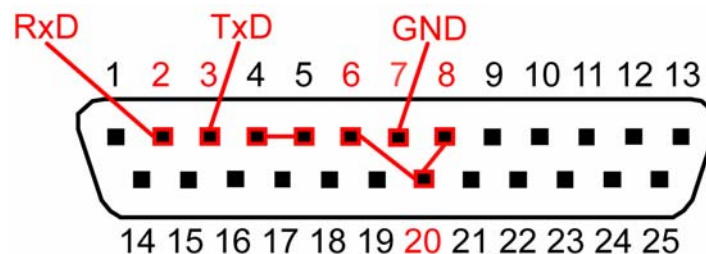


Fig. 1: Digital Sprite – Wiring of the 25-pin SUB-D Socket

Connect the SUB-D socket to the 25-pin SUB-D plug of the CC01A 485-bus e-support adapter. Then connect the CC01A adapter to the video multiplexer via the 485-bus cable.

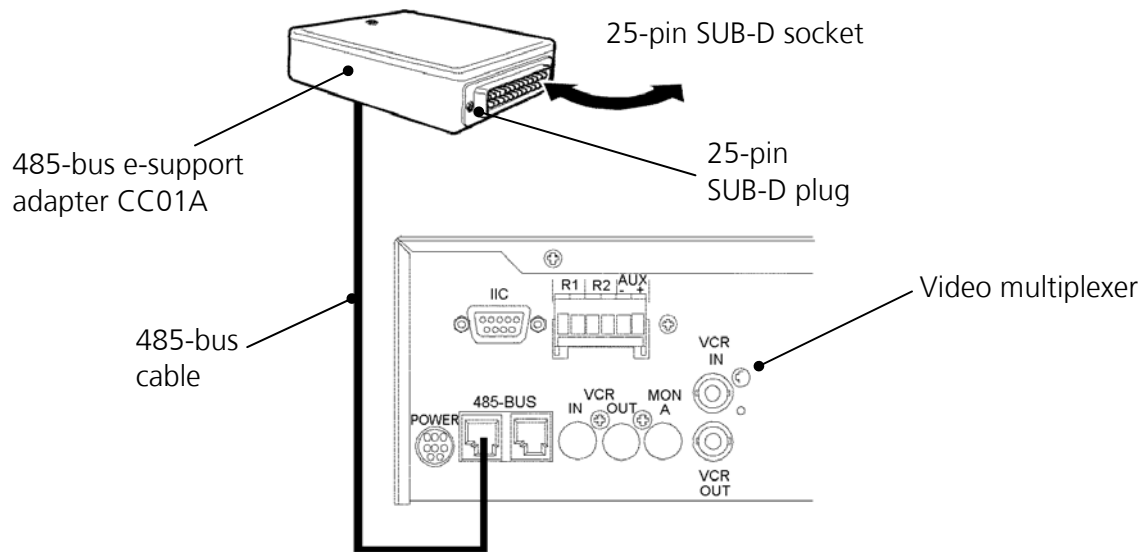


Fig. 2: Digital Sprite – Connecting the CC01A Adapter and the Video Multiplexer

16.2 Connecting the Video Multiplexer

You can connect the video outputs of the video multiplexer for the main and auxiliary monitor with any video inputs of our devices.

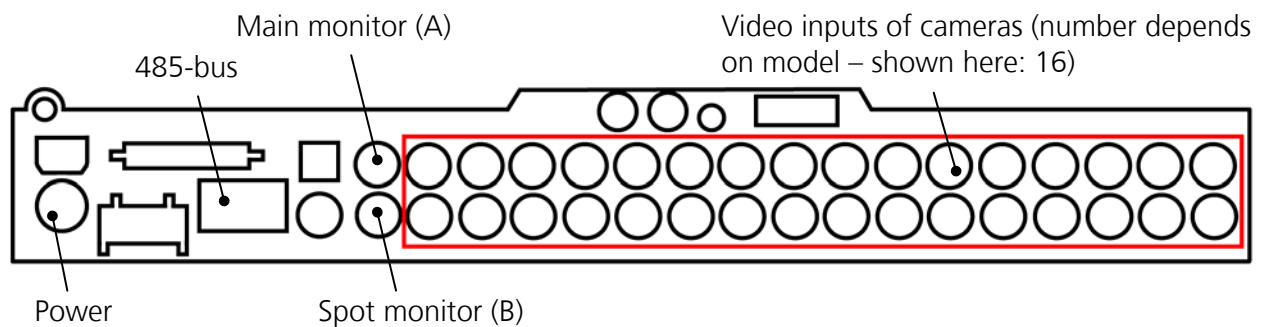


Fig. 3: Digital Sprite – Digital Sprite 2 Multiplexer Connections

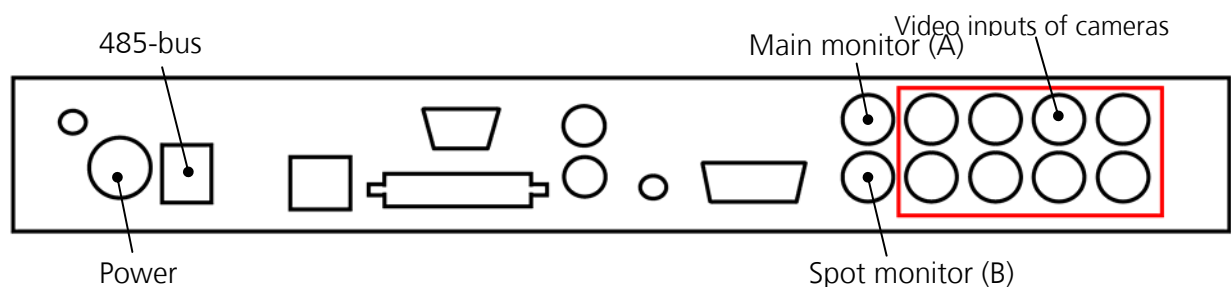


Fig. 4: Digital Sprite – Multiplexer D4 Connections

The Remote Adapter controls the camera displayed on the main monitor. If the main monitor switches to another camera then this new camera is controlled by the Remote Adapter.

16.3 Addressing the Video Multiplexer

Using a Digital Sprite Remote Adapter, you can control exactly one video multiplexer at a 485-bus.

You must address this multiplexer as device 1 (identical to 485-bus address 16). To assign this address, enter the device number *01* in the system options of the multiplexer.

16.4 Addressing the CC01A 485-bus e-support Adapter

Adapter CC01A is in the same address range of the 485-bus as the keyboards. Connecting a remote keyboard may therefore terminate the connection between the CC01A adapter and the remote adapter.

The addresses of the CC01A 485-bus e-support adapters must be aligned to those of the keyboard being used. The addresses may not overlap.

You can set the address of the CC01A adapter with jumper *J3*.

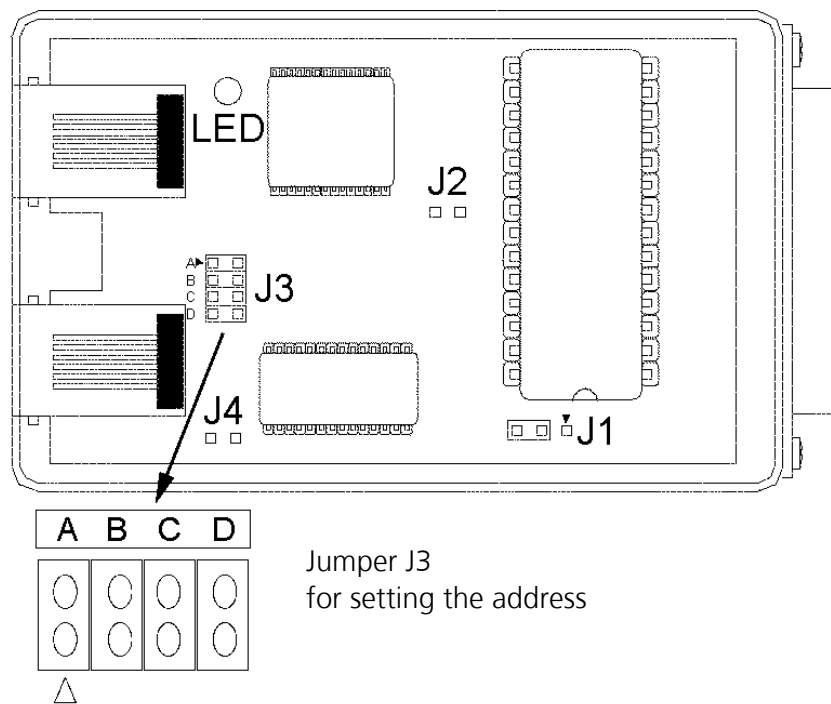


Fig. 5: Digital Sprite – Jumpers on the CC01A Adapter

A	B	C	D	CC01A Addresses	
				485-bus	Keyboard No.
0	0	0	0	32	1
1	0	0	0	33	2
0	1	0	0	34	3
1	1	0	0	35	4
0	0	1	0	36	5
1	0	1	0	37	6
0	1	1	0	38	7
1	1	1	0	39	8
0	0	0	1	40	9
1	0	0	1	41	10
0	1	0	1	42	11
1	1	0	1	43	12
0	0	1	1	44	13
1	0	1	1	45	14
0	1	1	1	46	15
1	1	1	1	47	16
1 = closed 0 = open				Keyboard Address Range	

Address table for Jumper J3

If the CC01A adapter is at the end of a 485-bus connection then jumper „J4“ must be closed.

16.5 Switching On

After you have switched on the video multiplexer and the Remote Adapter, it takes about 30 seconds until the CC01A adapter is fully initialised. Commands can only be transmitted from the Remote Adapter to the multiplexer after initialisation has completed.

17 Commands

17.1 S Command (Setting the Pan and Tilt Speeds)

You can set the Pan/Tilt speed using the S command. The speed applies globally for all connected systems.

The speed set is **not** stored on switching off the Remote Adapter. When you switch the RA back on, the speed is reset to the factory settings (default value: 5).

The S command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAS0003XYY!xy

AA = Camera address (01 to 10 - any, as command is global)

X = 0 (Indicates the function in question)

YY = Function parameter (decimal value)

Parameter YY	Description
00 to 15	Pan/Tilt Speed – Pan/Tilt speed (from 00 = slow to 15 = fast)
16	Pan/Tilt Auto Speedup – Pan/Tilt with automatic speed-up

Example: S command, valid for all connected systems

Set speed to 12

CT1 = Speed 12

CMD1 = *0001001S0003012!xy

17.2 D Command (Setting the Various Monitor Modes)

You set the monitor modes using the D command. The D command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAD0003XYY!xy

AA = Camera address (01 to 10 - any, as command is global)

X = Indicates the function in question (decimal value).

YY = Function parameter

No. X	Parameter YY	Description
-------	--------------	-------------

No. X	Parameter YY	Description
0	00	Primary Live – live-Mode
	02	Playback (Decode) – playback mode
1	01	Full – full-screen display on the main monitor
	02	Quad – quad-display on the main monitor
	03	Mult 9 – multi-screen (9 paths) on the main monitor
	04	Mult 16 – multi-screen (16 paths) on the main monitor
	05	Mult 8+2 – multi-screen (8+2 paths) on the main monitor
	06	Mult 12+1 – multi-screen (12+1 paths) on the main monitor
	07	Mult 4+3 – multi-screen (4+3 paths) on the main monitor
	08	P-in-P 1 Top Left – picture-in-picture (upper left) on the main monitor
2	00	Sequence Off – switches off sequential mode
	01	Sequence On – switches on sequential mode
3	00	Hold Off – switches off freeze-frame (hold)
	01	Hold On – switches on freeze-frame
	02	Hold Toggle – toggles freeze-frame
4	00	Halt Playback – pauses the playback
	+1	FF Single Frame – moves forward one frame at a time
	+2	FF Eighth Play S. – moves forward at $\frac{1}{8}$ of playback speed
	+3	FF Quarter Play S. – moves forward at $\frac{1}{4}$ of playback speed
	+4	FF Half Play S. – moves forward at $\frac{1}{2}$ of playback speed
	+5	FF Normal Play S. – moves forward at normal playback speed
	+6	FF 2x Play S. – fast forwards at 2x playback speed
	+7	FF 4x Play S. – fast forwards at 4x playback speed
	+8	FF 8x Play S. – fast forwards at 8x playback speed
	+9	FF 16x Play S. – fast forwards at 16x playback speed
	+A	FF 32x Play S. – fast forwards at 32x playback speed
	+B	FF 64x Play S. – fast forwards at 64x playback speed
	-1	Rew Single Frame – rewinds one frame at a time
	-2	Rew Eighth Play – rewinds at $\frac{1}{8}$ playback speed
	-3	Rew Quarter Play – rewinds at $\frac{1}{4}$ playback speed
	-4	Rew Half Play S. – rewinds at $\frac{1}{2}$ playback speed

No. X	Parameter YY	Description
	-5	Rew Normal Play – rewinds at normal playback speed
	-6	Rew 2x Play S. – rewinds at double playback speed
	-7	Rew 4x Play S. – rewinds at 4x playback speed
	-8	Rew 8x Play S. – rewinds at 8x playback speed
	-9	Rew 16x Play S. – rewinds at 16x playback speed
	-A	Rew 32x Play S. – rewinds at 32x playback speed
	-B	Rew 64x Play S. – rewinds at 64x playback speed
5	00	Goto Time – jumps to a set time
	+1 to +B	FF from Goto Time – moves forward from a set time
	-1 to -B	Rew from Goto Time – rewinds from a set time
6	01 to 16	Select Channel – select camera 1 to 16
7	00	Spot Sequence – sequence on spot monitor
8	01 to 16	Spot Cam – select camera 1 to 16 displaying the spot monitor

Example: D command

Quad display on the main monitor

CT1 = Main Quad

CMD1 = *0001001D0003102!xy

17.3 E Command (List and Replay Events)

You can list and replay events using the E command. The E command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAE0003XYY!xy

AA = Camera address (01 to 10 - any, as command is global)

X = Indicates the function in question (decimal values).

YY = Function parameter (decimal value)

Function No. X	Parameter YY	Description
0	00	Event List Launch – opens event list
1	00	Event List Exit – closes event list
2	00	Play Event – plays an event
3	00 to 99	Event List Up – moves up (forwards) in events list
4	00 to 99	Event List Down – moves down (backwards) in events list

Example: E Command

Opens event list

CT1 = Event List

CMD1 = *0001001E00031000!xy

17.4 P Command (Calls Up Pan and Tour)

You can call up the Auto Pan function and a tour (patrol) using the P command. The P command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAP0003XYY!xy

AA = Camera address (01 to 10 - any, as command is global)

X = Indicates the function in question (decimal values).

YY = Function parameter (decimal value)

Function No. X	Parameter YY	Description
0	00	Auto Pan Off – switches off auto pan
	01	Auto Pan On – switches on auto pan
	02	Auto Pan Toggle – toggles the auto pan
1	00	Patrol Off – switches off the tour (patrol)
	01	Patrol On – switches on the tour (patrol)
	02	Patrol Toggle – toggles the tour (patrol)

Example: P command

Switch on Auto Pan

CT1 = Auto Pan On

CMD1 = *0001001P0003001!xy

17.5 X Command (Select the cameras for sequential mode)

You can select the cameras to be integrated into the sequential mode using the X command.

The sequence set is **not** stored on switching off the device. When you switch the Remote Adapter back on, the sequence is reset to the factory settings (default value: *Sequence for cameras 1 to 4*).

The selection of the camera applies both for the sequential mode of the main monitor as well as for the sequential mode of the spot monitor.

The X command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010**AA**X0003**XY**!xy

AA = Camera address (01 to 10 - any, as command is global)

X = Indicates the function in question (decimal values).

YY = Function parameter (hexadecimal value)

Selecting the camera for the sequential mode

You require 2 commands to select the cameras to be used in sequential mode.

Determining function no. **X**

X = 0 → Command is for cameras 1 to 8

X = 1 → Command is for cameras 9 to 16

Determining the function parameter **YY**:

The cameras are set via a bit mask. The binary assignments of the cameras are listed in the following table. To determine the function parameter to be entered, you must recalculate the 8-digit binary value into a 2-digit hexadecimal value.

X	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit1
0	Camera 8	Camera 7	Camera 6	Camera 5	Camera 4	Camera 3	Camera 2	Camera 1
1	Camera 16	Camera 15	Camera 14	Camera 13	Camera 12	Camera 11	Camera 10	Camera 9

Bit # = 0 → Camera # is not contained in the sequence

Bit # = 1 → Camera # is contained in the sequence

If you make changes to the command when a sequence is running then these changes are only accepted after the sequence has been re-started (using *Sequence On*).

Function No. X	Parameter YY	Description
0	00 to FF	Select Cam 1-8 – Select cameras 1 to 8
1	00 to FF	Select Cam 9-16 – Select cameras 9 to 16

Example: X Command

Sequence with cameras 1 to 4 as well as 10, 12 and 16

1.) Select cameras 1 to 4

CT1 = Seq. Cam 1-4

CMD1 = *0001001X000300F!xy (hexadecimal 0F = binary 00001111)

2.) Select cameras 10, 12 and 16

CT1 = Seq. Cam 10, 12, 16

CMD1 = *0001001X000318A!xy (hexadecimal 8A = binary 10001010)

17.6 Y Command (Frame Storage Evaluation)

You can set the date and time for commencing the evaluation using the Y command.

The date set is **not** stored on switching off the device. When you switch the Remote Adapter back on, the date and time are reset to the factory settings (default value: *01.01.2003, 00:00:00*).

The Y command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AA Y0003XYY!xy

AA = Camera address (01 to 10 - any, as command is global)

X = Indicates the function in question (hexadecimal values).

YY = Function parameter

The frame storage system always shows the frame that was taken nearest in time to the currently set date.

The current-recording time-period should therefore always be determined before setting the date. Proceed as follows: Select two dates. Set the first date to a time clearly before the recording time period and the second date to a time clearly after it. The frame storage system then shows you the first frame and the last frame of the recording.

Function No. X	Parameter YY	Description
0	0+	Next Year – Next Year
	0-	Previous Year – Previous Year
1	0+	Next Month – Next Month
	0-	Previous Month – Previous Month
2	0+	Next Day – Next Day
	0-	Previous Day – Previous Day
3	0+	Next Hour – Next Hour

Function No. X	Parameter YY	Description
	0-	Previous Hour – Previous Hour
4	0+	Next Minute – Next Minute
	0-	Previous Minute – Previous Minute
5	0+	Next Second – Next Second
	0-	Previous Second – Previous Second
6	99, 00 to 37	Set Year 1999-2037 – Set the year (1999 to 2037)
7	01 to 12	Set Month – Set the month (1 to 12)
8	01 to 31	Set Day – Set the day (1 to 31)
9	00 to 23	Set Hour – Set the hour (1 to 23)
A	00 to 59	Set Minute – Set the minute (1 to 59)
B	00 to 59	Set Second – Set the second (1 to 59)

Example: Y Command

Switching to the next month

CT1 = Month +

CMD1 = *0001001Y000310+!xy

17.7 G Command (Iris Control)

You can control the iris of the connected dome using the G command. The G command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010**AA**G0003**XY**!xy

AA = Camera address (01 to 10 - any, as command is global)

X = Indicates the function in question (decimal values).

YY = not relevant

Function No. X	Description
0	Iris Open – Opens the iris
1	Iris Close – Closes the iris
2	Iris Stop (Stop All Movement) – Stops the iris (all movement is stopped)

Example: G command

Stopping the iris

CT1 = Stop Iris
 CMD1 = *0001001G0003200!xy

17.8 F Command (Setting and Calling-Up Preset Positions)

You can set and call-up preset position using the F command. The F command is constructed as follows:

CT1 = "Description text for command"
 CMD1 = *00010AAAF0003XYY!xy

AA = Camera address (01 to 10 - any, as command is global)
 X = Indicates the function in question (decimal values).
 YY = Function parameter

Function No. X	Parameter YY	Description
0	00 to FF (depending on the dome)	Goto Preset – calls up a preset position
1	00 to FF (depending on the dome)	Store Preset – sets a preset position
2	00 to FF (depending on the dome)	Clear Preset – clears (deletes) a preset position

Example: F Command
 Call-up preset position 7

CT1 = Preset 7
 CMD1 = *0001001F0003007!xy

18 Elbex Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

This version of the Remote Adapter (1.00) supports the dome protocol for the EX8000.

18.1 Functions

The remote adapter, version 1.00, supports the following functions:

The Elbex remote adapter supports the following functions:

- pan, tilt, zoom, focus (pan and tilt speeds can each be set in 8 steps)
- iris control (open, close, stop)
- set / call-up 99 fixed positions
- 255 camera numbers

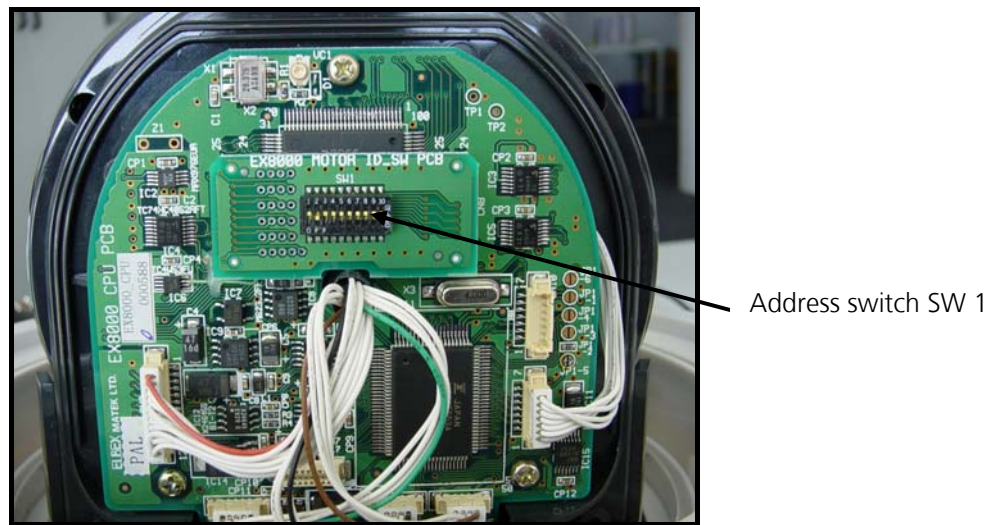
19 Connections and Configuration

The description of the connections and the configuration is made based on the Elbex EXC8376 Dome.

You must establish an RS-485/422 connection (4800 baud) between the remote adapter and the Elbex Dome. Connect as follows:

Remote Adapter	Elbex Dome
GND	RS-422 -
D+	RS-422 +

To ensure that the commands from the remote adapter only address one dome, each dome must be assigned its own address. The address (ID code) is set using address switch S1 (figure below)



Address Switch of the Elbex EXC8376

We recommend that you use addresses with the camera numbers of the receiver software (1-4 or 1-10). In this way, the R01 example files delivered with the device can be used directly without requiring any adjustment to them. This means that a dome connected to camera input 1 must be assigned address 1 and a dome connected to camera input 2 must be assigned address 2, etc.

Address switch SW1 is binary coded (number system with two conditions; here "1" and "0") and is set as follows:

Dome Address	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8	Dip 9	Dip 10
1	1	0	0	0	0	0	0	0	0	0
2	0	1	0	0	0	0	0	0	0	0
3	1	1	0	0	0	0	0	0	0	0
4	0	0	1	0	0	0	0	0	0	0
5	1	0	1	0	0	0	0	0	0	0
...
255	1	1	1	1	1	1	1	1	0	0

20 Commands

20.1 S Command (Pan / Tilt / Zoom / Focus Speeds)

The pan, tilt, zoom and focus speed is set using the S command. The speed applies globally for all connected systems.

General construction of the S command:

CT1 = " description text for function "

CMD1 = *00010AAS0003XYY!xy

AA = camera address (01h to FFh (decimal values))

X = sub-function

Function Number X	Description
0	Set pan speed
1	Set tilt speed
2	Set zoom speed
3	Set focus speed

YY = 01 to 08, specifies the speed (decimal values)

01 (slow) <-----> 08 (fast)

Examples: S command, all domes or pan / tilt heads

Set pan speed to 05

CT1= PanSpd 5

CMD1= *0001001S0003005!xy

Set tilt speed to 02

CT2= TiltSpd 2

CMD2= *0001001S0003102!xy

20.2 D Command (diverse functions)

CT1= " description text for function "

CMD1= *00010AAD0003XYY!xy

AA = camera address (01h to FFh (hexadecimal values))

X = not relevant (e.g. : 0)

The functions are defined by the letters "YY" (decimal values).

A table of hexadecimal values is contained in the appendix to the Remote Adapter Manual.

Function Number YY	Description
01	Auto Panning Rotate Right On
02	Pan Motor Stop Position Left Off
03	Pan Motor Stop Position Right Off
04	Auto Panning Rotate Left On
05	Pan Motor Stop Position Left On
06	Pan Motor Stop Position Right On
07	All Switch Control Off
08	Auto Iris Mode Setting
09	Auto Scan (Normal) Control Off
10	Auto Scan (Alarm) Control Off
11	Auto Panning Control Off
12	Auto White Balance Mode Setting
13	Manual Iris Mode Setting
14	Auto Panning Control On
15	Auto Scan (Normal) Control On
16	Auto Scan (Alarm) Control On
17	Manual White Balance Mode Setting
18	Shutter Mode Control Normal (Shutter Off)
19	Shutter Mode Control Special (Shutter On)
20	Audio Mute Control Off (No Audio Out)
21	Audio Mute Control Off (Audio Out)
22	Last Position Recall Control
23	Local Alarm Position Return Control
24	Alarm Position Return Control
25	Local Alarm Position Recall Control
26	Preset Position Clear Movement Control
27	Alarm Position Clear Movement Control
28	Local Alarm Write Control
29	Auto Shutter Mode Control
30	Shutter Control Status Data Recall
31	Movement Mode Setting Control Normal
32	Movement Mode Setting Control BLC

Function Number YY	Description
33	Movement Speed Setting Control Slow
34	Movement Speed Setting Control Fast
35	Back Light Compensation Control Off
36	BLC Auto Mode On
37	BLC Manual Mode On
38	0 Frame Weigh Data Recall
39	1 Frame Weigh Data Recall
40	2 Frame Weigh Data Recall
41	3 Frame Weigh Data Recall
42	BLC Off
43	BLC On
44	Compensation Level Data Recall
45	Preset Position All Set Movement Control
46	Alarm Position All Set Movement Control
47	Preset Position All By-Pass Movement Control
48	Alarm Position All By-Pass Movement Control
49	Preset Autoscan Time Status Data Recall
50	Alarm Autoscan Time Status Data Recall
51	Initialize Movement Control
52	Power On Control
53	Autopanning Timer Clear Control
54	Error Clear Control
55	Local Alarm Clear Control
56	Extended Status Data Control
57	All Initialize Movement Control
58	Position Sensor Initialize Movement Control

20.3 H Command (diverse functions)

CT1= " description text for function "

CMD1= *00010AAH0003XYY!xy

AA = camera address (01h to FFh (hexadecimal values))

X = defines the function (hexadecimal values)

YY = parameter of the respective function

Function Number X	Description	Value Range of YY
1	All Cameras On	don't care (e.g.: 00)
2	All Cameras Off	don't care (e.g.: 00)
3	Access Level Setting Control	00 – 03 (decimal)

1. Example for „All Cameras Off“:

CT1 = All Cameras Off

CMD1 = *0001001H0003200!xy

20.4 G Command (iris functions)

CT1= " description text for function "

CMD1= *00010AAG0003XYY!xy

AA = camera address (01h to FFh (hexadecimal values))

X = defines the function (decimal values)

YY = not relevant (e.g. 00)

Function Number X	Description
1	Iris open START
2	Iris open STOP
3	Iris close START
4	Iris close STOP

20.5 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „description text for function“

CMD1 = *00010AAF0003XYY!xy

AA = camera address (01h to FFh (hexadecimal values))

X = sub-function

Function Number X	Description
0	Preset Position Recall
1	Preset Position Write
2	Alarm Position Recall
3	Alarm Position Write

YY = 01h to 99h (decimal values), specifies the fixed position number

1. Examples for setting and calling up fixed positions at camera 1:

Set fixed position 26 (1Ah):

CT1 = SetPreset 26

CMD1 = *0001001F000311A!xy

Call-up fixed position 7

CT2 = Preset 7

CMD2 = *0001001F0003007!xy

20.6 P Command (general command with parameters)

CT1 = „description text for function“

CMD1 = *00010AAP0003XYY!xy

AA = camera address (01h to FFh (hexadecimal values))

X = sub-function

Function Number X	Description	Parameter YY (hexadec. values)
0	Shock Sensor Setting Control	YY Hold time : 0 – 8 0 = 1 sec. 1 = 30 sec. 2 = 1 min. 3 = 3 min. 4 = 5 min. 5 = 10 min. 6 = 20 min. 7 = 30 min. 8 = cont. Sensitivity : 0 = high sens. 8 = low sens.
1	Set ID Code	00h All Cameras 01h – FFh Camera Address
2	Frame Setting Control	Frame 0 Setting 0 – 3 00h – 03h Frame 1 Setting 0 – 3 04h – 07h Frame 2 Setting 0 – 3 08h – 0Bh Frame 3 Setting 0 – 3 0Ch – 0Fh
3	Hi-Speed Shutter Mode	01h – 08h
4	Slow Shutter Mode	01h – 09h
5	Movement Sens. Setting	00h – 03h
6	Longest Speed Setting	00h – 03h
7	AGC Gain Setting	00h – 03h
8	Weigh Average Frame Set	00h – 08h
9	0 Frame Weigh Data Recall	00h – 15h
A	1 Frame Weigh Data Recall	00h – 15h

Function Number X	Description	Parameter YY (hexadec. values)
B	2 Frame Weigh Data Recall	00h – 15h
C	3 Frame Weigh Data Recall	00h – 15h
D	Compensation Level Setting Control	00h – 0Ch
E	Auto Panning Timer Control	00h – 3Fh
F	Access Level Setting Control	00h – 03h

20.7 B Command (general command with parameters)

CT1 = „description text for function“

CMD1 = *00010AAB0003XYY!xy

AA = camera address (01h to FFh (hexadecimal values))

X = sub-function

Function Number X	Description	Parameter YY (hexadec. values)
0	Preset Pos. All Set Movement	01h – 7Fh
1	Alarm Pos. All Set Movement	01h – 7Fh
2	Preset Pos. By-Pass Movement	01h – 7Fh
3	Alarm Pos. By-Pass Movement	01h – 7Fh
4	Preset Autoscan Time Setting Status Data Recall	01h – 63h
5	Alarm Autoscan Time Setting Status Data Recall	01h – 63h
6	Preset Autoscan Moving Speed	00h – 08h
7	Alarm Autoscan Moving Speed	00h – 08h

21 Ernitec Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbar). The module is used for the remote control of pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video crossbar. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69. In this version of the Remote Adapter, the Ernitec Video Crossbars 500M/1000M with connected ICU/BDR510/550's or ICU/BDR510/550's are directly controlled via an RS232 two-wire. As the protocol is different for direct ICU/BDR510/550 control and control via video crossbars, then it can be switched over by a corresponding feature in the Windows receiver software.

21.1 Functions

Video Crossbars 500M/1000M with ICU/BDR510/550's:

- 16 or 32 cameras (Ernitec ICU/BDR510/550) can be controlled
- pan, tilt, zoom, focus
- call up/set 99 fixed position per camera
- 2 to 6 relays can be controlled, depending on ICU/BDR510/550
- pan-/tilt speed can be set
- display (time, name of camera) can be set

ICU/BDR510/550 Direct Control:

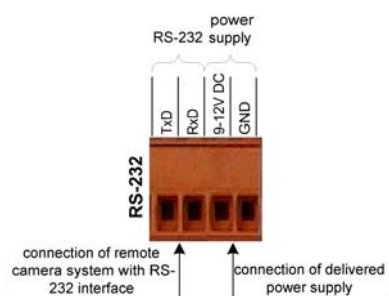
- 10 cameras (Ernitec ICU/BDR510/550) can be controlled
- pan / tilt / zoom / focus
- call up/set 99 fixed position per camera
- 2 to 6 relays can be controlled, depending on ICU/BDR510/550
- pan- / tilt speed can be set

22 Connection

This chapter describes how to put the Remote Adapter into operation and its configuration when used with the 500M/1000M system and its corresponding ICU/BDR510/550's.

22.1 Integrating the Remote Adapter into the Picture Transmission System

The RS232 cable and SUB-D plug, which is attached to the Remote Adapter, is connected to the corresponding COM1 (V.24) connection of the transmitter. The Remote Adapter is supplied with power by the power unit delivered with it. The connections at the Remote Adapter are marked in the figure below by "GND" and "9-12 VDC".

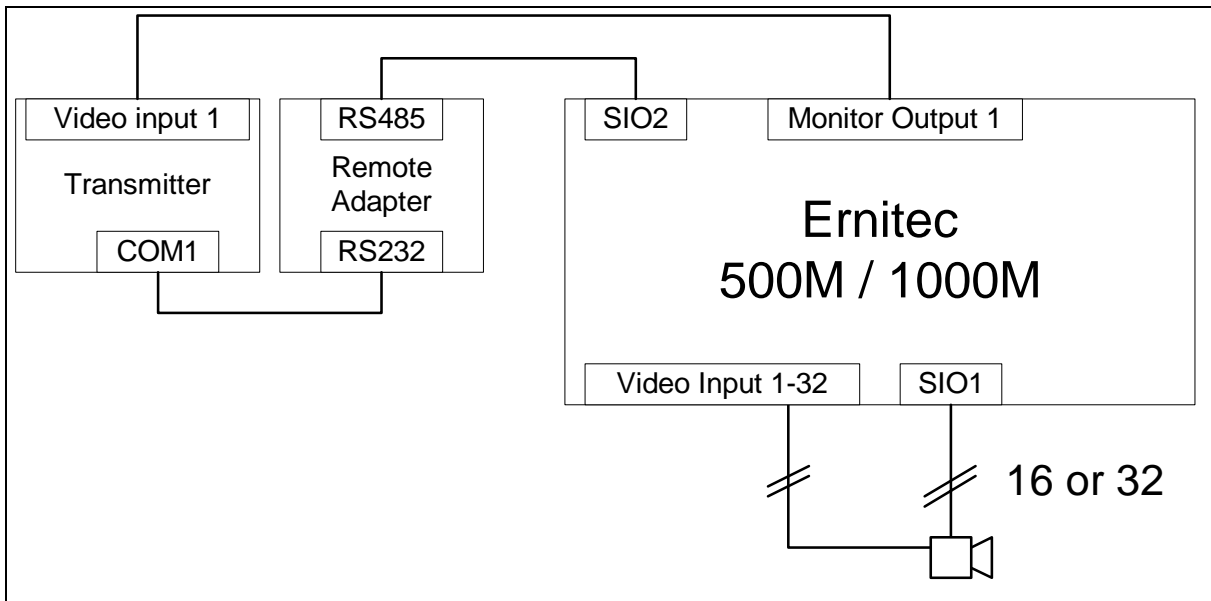


RS232 cable and SUB-D plug

The Remote Adapter data lines (TXD and ground (GND)) are connected at the SIO2 interface of the 500M/1000M system. The following two-wire connection should be established.

Remote Adapter	Ernitec 500M/1000M SIO2 Interface
GND	Pin 6
TXD	Pin 7

Terminating resistors SIO1 and SIO2 at the Ernitec system are switched on.
A complete connection plan is shown in the following picture as a block diagram.



Connection Plan of Ernitec Crossbar System with Remote Adapter

Pins 6 (RS485 plus) and 7 (RS485 minus) of SIO 1 (RS485-data lines) are connected to the appropriate terminals of the ICU/BDR510/550's. Care must be taken here to ensure that each camera is assigned a different address via the built-in DIP switch. Please read the user manual of the ICU/BDR510/550 for more details regarding this.

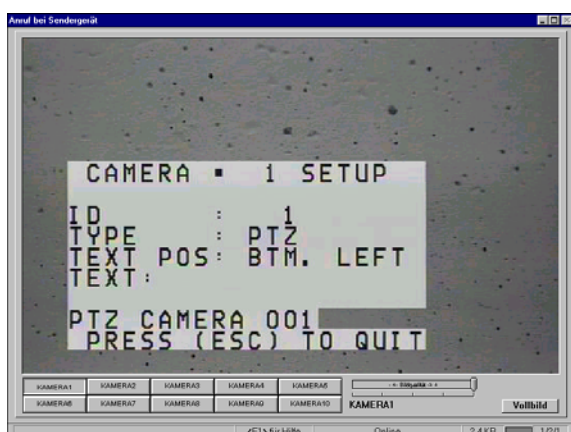
23 Configuration

23.1 Configuration of the 500M/1000M system

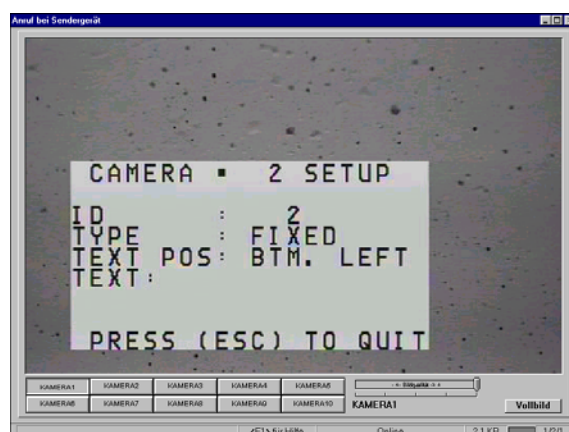
The proper interaction between the Remote Adapter and the Ernitec-Crossbar-System makes the configuration of the 500M/1000M system necessary. The configuration is called up via key combination "1" > "MONITOR" > "Menu" (1 second pause between pressing each key). The system displays for the Ernitec system are described in the following pages.

23.1.1 Camera Settings

In the camera setup, you can set whether the connected cameras in the Ernitec system are remote controlled or fixed. In the following example, camera 1 is remote controlled and camera 2 is fixed.



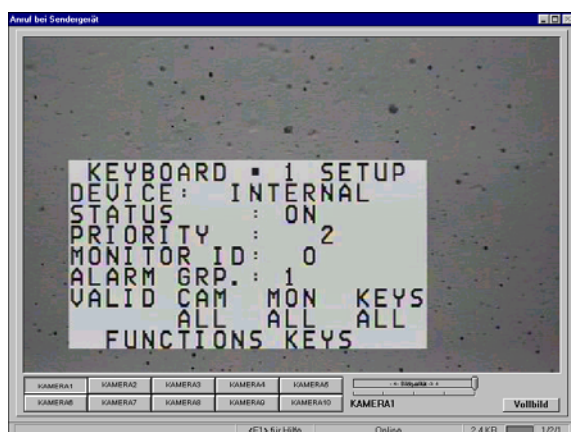
Camera 1 configured as movable object.



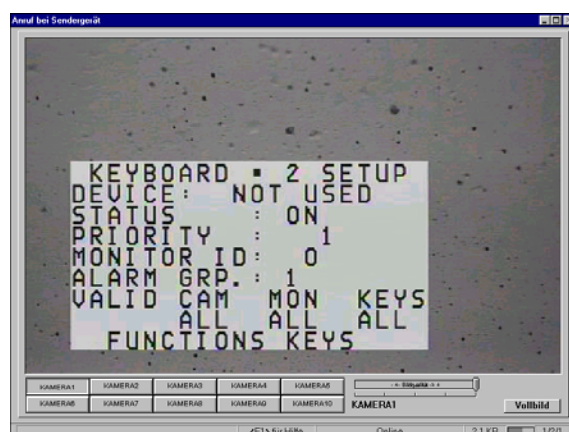
Camera 2 configured as fixed camera.

23.1.2 Keyboards

The characteristics of the connected keyboard are set in the keyboard setup.

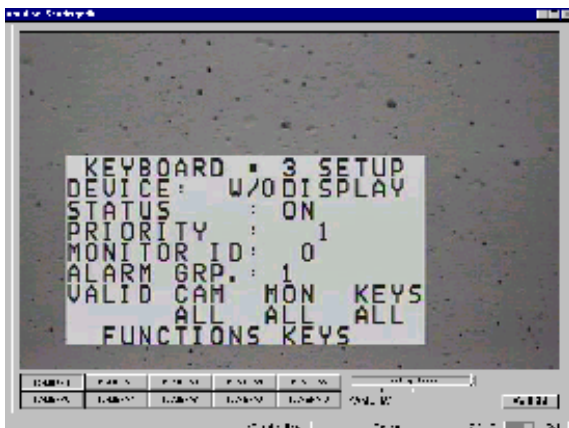


Keyboard 1 as internal keyboard

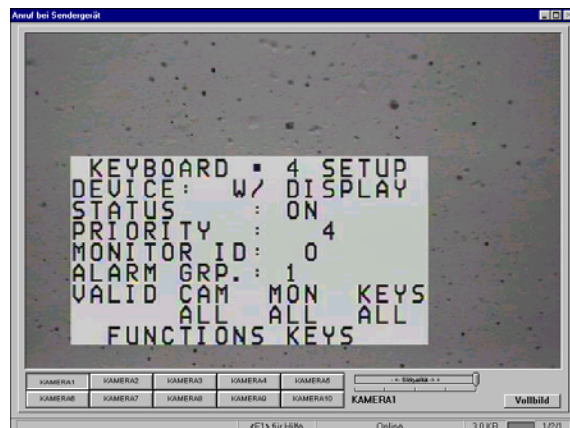


Keyboard 2 is not used

Keyboard 3 is hereby reserved for the Remote Adapter. The Remote Adapter transmits control sequences to the system like a keyboard. Keyboards 4 to 6 are activated with low priority.



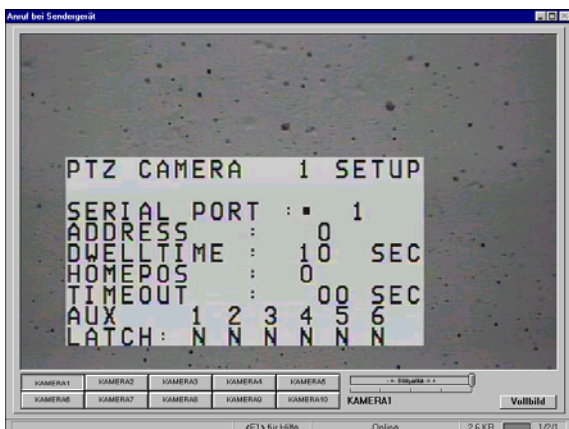
Keyboard 3 with high priority for the Remote Adapter



Configuration for keyboards 4 to 6

23.1.3 PTZ Settings

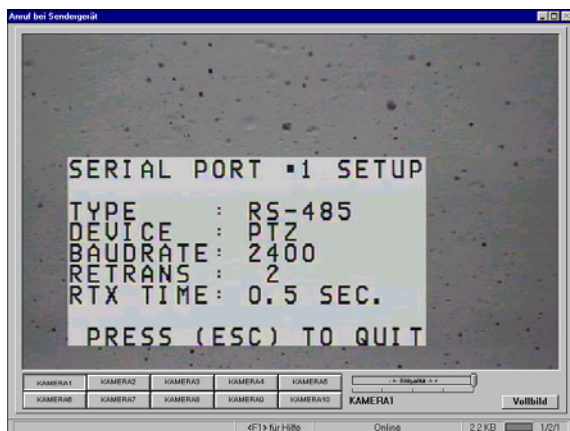
You can access this menu by clicking on the "Type" item in the camera menu (Chapter 23.1.1). Here you configure the SIO1 interface as a serial interface for the connection of the RS485 data lines for the ICU/BDR510/550's, as shown in the following diagram.



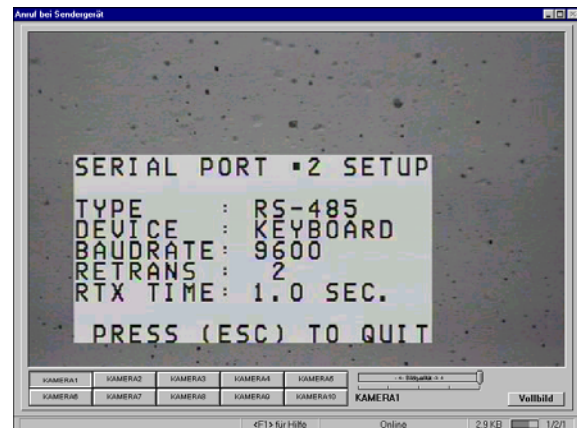
Camera 1 connected to SIO1

23.1.4 Serial Ports

The SIO interfaces of the Ernitec system are configured in this menu. SIO1 is set for connected ICU/BDR's, SIO2 for the Remote Adapter.



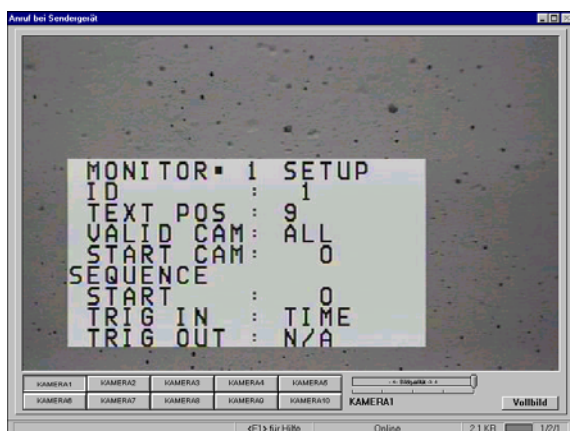
SIO1 for ICU/BDR's



SIO2 for the Remote Adapter

23.1.5 Monitor

Monitor output 1 of the Ernitec video crossbar is connected to video input 1 of the transmitter by a coaxial cable. The monitor output of the 500M/1000M system is configured in this menu.



24 Commands

24.1 Entries in the R01 File

The commands used for the first camera section (Ernitec System NO. 1) are explained in more detail here:

[CAM1]	Entries for Ernitec System No. 1
MODE=3	Available features 0 no features 1 only pan / tilt panel 2 features in upper window can be called up (here: fixed positions) 3 features in both windows can be called up, whereby the features in the lower window are subordinated to those in the upper window. Pan / Tilt panel can be called up 4 features in the upper and lower windows can be called up (non-subordinated) 5 pan / tilt panel and features in both windows can be called up
ADDRESS=0001021	The last two numbers indicate the system number (1) and the Keyboard number (2) minus 1. Keyboard 3 is fixed for the Remote Adapter.
CT1=Kamera 1	The descriptive text for switching-over a camera is "Camera x" and may only have a maximum of 12 characters (as applies to all descriptive text).
CMD1=*0001021B0003001!xy	The corresponding "B" command for switching-over a camera. The last two numbers, "01" indicate the camera number as a decimal value.
CT2=Speed 20	Command description text for pan / tilt speed "20"
CMD2=*0001021S0003020!xy	pan / tilt speed. The S command is global, i.e. for all connected ICU/BDR510/550's. The last two numbers "20" indicate the speed as a hexadecimal value. For letters, e.g. "A0", capitals should be selected. The maximal speed is "FF"=255.
CT3=INIT System	Command description text for initializing the system
CMD3=*0001021D00031FF!xy	This D command should be called up as the first command after the installation. The video crossbar protocol, camera 1 and monitor output is hereby activated.
C1PNUM=15	Indicates the number of subordinated features for camera 1.
C1PT1=Position 1	Descriptive text used in calling up the first fixed position for camera 1, the first "1" number indicates the assignment of the camera, the second number is the feature number
C1PCMD1=*0001021F0003001!xy	F command for calling up fixed position 1. Numbers "001" signify the following: First number: 0=call up fixed position, 1=set fixed position Second and third number: display the fixed position
C1PT2=Position 2	Descriptive text used in calling up the second fixed position
C1PCMD2=*0001021F0003002!xy	F command for calling up the second fixed position
C1PT3=SetPos 1	Descriptive text used to set the fixed position for camera 1
C1PCMD3=*0001021F0003101!xy	F command used to set the first fixed position. The number in bold print "1" indicates that, in contrast to the upper F command, the fixed position will be set.
C1PT4=Aux 1 on	Descriptive text for switching on the first relay (BDR relais)
C1PCMD4=*0001021D0003020!xy	D command for switching on relay 1. Using the D command, so-called Ernitec system SCAN

	codes, in this case 20 (hexadecimal), can be directly selected.
C1PT5=Aux 1 off	Descriptive text used in switching off the first relay (BDR relais)
C1PCMD5=*0001021D00030A0!xy	D command for switching off relay 1
C1PT6=Time on/off	Descriptive text, display time on/off
C1PCMD6=*0001021D000301C!xy	D command (1CH), to switch display of time on or off

The scan codes for the D command are displayed in tabular form in the next chapter. Using the scan codes all keys of the M500/M1000 crossbar system can be activated via the Remote Adapter.

24.1.1 Scan Codes for the D Command

All scan codes for the D command are indicated in the following table as hexadecimal values:

Key / Command	Scan Code (hexadecimal)	Break Code (hexadecimal)
F1	00	
F2	01	
F3	02	
F4	03	
F5	04	
F6	05	
F7	06	
F8	07	
F9	08	
F10	09	
F11	0A	
MENU	0B	
ESC	0C	
CLR	0D	
0	0E	
1	0F	
2	10	
3	11	
4	12	
5	13	
6	14	
7	15	
8	16	
9	17	
MONITOR	18	
CAMERA	19	
SEQUENCE	1A	
HOLD	1B	9B
TIME	1C	
RD TEXT	1D	
CLEAR ALARemote Adapter	1F	
AUX 1	20	A0
AUX 2	21	A1

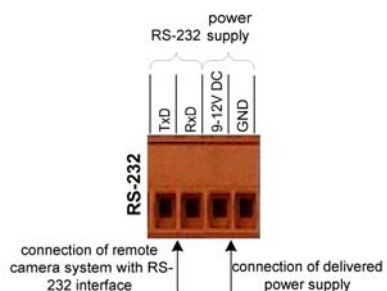
AUX 3	22	A2
AUX 4	23	A3
AUX 5	24	A4
AUX 6	25	A5
PREPOSITION	26	
IRIS OPEN	27	A7
IRIS CLOSE	28	A8
TILT UP	29	A9
PAN RIGHT	2A	AA
TILT DOWN	2B	AB
PAN LEFT	2C	AC
ZOOM WIDE	2D	AD
ZOOM NARROW	2E	AE
FOCUS NEAR	2F	AF
FOCUS FAR	30	B0
AUX ON	31	
VCR 1	32	
AUX OFF	34	
VCR 2	35	
PHONE	37	
AUDIO	38	
QUAD	39	
ENHANCE	3A	
CONTROL ON	3B	
CONTROL OFF	3C	
MODE ½	3D	
ACCESS	3E	
SECURE	3F	
DET ON	40	
DET OFF	41	
ADPRO	42	
ESC + LEFT	43	
ESC + RIGHT	44	
ESC + UP	45	
ESC + DOWN	46	
SHIFT + INS	47	
SHIFT + DEL	48	
AUTO + IRIS	49	
AUTO + FOCUS	4A	
AUTO + SEQ	4B	
AUTO + SHIFT	4C	
BLC	4D	
ADPRO HELP	4E	

25 ICU/BDR System

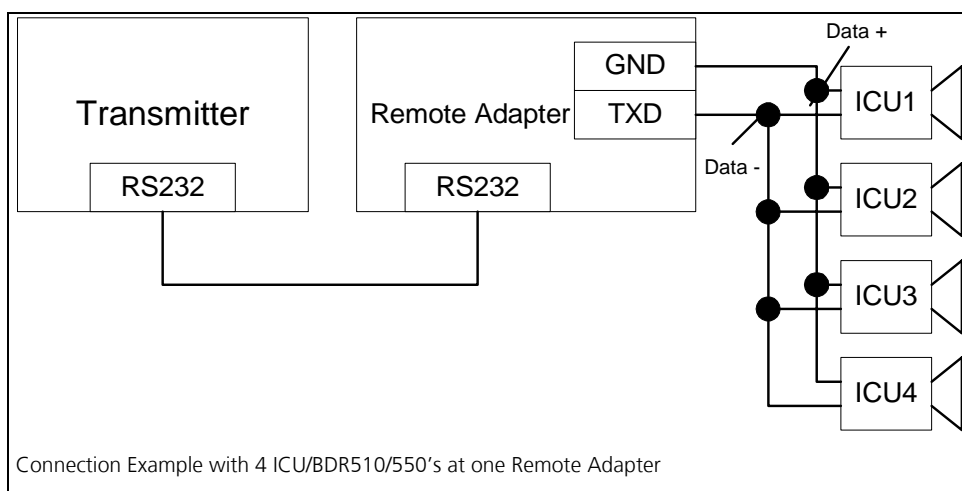
This chapter describes the connection and configuration of the Remote Adapter in connection with Ernitec ICU/BDR's **without** the video crossbar system 500M / 1000M.

25.1 Integrating the Remote Adapter into the Picture Transmission System

The RS232 cable and SUB-D plug is connected to the corresponding COM1 (V.24, tranp.SIO) connection of the transmitter. The Remote Adapter is supplied with power by the power unit delivered with it. The connections at the Remote Adapter are marked in the figure below by "GND" and "9-12 VDC".



The Remote Adapter data lines (TXD and GND) are connected to the corresponding connections of the ICU/BDR. When connecting several ICU/BDR's, the data lines are wired in parallel. Every ICU/BDR must be assigned its own address using the built-in DIP switches. The following scheme clarifies this principle.



25.2 Entries in the R01 File

The commands used for the first ICU/BDR510/550 are explained in more detail here:

[CAM1]	Entries for ICU/BDR510/550 No. 1
MODE=5	Available features 0 no features 1 only pan / tilt panel 2 features in upper window can be called up (here: fixed positions) 3 features in both windows can be called up, whereby the features in the lower window are subordinated to those in the upper window. Pan / Tilt panel can be called up 4 features in the upper and lower windows can be called up (non-subordinated) 5 pan / tilt panel and features in both windows can be called up
ADDRESS=0001001	the last two numbers indicate the ICU/BDR510/550 number.
CT1=Position 1	The descriptive text for calling up the first fixed position. All descriptive text may only have a maximal length of 12 characters.
CMD1=*0001001F0003001!xy	The corresponding "F" command for calling up fixed position 1. The last two numbers, "01" indicate the fixed position as a decimal value.
CT2=SetPos 1	Command description text used in setting fixed position 1.
CMD2=*0001001F0003101!xy	"F" command used to set a fixed position. The last two numbers "01" indicate the fixed position number.
FCT1=Speed F0H	Command description text for setting a pan / tilt speed. The "F" in front of the command causes the command to be displayed in the lower window
FCMD1=*0001001S00030F0!xy	This S command sets the pan / tilt speed of ICU/BDR510/550 1. The last two numbers " F0" indicate the speed as a hexadecimal value. (Letters must be in capitals). The "F" in front of the command causes the command to be run in the lower window. The maximal speed is FF.
FCT2=Aux 3 on	Descriptive text for switching on relay 3 (BDR relays)
FCMD2=*0001001D0003031!xy	Corresponding D command for switching on relay 3 of the BDR. The first number printed in bold text indicates the relay number (1-8, depending on BDR); the second number indicates the condition. 1=on 0=off
FCT2=Aux 3 off	Descriptive text for switching off relay 3.
FCMD2=*0001001D0003030!xy	Corresponding D-command used to switch on relay 3.
FCT3=INIT BDR/ICU	Descriptive text used to activate the " INIT BDR/ICU" protocol.
FCMD3=*0001001D00031FE!xy	This D command should be called up as the first command after installation. The ICU/BDR protocol is hereby activated.

26 Fastrax Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional preset positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

Version (1.00) of this protocol supports control of the Eneo EDC-141E dome.

26.1 Functions

The Remote Adapter, version 1.00, supports the following functions:

- pan, tilt, zoom, focus (pan and tilt speeds can be set in up to 8 steps)
- iris control (open, close, stop)
- set / call up 240 fixed positions
- 99 cameras can be controlled
- 8 camera tours with 36 presets positions
- 180° flip function

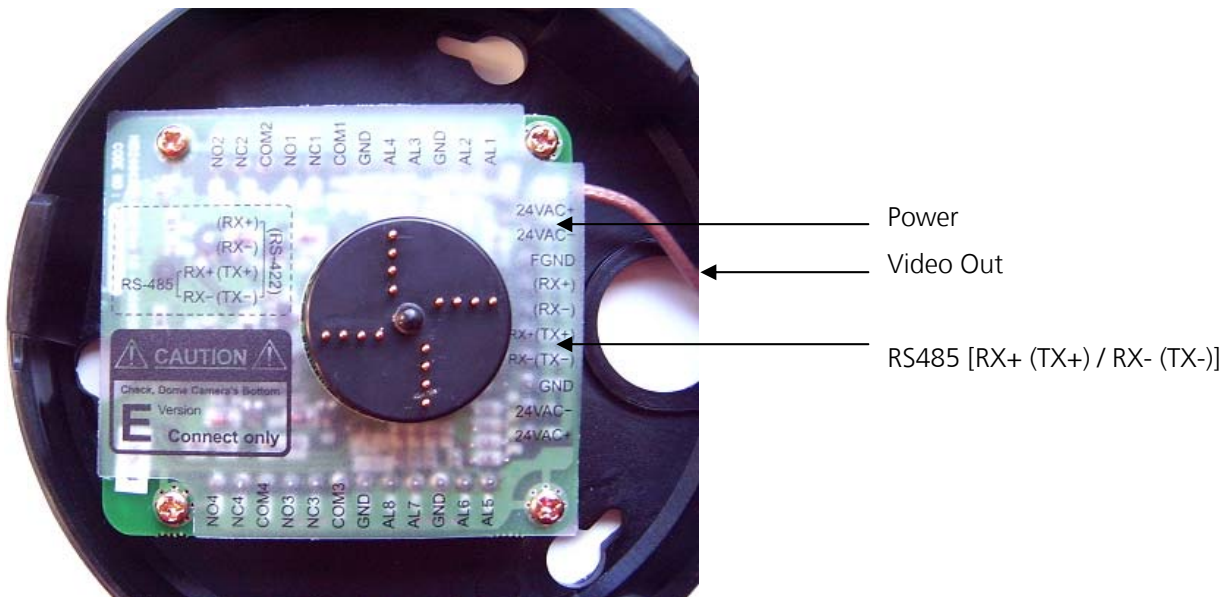
27 Connections and Configuration

The description of the connections and configuration is carried out on the basis of Eneo EDC-141E dome (referred to as Eneo dome in the following).

Names and descriptions of the devices are set in the text in inverted commas e.g. "Rx".

You must establish the connection (9600 baud) between the remote adapter and the Eneo dome using a RS485 cable. Connect as follows:

Remote Adapter	Eneo Dome
"D-"	"Rx-(TX-)"
"D+"	"Rx+(TX+)"



Connection Adapter of the Eneo dome

To ensure that the commands from the remote adapter only address the relevant dome, each dome must be assigned its own address. The address is set using address switches S1, S2, and S3 (figure below).

We recommend that you use addresses that correspond the camera numbers of the receiver software (1-4 or 1-10). In this way, you can use the standard R01 control file included with the standard software. For example, a dome connected to camera input 1 must be assigned address 1 and a dome connected to camera input 2 must be assigned address 2, etc.

Address switches S1, S2, and S3 are decimal-coded (number system from 0 to 9) and are set as follows:

Dome Address	S1	S2	S3
1	0	0	1
2	0	0	2
3	0	0	3
...
99	0	9	9

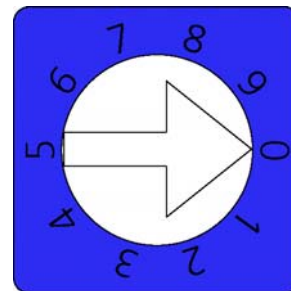
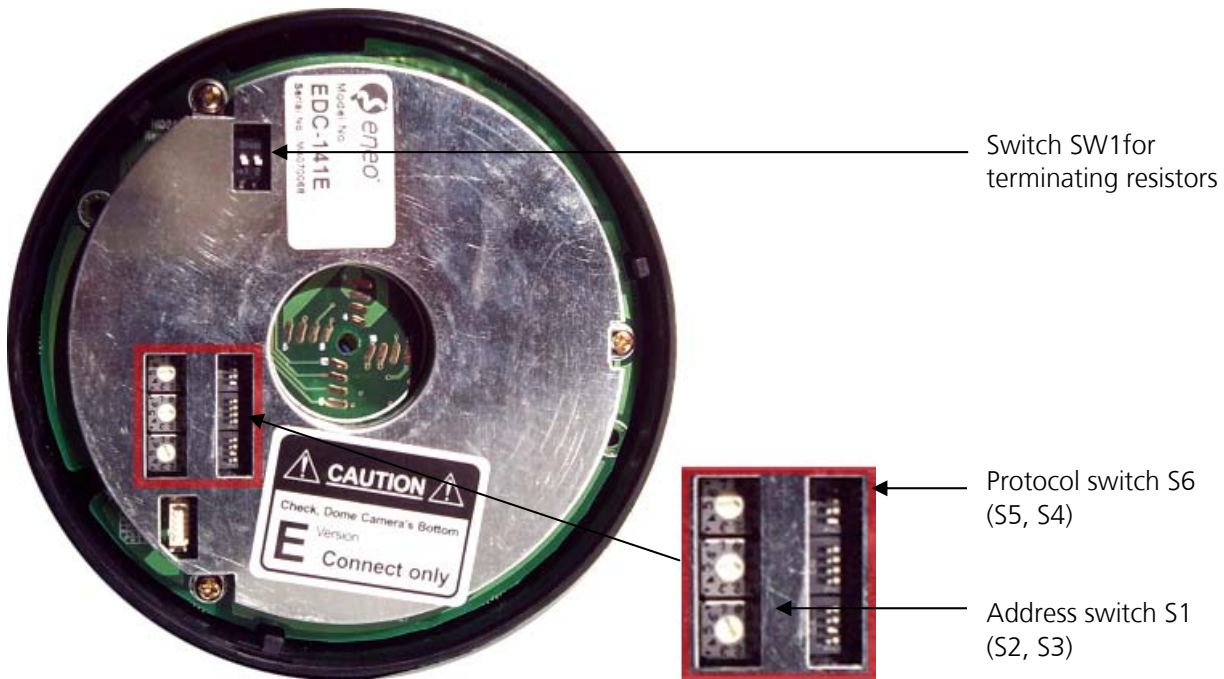


Diagram: Address switches S1, S2, S3



Configuration switches of Eneo dome

The SW1 switches for the termination resistors must both be off - against the Eneo manual -, so that the dome is not terminated.

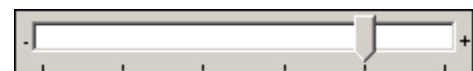
Configure the DIP switches S4, S5, S6 to 9600 baud, RS485 and Fastrax protocol F2E (default).

27.1 Menu Navigation

The Eneo dome has on screen menu navigation. Various settings can be controlled through the menu.

Within the menus you can navigate with the direction control (pan/tilt) and with the keys "Zoom+" and "Zoom-".

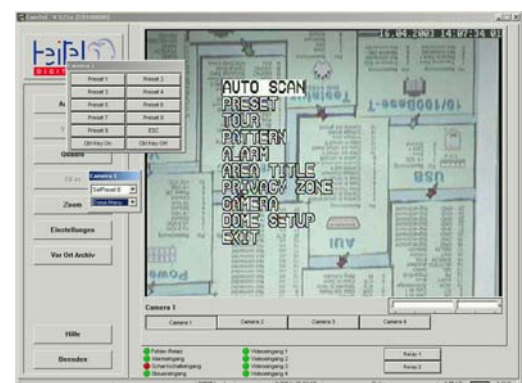
To ensure that the text of the menu control can be read the picture quality should be changed as required using the thumb slider after calling up the pan/tilt panel.



Thumb slider for picture quality

With the "Pan right" key you call a submenu and with the keys "Zoom+" and "Zoom-" you make changes at a preset function.

The direction keys work only for navigation, if the parameters YY of the respective S commands were set on a minimum value of 05. These values correspond to the functions "Hor Spd 2" and "Ver Spd 2" respectively or higher on the use of the provided R01 file.



Function call: Dome-Menü

28 Commands

28.1 D Commands (miscellaneous functions)

CT1= "description text for the function"

CMD1= *00010**AA****D**0003**XY**!xy

AA = camera address (01h to 63h (hexadecimal values))

X = not relevant

The functions are defined by the letters "**YY**" (decimal values).

Function Number YY	Description
01	Fast Zoom In
02	Fast Zoom Out
03	Stop Zoom
04	Preset Menu
05	Tour Menu
06	Pattern Menu
07	Autoscan Menu
08	Dome Menu
09	Alarm Menu
10	Run Home
11	ESC Command
12	Pattern Record

28.2 F Command (calling up/setting preset positions)

The F Command is used for setting and calling up preset positions and is structured as follows:

CT1= "description text for the function"

CMD1= *00010AA**F**0003XYY!xy

AA = camera address (01h to 63h (hexadecimal values))

X = defines subfunction (decimal values).

YY = 01h to F0h (hexadecimal values), specifies the fixed position number

Function Number X	Description
0	Call up preset position
1	Set preset position
2	Delete preset position
3	Delete and set f preset position

Examples for setting and calling up preset positions at camera 1:

Set fixed position 26 (1Ah):

CT1 = SetPreset 26

CMD1 = *0001001F000311A!xy

Call up fixed position 7 (07h):

CT2 = Preset 7

CMD2 = *0001001F0003007!xy

28.3 G command (iris functions)

CT1= "description text for the function"

CMD1= *00010AA**G**0003XYY!xy

AA = camera address (01h to 63h (hexadecimal values))

X = defines subfunction (decimal values).

YY = not relevant

Function Number X	Description
1	Iris open START
2	Iris open STOP
3	Iris close START
4	Iris close STOP

28.4 H Command (miscellaneous functions)

CT1= "description text for the function"

CMD1= *00010AAH0003XYY!xy

AA = camera address (01h to 63h (hexadecimal values))

X = defines function (decimal values).

YY = not relevant

Function Number X	Description
1	Ctrl Key On
2	Ctrl Key Off

Example:

Ctrl Key On:

CT1= Ctrl Key On

CMD1= *0001001H0003100!xy

28.5 S Command (Pan /Tilt Speeds)

The pan and tilt speed is set using the S command. The speed applies globally for all connected systems.

General structure of the S command:

CT1 = "description text for the function"

CMD1 = *00010AAS0003XYY!xy

AA = camera address (01h to 63h (hexadecimal values))

X = defines subfunction

YY = 00 to 07, specifies the speed (decimal values)
00 (slow) <-----> 07 (fast)

Function number X	Description
0	Set pan speed
1	Set tilt speed

Examples: S command, all domes or pan / tilt heads:

Set pan speed to 05:

CT1= PanSpd 05

CMD1= *0001001S0003005!xy

Set tilt speed to 02:

CT2= TiltSpd 02

CMD2= *0001001S0003102!xy

28.6 Z Command (miscellaneous functions)

CT1= "description text for the function"

CMD1= *00010AAZ0003XYY!xy

AA = camera address (01h to 63h (hexadecimal values))

X = defines function (decimal values)

YY = defines parameter of function (hexadecimal values)

Function Number X	Description	Parameter YY
0	Run Tour	00h – FFh
1	Run Pattern	00h – FFh
2	Run Autoscan	00h – FFh
3	On Command	00h – FFh
4	Off Command	00h – FFh
5	Run Global Preset	00h – FFh
6	Zerolux On Command	Don't care (e.g. 00h)
7	Zerolux Off Command	Don't care (e.g. 00h)

29 Miscellaneous

If a local keyboard is used in conjunction with this Remote Adapter the control of the dome can be impaired unless steps are taken to avoid clashes of data by switching the RS485 data through one of the transmitter relays.

30 KDec-300 Protocol Description

The Remote Adapter (RA) is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbars). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video crossbar. For some pan-and-tilt devices, additional fixed positions can also be called up using the RA. These functions are called up by the Windows Receiver software from Version 1.69.

In this version of the Remote Adapter (1.00), Camera Decoder Kdec-300 from Geutebrück is supported. The system controls pan and tilt heads.

30.1 Functions

The following functions are supported by the Remote Adapter:

- Pan, tilt, zoom, focus (pan and/or tilt speeds can be set in 255 steps)
- Iris control (open, close, stop)
- Set/call up 99 fixed positions
- 99 camera numbers
- Camera relay on/off
- Light relay on/off
- Wiper relay on/off
- Water pump on/off
- 4 special functions (relay) on/off
- Move to starting position

31 Connections and Configuration

In the text, names and labels of the device are in double-inverted commas, e.g. "A". Messages on the LC display of the Kdec-300 are in triangular brackets, e.g.:

<Addr.: 1 -OK-> (refer to Fig.1).

Establish the RS485 connection (9600 baud) between the Remote Adapter and the KDec-300 as follows:

KDec-300	Remote Adapter
Pin A of plug connection „SER“	„D-“
Pin B of plug connection „SER“	„D+“

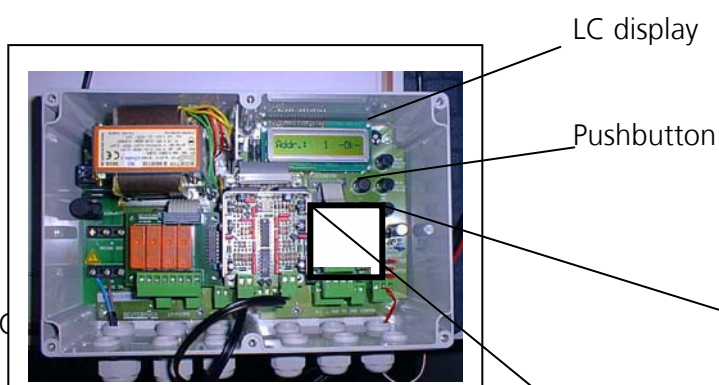
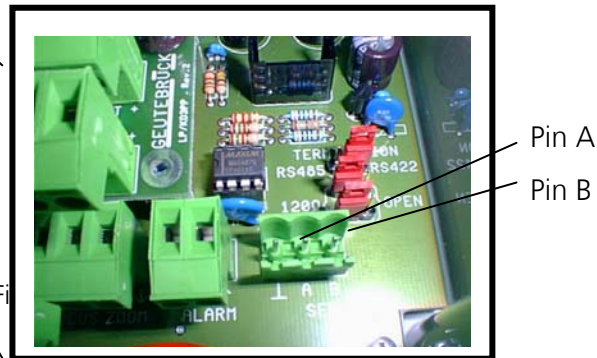


Fig. 1: KDec-300



The address, the baud rate and the mode are all set using the „RUN/DIGIT“, „RUN/VALUE“ and „MENU“ pushbuttons.

To make sure that the commands from the RA only address one DOME, each DOME must be assigned a different address. We recommend that you use addresses with the camera numbers of the receiver software (1-4 or 1-10) so that the preconfigured (default) files can be used immediately.

Setting the Mode:

1. Starting point in the LC display <Addr.: 1 -OK- >
2. Press „MENU +“ 1x, then press „RUN/DIGIT“ and then set the required address using „RUN/VALUE +“ or „RUN/VALUE –“.
3. Starting from point 2: Press „MENU +“ 1x, then set to the following using „RUN/VALUE +“:
<Mode: MBeg Serv.>
4. Starting from point 3: Once again, press „MENU +“ 1x, then set to the following using „RUN/VALUE +“:
<Baudrate: 9600>

32 Commands

32.1 S Command (Pan/Tilt speed)

You can set the Pan/Tilt speed using the S Command. The speed applies globally for all connected domes.

General construction of the S command:

CT1 = "description text for the command"

CMD1 = *00010AAS0003XYY!xy

AA = Camera address (01 to 99 (only decimal values))

X = Sub-function

X = 0 (set the pan speed)

X = 1 (set the tilt speed)

YY = 01 to FF, indicates the speed (hexadecimal values)

01 (slow) <-----> FF (fast)

Examples: S-command, all domes and/or pan-and-tilt heads

Set pan speed to 12

CT1=PanSpd 12

CMD1=*0001001S0003012!xy

Set tilt speed to B5

CT2=TiltSpd B5

CMD2=*0001001S00031B5!xy

32.2 G Command (Iris)

The iris can be controlled using the G command. Construction of the G command:

CT1 = "description text for the command"

CMD1 = *00010AA G0003XYY!xy

AA = Camera address (01 to 99 (only decimal values))

YY = don' care

X = (1 to 3)

Function number X	Description
1	(open iris)
2	Stop iris
3	Close iris

Example for G command, camera 1

CT1 = open iris

CMD1 = *0001001G0003100!xy (iris open)

32.3 D Command (various functions)

CT1=function

CMD1=*00010AAD0003XYY!xy

AA = Camera address (01 to 99 (only decimal values))

X = irrelevant

The two letters "YY" indicate the respective function.

Function Number YYY	Description
01	No function (ONLY INTERNAL: Fast mode for pan-and-tilt head)
02	No function (ONLY INTERNAL: fast mode for pan-and-tilt head off)
03	Lighting on
04	Lighting off

05	Camera on
06	Camera off
07	Wiper on
08	Wiper off
09	Water pump on
0A	Water pump off
0B	Move to starting position

32.4 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „Description text for command“

CMD1 = *00010AA F0003XYY!xy

AA = Camera address (01 to 99 (only decimal values))

X = Sub-function

0 = call up fixed position

1 = set fixed position

YY = 01 to 99 (only decimal values), indicates the fixed position number

Examples for setting and calling up fixed positions at camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F0003110!xy

32.5 H Command (Special Key Command)

CT1=function

CMD1=*00010AA H0003XYY!xy

AA = camera address (01 to 99 (only decimal values))

The letter "X" indicates the function in question.

YY = irrelevant

Function number X	Description
1	Activate special function X
2	Deactivate special function X
3	Activate special function Y

4	Deactivate special function Y
5	Activate special function U
6	Deactivate special function U
7	Activate special function V
8	Deactivate special function V

33 JVC Dome Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbar). The module is used for the remote control of pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video crossbar. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

The Remote Adapter supports the JVC-DOME TK-C675 and TK-C675BE.

33.1 Functions

The following features are supported by the Remote Adapter:

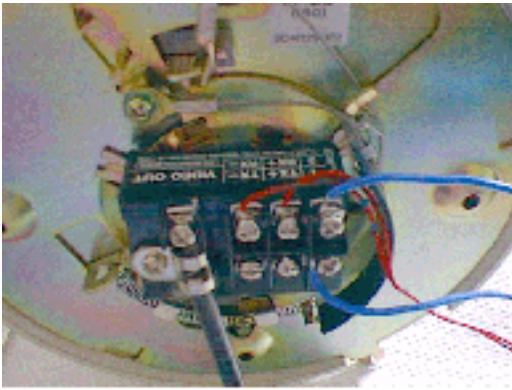
- PAN, TILT, ZOOM, FOCUS (each with separate speed settings)
- IRIS (open, close, stop)
- AUTO PAN (scanning a defined region)
- Sets and calls up up to 64 fixed positions for each dome
- Can be rotated by up to 180°
- Menu controlled
- 16 relays for switching

34 Connection

34.1 Integrating the Remote Adapter into the picture Transmission System

The connenctions are at the base of the dome and must be assigned as follows:

Connection JVC Dome	Remote Adapter
RX-	Data- for RS485 must be connected to the D-/TxD of the Remote Adapter
RX+	Data+ for RS485 must be connected to the D+/RxD of the Remote Adapter



JVC Dome - Base with Connections

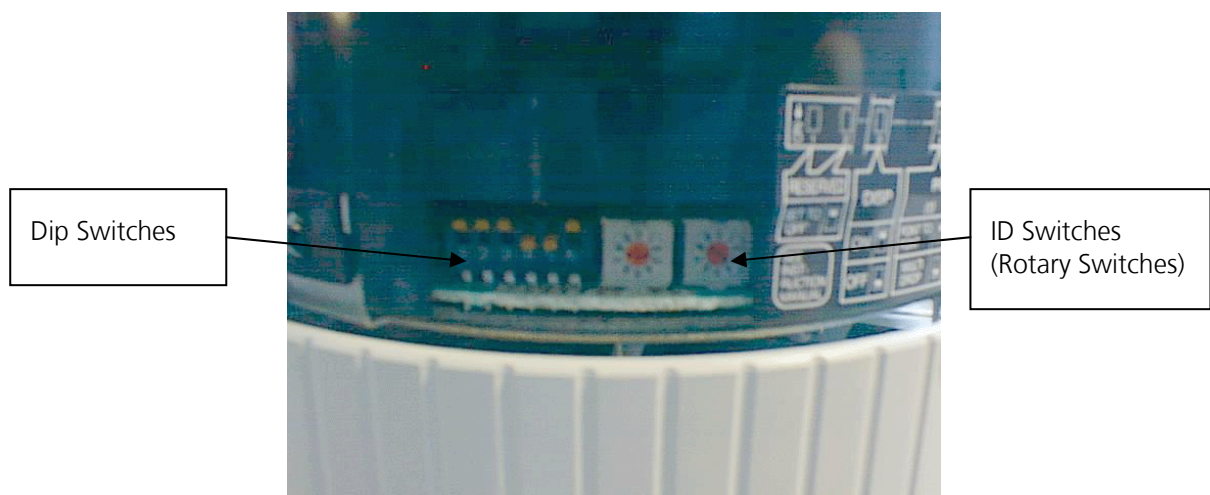
34.2 Power Supply

24 VAC

35 Configuration

35.1 Addressing

Each dome must be assigned to an address. The dome is addressed using the ID switches, which are at the base of the dome (see figure below). The addresses between 1 and 32 are valid. The address of the dome should always correspond to the number of the camera input of the transmitter (1 to 10). In this way the R01 files (included) can be used without changes. The dome with address 1 must be connected to camera input 1, the dome with address 2 to camera input 2, etc.



Base JVC Dome

35.2 Settings of the Dip Switches

The dip switches must be set to Simplex Mode. This setting is described in the JVC Dome manual.

36 Commands

36.1 D Command (General Command)

Almost all of the functions of the JVC Dome can be activated using the D command.

However, only the most important functions have been included in the R01 example files as the list would otherwise be too unclear. The table below is provided for the user to allow him to integrate any functions that he requires into the R01 file.

The two "XX" characters in the D command indicate the function.

The "AA" characters list the camera address (01-10).

General construction of the D command:

CT1=function

CMD1=*00010AAD00030XX!xy

XX	Function	Comment
00	Enhance Mode soft	Picture quality: picture contours are less sharp
01	Enhance Mode sharp	Picture quality: picture contours are sharpened (default)
02	Iris Mode manual	This function must first be called to open the iris (function 57), to close it (function 58) or to stop it (function 59).
03	Iris Mode Auto	The dome automatically controls the iris (default)
04	Iris Mode Auto (+)	The dome automatically controls the iris at a slight ly increased brightness
05	Iris Mode Auto (-)	The dome automatically controls the iris at a slight ly decreased brightness
06	White balance manual	White balance is done manually
07	White balance auto	White balance is done automatically (default)
08	AGC Gain off 0 dB	AGC Gain off 0 dB
09	AGC Gain 12 dB	AGC Gain 12 dB (default)
10	AGC Gain 20 dB	AGC Gain 20 dB
11	Back light compensation off	Switches off back light compensation for all 4 areas (default)
12	BLC Area 1	Switches back light compensation on for Area 1
13	BLC Area 2	Switches back light compensation on for Area 2
14	BLC Area 3	Switches back light compensation on for Area 3
15	BLC Area 4	Switches back light compensation on for Area 4
16	Pan Mode Manual	Switches to manual control, see section AUTO PAN function (default)
17	Pan Mode Auto	Switches to auto pan, see section AUTO PAN Function
18	Pan Mode Start Point	Pans to the starting point, see section AUTO PAN Function
19	Pan Mode Return Point	Pans to the return point, see section AUTO PAN Function
20	Auto Pan Direction Return Operation	Auto pans between the starting point and the re turn point (pans back and forth until Manual Pan is called up) (default)
21	Auto Pan Direction Rotate clockwise	Dome rotates horizontally in clockwise direction (start and return points are ignored)
22	Auto Pan Direction Rotate Counterclockwise	Dome rotates horizontally in anticlockwise direc tion (start and return points are ignored)
23	Event Display Mode off	Events are not shown on the video picture (default)
24	Event Display Mode on	Events are shown in the video picture for approx. 3 seconds
25	Variable Panning Speed Mo de off	The manual pan/tilt speed is not adjusted to the zoom setting

		(default)
26	Variable Panning Speed Mode on	The manual pan/tilt speed is adjusted to the zoom setting
27	Auto Flip Mode off	Dome does not automatically rotate by 180° ("flip") when tilted downwards (default)
28	Auto Flip Mode on	Dome automatically rotates by 180° when tilted downwards
29	Information Display Mode off	No information is displayed (default)
30	Information Display Mode Camera Status	The camera status is displayed
31	Information Display Mode Service Information	Service information, version number, etc. are displayed
32	Preset Sequence, Auto Patrol stop	Only applies to TK C675BE (default)
33	Preset Sequence, Auto Patrol start	Only applies to TK C675BE
34	Preset Sequence Mode Pattern 1	Preset Sequence Mode Pattern 1, only applies to TK C675BE
35	Preset Sequence Mode Pattern 2	Preset Sequence Mode Pattern 2, only applies to TK C675BE
36	Preset Sequence Mode Pattern 3	Preset Sequence Mode Pattern 3, only applies to TK C675BE
37	Area Title Mode Display off	Area Title Mode Display off (default)
38	Area Title Mode Display on	Area Title Mode Display on
39	Color Gain 0, Minimum Gain	Color Gain 0, Minimum Gain
40	Color Gain 1	Color Gain 1
41	Color Gain 2	Color Gain 2
42	Color Gain 3	Color Gain 3
43	Color Gain 4	Color Gain 4
44	Color Gain 5, Standard Gain	Color Gain 5, Standard Gain (default)
45	Color Gain 6	Color Gain 6
46	Color Gain 7	Color Gain 7
47	Color Gain 8	Color Gain 8
48	Color Gain 9	Color Gain 9
49	Color Gain 10, Maximum Gain	Color Gain 10, Maximum Gain
50	Enter Save Settings 00	Stores camera data
51	Enter Save Settings 01	Stores fixed positions (rotating base, lens, video, title)
52	Enter Save Settings 03	Stores fixed positions (video, title)
53	Enter Save Settings 04	Stores the alarm title text
54	Enter Save Settings 05	Stores Area character string, only applies to TK-C675BE
55	Auto Pan Position Set Start	Sets start position for auto pan
56	Auto Pan Position Set Return	Sets return position for auto pan
57	Iris open	Iris open; to use this function, function 2 must first have been called up.
58	Iris close	Iris close; to use this function, function 2 must first have been called up.
59	Iris stop	Iris stop; to use this function, function 2 must first have been called up.
60	Auto Focus	Auto Focus
61	Flip Start	Executes a 180° rotation ("flip")
62	ID-Display	Displays camera address for approx. 3 seconds
63	Menu	Calls up the menu, only applies to TK-C675BE
64	Set	Branches down one menu item, only applies to TK-C675BE
65	Area 1	Select Area 1, only applies to TK-C675BE
66	Area 2	Select Area 2, only applies to TK-C675BE
67	Area 3	Select Area 3, only applies to TK-C675BE
68	Area 4	Select Area 4, only applies to TK-C675BE
69	Area 5	Select Area 5, only applies to TK-C675BE
70	Area 6	Select Area 6, only applies to TK-C675BE
71	Area 7	Select Area 7, only applies to TK-C675BE
72	Area 8	Select Area 8, only applies to TK-C675BE
73	Area 9	Select Area 9, only applies to TK-C675BE
74	Area 10	Select Area 10, only applies to TK-C675BE

75	Area 11	Select Area 11, only applies to TK-C675BE
76	Area 12	Select Area 12, only applies to TK-C675BE
77	Area 13	Select Area 13, only applies to TK-C675BE
78	Area 14	Select Area 14, only applies to TK-C675BE
79	Area 15	Select Area 15, only applies to TK-C675BE
80	Area 16	Select Area 16, only applies to TK-C675BE

Table 1: D Commands

36.2 Example

You want the dome to rotate 180° ("flip"). According to Table 1, D command no. 1 should be used:

CT1=Flip 180 ° description text
 CMD1=*0001001D0003061!xy command

36.3 AUTO PAN Function

To once more use the dome normally or to change the AUTO PAN function, the "Manual Pan" (Function 16) function must first be called up.

Normal procedure required to use the AUTO PAN function:

1. Call up „Manual Pan“ (function 16)
2. Call up "Return Oper." (function 20 or "Rot. Clockw.")
3. Call up "Auto Pan" (function 17)

Setting the start and return points (positions) for AUTO PAN:

1. Call up "Manual Pan" (function 16)
2. Move to the required start point and call up "AP Start Pos" (function 55)
3. Move to the required return point and call up "AP Ret. Pos" (function 56)

The start and return points (positions) can be checked using the "Start Point" (function 18) and "Return Point" (function 19) functions.

37 JVC 676 Dome Protocol Description

The Remote Adapter (RA) is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video matrix. For some pan-and-tilt devices, additional preset positions can also be called up using the RA. These functions are called up by the Windows Receiver software (Version 1.69 onwards).

The JVC 676 Remote Adapter supports the TK-C676E dome from JVC. The Remote Adapter controls the dome via an RS485 data line.

37.1 Functions

The range and type of the dome's functions are described in detail in the respective JVC Dome manual.

The JVC 676 Remote Adapter, version 1.00, supports the following functions:

- Addressing and controlling of up to 32 cameras.
- Executing pan, tilt, zoom, and focus (each with separate speed settings).
- Controlling the iris (Open, Close, Stop, Auto, Auto Open, Auto Close).
- Setting and calling-up of up to 100 preset positions per dome.
- Setting the automatic focus (Auto Focus).
- Setting and calling-up automatic tour (Auto Patrol).
- Executing automatic pan functions (Auto Pan, Start/Stop, Clockwise, Anti-clockwise).
- Executing flip functions (Off, Digital, Auto).
- Setting the digital zoom (Off to 10x).
- Switching on and off the title settings (On, Off).
- Setting the alarm functions (Continuous, Inputs and Outputs).
- Setting the camera (e.g. Color Level, Focus).
- Setting the black/white characteristics
- Switching on and off the title motion detection (On, Off).
- Resetting to factory (default) settings.

38 Connections and Configuration

38.1 Connecting the Remote Adapter

The connection (9600 baud) between the Remote Adapter (RA) and the JVC Dome must be established via the RS-485 interface. The control connection of the JVC Dome is located in the ceiling-mount (Fig. 1).

Establish connections as follows:

JVC Dome Connection	Remote Adapter (RS-485 Interface)
C (RX+)	D+ (to <i>Data+</i> of the RS485 data line)
D (RX-)	D- (to <i>Data-</i> of the RS485 data line)

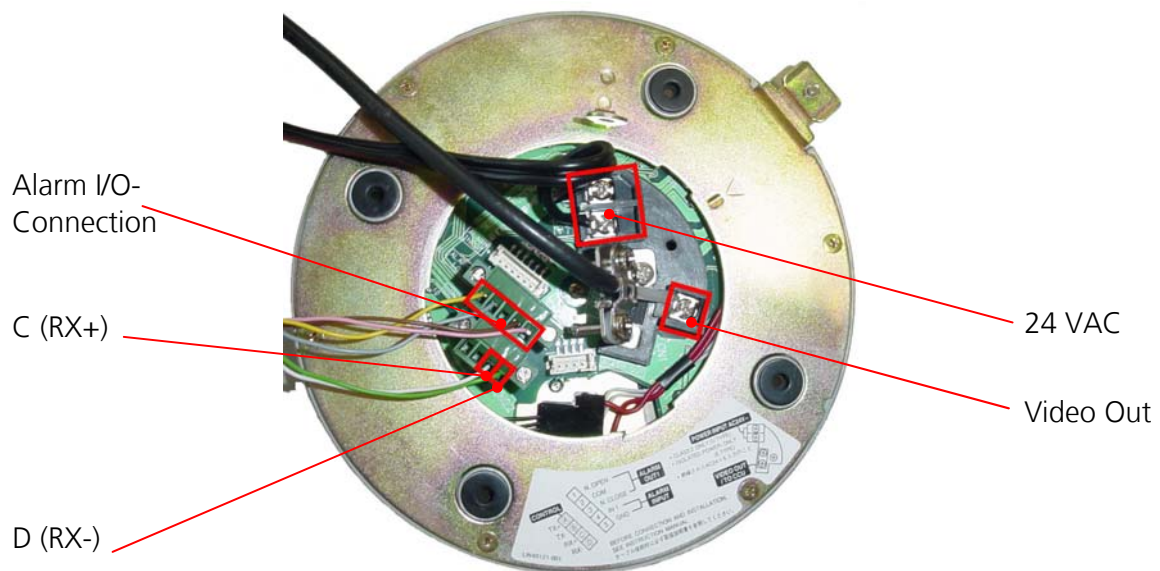


Fig. 1: JVC Dome – Ceiling-Mount with Connections

38.2 Addressing and Protocol Settings

In a multi-camera system, each connected dome must be assigned its own address. You can set the addresses using both rotary switches (Fig. 2). Valid addresses are from 1 to 32. The dome address should always correspond to the number of the camera input of the transmitter: A dome connected to camera input 1 receives the address 01; a dome connected to input 2 receives the address 02, etc. In this way, you are able to immediately use the R01 control file delivered with the device without modification.

The DIP switches for the protocol must be set on multi-camera systems and on simplex-transmission systems (switches 4 and 5 to ON – Fig. 2). A detailed description of the switch settings is contained in the manual of the JVC Dome.

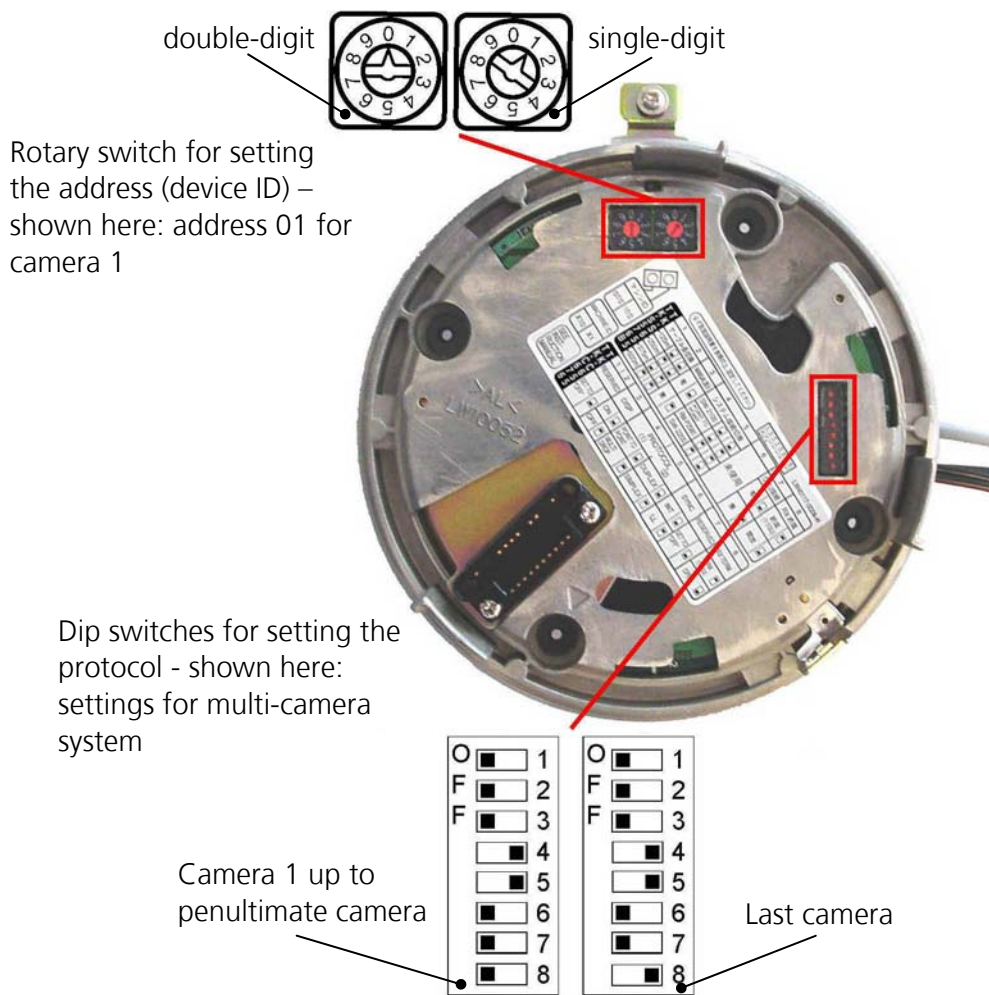


Fig. 2: JVC Dome – Rotary Switches and DIP Switches

39 Commands

39.1 S Command (Setting the Pan/Tilt/Zoom/Focus Speeds)

You can set the Pan/Tilt/Zoom/Focus speeds using the S Command. The speeds apply globally for all connected systems.

The speed set is **not** stored on switching off the device. When you switch the Remote Adapter back on, the speeds are reset to the factory settings (default value: *Pan 8, Tilt 8, Zoom 1, Focus 1*).

The S command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010**AA**S0003**XY**!xy

AA = Camera address (01 to 10 - any, as command is global)

X = Indicates the function in question (decimal values).

YY = Function parameter (decimal value)

No. X	Parameter YY	Description
0	00 to 15	Set pan speed (from 00 = slow to 15 = fast)
1	00 to 15	Set tilt speed (from 00 = slow to 15 = fast)
2	00 to 03	Set zoom speed (from 00 = slow to 03 = fast)
3	00 to 03	Set focus speed (from 00 = slow to 03 = fast)

Example: S command, valid for all connected systems

Set speed to 12

CT1 = Speed 12

CMD1 = *0001001S0003012!xy

39.2 B Command (General Settings without Parameters)

You can make general settings without parameters using the B command. The B command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAB0003XYY!xy

AA = Camera address (00h to 20h – hexadecimal values)

X = Indicates the function in question (hexadecimal values).

YY = Not relevant

Function No. X	Description
0	One Push Auto White Balance – auto white balance
1	One Push Auto Focus – auto focus
2	Flip Start – start flip
3	ID Display – display device ID
4	Menu – menu
5	Set – setting
F	All Stop – stop all

Example: B command

180° flip for Dome 08 (*hexadecimal 08*)

CT1 = Flip

CMD1 = *0001008B0003200!xy

39.3 D Command (General Setting with Parameters)

You can make general settings with parameters using the D command. The D command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAD0003XYY!xy

AA = Camera address (00h to 20h – hexadecimal values)

X = Indicates the function in question (hexadecimal values).

YY = Function parameter (hexadecimal value)

X	YY	Description
0	00	Save Camera Data – save the camera settings
	05	Save Auto Patrol (position, duration) – save auto patrol (position, duration)
	06	Save Auto Patrol Mode (pattern) – save auto patrol mode (pattern)
1	00 to FF	Select Area 01-16 – select segment (area) 01 to 16
2	00	Sense Up Off – switch off sensitivity increase
	01	Sense Up x02 – 2x increase in sensitivity
	02	Sense Up x04 – 4x increase in sensitivity
	03	Sense Up x08 – 8x increase in sensitivity
	04	Sense Up x16 – 16x increase in sensitivity
	05	Sense Up x32 – 32x increase in sensitivity
	06	Sense Up x24 – 24x increase in sensitivity
3	00	AGC Off – switch off AGC
	01	AGC 10 dB – AGC up to 10 dB
	02	AGC 20 dB – AGC up to 20 dB
	03	AGC SUPER – AGC with delay
4	00	Shutter Speed NTSC: 1/60, PAL: 1/50 – electronic shutter time NTSC: 1/60, PAL: 1/50
	01	Shutter NTSC: 1/100, PAL: 1/120 – electronic shutter time NTSC: 1/100, PAL: 1/120
	03	Shutter 1/250 – electronic shutter time 1/250
	04	Shutter 1/500 – electronic shutter time 1/500
	05	Shutter 1/1000 – electronic shutter time 1/1000
	06	Shutter 1/2000 – electronic shutter time 1/2000
	07	Shutter 1/4000 – electronic shutter time 1/4000
	08	Shutter 1/10000 – electronic shutter time 1/10000

X	YY	Description
5	00	BLC Off – switch off BLC
	01	BLC Area 1 – BLC Area 1
	02	BLC Area 2 – BLC Area 2
	03	BLC Area 3 – BLC Area 3
	04	BLC Area 4 – BLC Area 4
6	00	Title Location Upper Left – title location upper left
	01	Title Location Lower Left – title location lower left
	02	Title Location Upper Middle – title location upper middle
	03	Title Location Lower Middle – title location lower middle
	04	Title Location Upper Right – title location upper right
	05	Title Location Lower Right – title location lower right
7	00	Auto Flip Off – switch off auto flip
	01	Auto Flip Auto – auto flip auto
	02	Auto Flip Digital – auto flip digital ¹
8	00	Color (B&W Off) – color mode (switch off B&W)
	01	B&W (B&W On) – black/white mode (switch on B&W)
	02	B&W Auto – automatically toggle between color and black/white mode
	03	B&W Signal Input1 – black/white mode alarm signal 1
	04	B&W Signal Input2 – black/white mode alarm signal 2
	05	B&W Signal Input3 – black/white mode alarm signal 3
	06	B&W Signal Input4 – black/white mode alarm signal 4
9	00	Display Off – switch off the display
	01	Display Camera Status – display camera status
	02	Display Service Info – display service info
A	00	Digital Zoom Off – switch off digital zoom
	01	Max. Digital Zoom 2x – max. 2x digital zoom
	02	Max. Digital Zoom 4x – max. 4x digital zoom
	03	Max. Digital Zoom 8x – max. 8x digital zoom
	04	Max. Digital Zoom 6x – max. 6x digital zoom
	05	Max. Digital Zoom 10x – max. 10x digital zoom

X	YY	Description
B	00	10 : 0 (Average : Peak) – 10 : 0 (Average : Peak)
	01	9 : 1 (Average : Peak) – 9 : 1 (Average : Peak)
	02	8 : 2 (Average : Peak) – 8 : 2 (Average : Peak)
	03	7 : 3 (Average : Peak) – 7 : 3 (Average : Peak)
	04	6 : 4 (Average : Peak) – 6 : 4 (Average : Peak)
	05	5 : 5 (Average : Peak) – 5 : 5 (Average : Peak)

- When running the *Auto Flip Digital* command, setting a preset position may be cancelled, and the error message "INVALID POSITION (TILT)" will be shown. In this case, please re-run the *Auto Flip Digital* command.

If you have changed the data for the JVC Dome, then you can store the following data using the *Save Camera Data* command:

- Sense Up Mode
- AGC Gain
- Shutter Speed
- Title Location
- Auto Flip Mode
- B&W Mode
- Digital Zoom
- Average : Peak

Example: D command

AGC up to a value of 20 dB for Dome 08 (*hexadecimal 08*)

CT1 = AGC 20 dB

CMD1 = *0001008D0003302!xy

39.4 E Command (General Setting with Parameters)

You can make general settings with parameters using the E command. The E command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAE0003XYY!xy

AA = Camera address (00h to 20h – hexadecimal values)

X = Indicates the function in question (hexadecimal values).

YY = Function parameter (hexadecimal value)

X	Parameter YY	Description
1	00	ALC Motion Priority – ALC: camera motion has priority
	01	ALC Motion Priority – ALC: picture quality has priority
2	00	ExDR Off – switch off ExDR
	01	ExDR On – switch on ExDR
3	00	White Balance Auto (ATW) – automatic, continuous white balance
	01	White Balance Manual (ATW) – manually triggered white balance
4	00	Easy AF Off – switch off easy auto focus
	01	Easy AF On – switch on easy auto focus
5	00	Area Title Off – segment (area) title is not displayed
	01	Area Title On – segment (area) title is displayed
6	00	Normal Light – type of light source in b/w mode: normal light
	01	IR Light – type of light source in b/w mode: infrared light
7	00	Auto Black Off – switch off automatic amplification of the b/w level
	01	Auto Black On – switch on automatic amplification of the b/w level
8	00	Private Masking Off – switch off masking of the picture area by the mask
	01	Private Masking On – switch on masking of the picture area by the mask

If you have changed the data for the JVC Dome, then you can store the following data using *Save Camera Data* (D command):

- ALC Priority
- ExDR Mode
- Auto Flip Mode
- Private Masking

Example: E command

Switch on Easy Autofocus for Dome 10 (*hexadecimal 0A*)

CT23 = Easy AF On

CMD23 = *000100AE0003401!xy

39.5 P Command (Calls Up Auto Pan and Auto Patrol)

You can call up the auto Pan and Auto Patrol functions using the P command. The P command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAP0003XYY!xy

AA = Camera address (00h to 20h – hexadecimal values)

X = Indicates the function in question (hexadecimal values).

YY = Function parameter (hexadecimal value)

X	YY	Description
0	00	Set Auto Pan Start Position – set auto pan start position
	01	Set Auto Pan Return Position – set auto pan return position
1	00	Auto Pan Normal Speed – auto pan at normal speed
	01	Auto Pan High Speed – auto pan at high speed
	02	Auto Pan Low Speed – auto pan at low speed
2	00	Manual Pan – manual pan
	01	Auto Pan On – Switches on auto pan
	02	Auto Pan Start Point – moves auto pan to starting point
	03	Auto Pan Return Point – moves auto pan to returning point
3	00	Auto Pan Direction Return Operation – auto pan at normal rotation speed
	01	Auto Pan Rotate Clockwise – rotate auto pan clockwise
	02	Auto Pan Rotate Counterclockwise – rotate auto pan counter-clockwise
4	00	Variable Speed Mode Off – switch off variable speed mode (automatic speed adjustment)
	01	Variable Speed Mode On – switch on variable speed mode (automatic speed adjustment)
5	00	Auto Patrol Stop – stop auto patrol
	01	Auto Patrol Start – start auto patrol
6	00	Auto Patrol Pattern 1 – auto patrol pattern 1
	01	Auto Patrol Pattern 2 – auto patrol pattern 2
	02	Auto Patrol Pattern 3 – auto patrol pattern 3
7	00 to 63	Auto Patrol Number 01-100 – select auto patrol position no. 01 to 100

X	YY	Description
8	00 to 63	Auto Patrol Position 01-100 – select auto patrol preset positions 01 to 100
9	01	Auto Patrol Dwell 45 s – auto patrol dwell time of 45 s
	02	Auto Patrol Dwell 1 min – auto patrol dwell time of 1 min
	03	Auto Patrol Dwell 2 min – auto patrol dwell time of 2 min
	07	Auto Patrol Dwell 20 s – auto patrol dwell time of 20 s
A	00	Auto Pan Key Pan – auto pan when pressing auto pan key on control console
	01	Auto Pan Key Pan – auto pan when pressing auto pan key on control console
	02	Auto Trace Key Pan – auto trace when pressing auto pan key on control console
B	00	Auto Pan Key Patrol – auto pan when pressing auto patrol key on control console
	01	Auto Patrol Key Patrol – auto patrol when pressing auto patrol key on control console
	02	Auto Trace Key Patrol – auto trace when pressing auto patrol key on control console

Creating a tour (patrol)

Before creating a patrol, you must first have set the preset positions.

1. Set a patter (command: *Auto Patrol Pattern 1-3*).
2. Select a position number (command: *Auto Patrol Number 1-100*).
3. Set a preset position (command: *Auto Patrol Position 1-100*).
4. Set a delay time (command: *Auto Patrol Dwell 20 s - 2 min*).
5. Store the position of the patrol (D command: *Auto Patrol*).
6. Repeat steps 2 – 5 for every other position to be set for the patrol.

Selecting a tour (patrol)

1. Select the required pattern (command: *Auto Patrol Pattern 1-3*).
2. Store the patrol (D command: *Auto Patrol Mode*).

Running an automatic tour (patrol)

1. Start a patrol (command: *Auto Patrol Start*).
3. Change the pattern in operation (command: *Auto Patrol Pattern 1-3*).
4. Stop the patrol (command: *Auto Patrol Stop*).

Example: P command

Auto Pan clockwise for Dome 03 (*hexadecimal 03*)

CT23 = Pan Clockw

CMD23 = *0001003P0003301!xy

39.6 Z Command (Call-Up Alarm and Report Functions)

You can call-up various alarm and report functions using the Z command. The Z command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAZ0003XYY!xy

AA = Camera address (00h to 20h – hexadecimal values)

X = Indicates the function in question (hexadecimal values).

YY = Function parameter (hexadecimal value)

X	YY	Description
1	00	Alarm Reset – reset alarm
2	10	Aux 1 Off – switch off signal to Aux 1
	11	Aux 1 On – switch on signal to Aux 1
	20	Aux 2 Off – switch off signal to Aux 2
	21	Aux 2 On – switch on signal to Aux 2
	30	Aux 3 Off – switch off signal to Aux 3
	31	Aux 3 On – switch on signal to Aux 3
3	10	Output 1 Off – switch off signal to output 1
	11	Output 1 Unit Alarm – switch on signal to output 1 when an alarm is triggered
	12	Output 1 B&W – switch on signal to output 1 when toggling to black/white mode
	13	Output 1 Preset Movement Complete – switch on signal to output 1 when reaching preset position
	14	Output 1 AUX 1 – switch on signal to AUX 1 via output 1
	15	Output 1 AUX 2 – switch on signal to AUX 2 via output 1
	16	Output 1 AUX 3 – switch on signal to AUX 3 via output 1
	20	Output 2 Off – switch off signal to output 2
	21	Output 2 Unit Alarm – switch on signal to output 2 when an alarm is triggered
	22	Output 2 B&W – switch on signal to output 2 when toggling to black/white mode
	23	Output 2 Preset Movement Complete – switch on signal to output 2 when reaching preset position

X	YY	Description
	24	Output 2 AUX 1 – switch on signal to AUX 1 via output 2
	25	Output 2 AUX 2 – switch on signal to AUX 2 via output 2
	26	Output 2 AUX 3 – switch on signal to AUX 3 via output 2
	30	Output 3 Off – switch off signal to output 3
	31	Output 3 Unit Alarm – switch on signal to output 3 when an alarm is triggered
	32	Output 3 B&W – switch on signal to output 3 when toggling to black/white mode
	33	Output 3 Preset Movement Complete – switch on signal to output 3 when reaching preset position
	34	Output 3 AUX 1 – switch on signal to AUX 1 via output 3
	35	Output 3 AUX 2 – switch on signal to AUX 2 via output 3
	36	Output 3 AUX 3 – switch on signal to AUX 3 via output 3
4	01	Alarm Character Size Double – alarm display with double character size
	00	Alarm Character Size Normal – alarm display with normal character size
5	01 to 16	Alarm Duration 5 s – 10 s – display on alarm: 5 s to 10 s
	07	Alarm Duration 15 s – 10 s – display on alarm: 15 s
	08	Alarm Duration 20 s – display on alarm: 20 s
	09	Alarm Duration 30 s – display on alarm: 30 s
	0A	Alarm Duration 1 min – display on alarm: 1 min
6	00	Alarm Polarity Make Input – alarm signal when contact is closed
	01	Alarm Polarity Break Input – alarm signal when contact is open
8	00	Alarm Priority Mode – alarm priority: camera can not be manually operated during an alarm
	01	Manual Priority Mode – control mode priority: camera can be manually operated during an alarm
9	00	Motion Off – switch off triggering of alarm via motion detection
	01	Motion On – switch on triggering of alarm via motion detection
A	00 to 06	Motion Display Time 0 s – 10 s – display on motion detection: 0 s to 10 s
	07	Motion Display Time 15 s – display on motion detection: 15 s
	08	Motion Display Time 20 s – display on motion detection: 20 s
	09	Motion Display Time 30 s – display on motion detection: 30 s
	0A	Motion Display Time 1 min – switch off signal to Aux 3
B	00	Alarm Report Disable – switch off (disable) alarm report
	01	Alarm Report Enable – switch on (enable) alarm report

X	YY	Description
C	00	Alarm Title Color White – color for alarm title: white
	01	Alarm Title Color Green – color for alarm title: green
	02	Alarm Title Color Cyan – color for alarm title: cyan
	03	Alarm Title Color Yellow – color for alarm title: yellow

If you have changed the data for the JVC Dome, then you can store the following data using *Save Camera Data* (D command):

- Alarm Display
- Alarm Character Size
- Alarm Title Color

The dome must be in the home position (preset 00) for an alarm to be triggered via motion detection. You must control the home position directly via *Select Preset 00* (F command). You cannot reach this position via the pan/tilt commands.

Example: Z Command

Signal directed to output 3 when switching-over to black/white mode for Dome 05 (*hexadecimal 05*)

CT22 = Out3 B&W

CMD22 = *0001005Z0003332!xy

39.7 G Command (Iris Control)

You can control the iris of the connected dome using the G command. The G command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAG0003XYY!xy

AA = Camera address (00h to 20h – hexadecimal values)

X = Indicates the function in question (hexadecimal values).

YY = Not relevant

Function No. X	Description
0	Iris Open (Stepwise) – stepwise opening of the iris
1	Iris Close (Stepwise) – stepwise closing of the iris
2	Iris Stop – stop iris
3	Iris Mode Manual – manual mode setting for the iris
4	Iris Mode Auto – automatic mode setting for the iris
5	Iris Auto Open – opens the iris automatically
6	Iris Auto Close – closes the iris automatically

Example: G command

Stop iris for Dome 09 (*hexadecimal 09*)

CT21 = Stop Iris

CMD21 = *0001009G0003200!xy

39.8 N Command (Set Level)

You can make settings to the level using the N command. The N command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AA0003XYY!xy

AA = Camera address (00h to 20h – hexadecimal values)

X = Indicates the function in question (hexadecimal values).

YY = Function parameter (hexadecimal value)

X	YY	Description
0	00 to FF	Manual White Balance (R-B), 0-255 – set R- and B-phase in AWC mode (values 0 to 255)
1	00 to FF	Manual White Balance (Mg-G), 0-255 – set Mg- and G-phase in AWC mode (values 0 to 255)
2	00 to 0A	ExDR Level (-5-+5) – set brightness in ExDR mode (values -5 to +5)
3	00 to 0A	Pedestal Level – set black/white level of video signal
4	00	B&W Auto Level Low – switch to black/white mode when the brightness level is low
	01	B&W Auto Level Normal – switch to black/white mode when the brightness level is normal
	02	B&W Auto Level High – switch to black/white mode when the brightness level is high
5	00 to 0A	Motion Detect Level (-5-+5) – set the level for the motion detection (values -5 to +5)
6	00 to 0A	Enhance Level (-5-+5) – set the enhancement level (values -5 to +5)

X	YY	Description
7	00 to 0A	Colour Level (-5-+5) – set the color level (values -5 to +5)

Example: N command

Set Mg- and G-Phase in AWC mode to level 125 (*hexadecimal 7D*) for Dome 01 (*hexadecimal 01*)

CT1 = WB (Mg-G) 125

CMD1 = *0001001N000317D!xy

39.9 F Command (Setting and Calling-Up Preset Positions)

You can set and call-up preset positions using the F command. The F command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010AAFF0003XYY!xy

AA = Camera address (00h to 20h – hexadecimal values)

X = Indicates the function in question (hexadecimal values).

YY = Function parameter (hexadecimal value)

X	Parameter YY	Description
0	00 to 63	Select Preset – calls up a preset position
1	00 to 63	Save As Preset – saves as a preset position
2	00 to 63	Clear Preset – clears (deletes) a preset position
3	00	Clear All Data – clears all data (including positions and titles)
	01	Clear Data (other than title) – clears data (except positions and titles)
4	00	Forward – one position forward
	01	Reverse – one position back
5	00 to 03	Preset Speed – set speed

Example: F Command

Set preset position 01 for Dome 09 (*hexadecimal 09*)

CT1 = SetPreset 1

CMD1 = *0001009F0003101!xy

40 Kalatel Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

This version of the Remote Adapter (1.00) supports the KTD-312 interface or the Cyberdome from Kalatel. The KTA-12x-xx-A, KTA-12x-xx-P Discrete Domes and KTA-8Cx-xxxx systems are also supported in accordance to the specifications of the manufacturer.

40.1 Functions

The remote adapter, version 1.00, supports the following functions:

- pan, tilt, zoom, focus (pan and tilt speeds can be set in up to 32 steps)
- iris control (open, close, stop)
- set / call-up 64 fixed positions
- 511 cameras can be controlled
- 64 monitor numbers
- autopan
- camera select
- alarm on/off
- autofocus

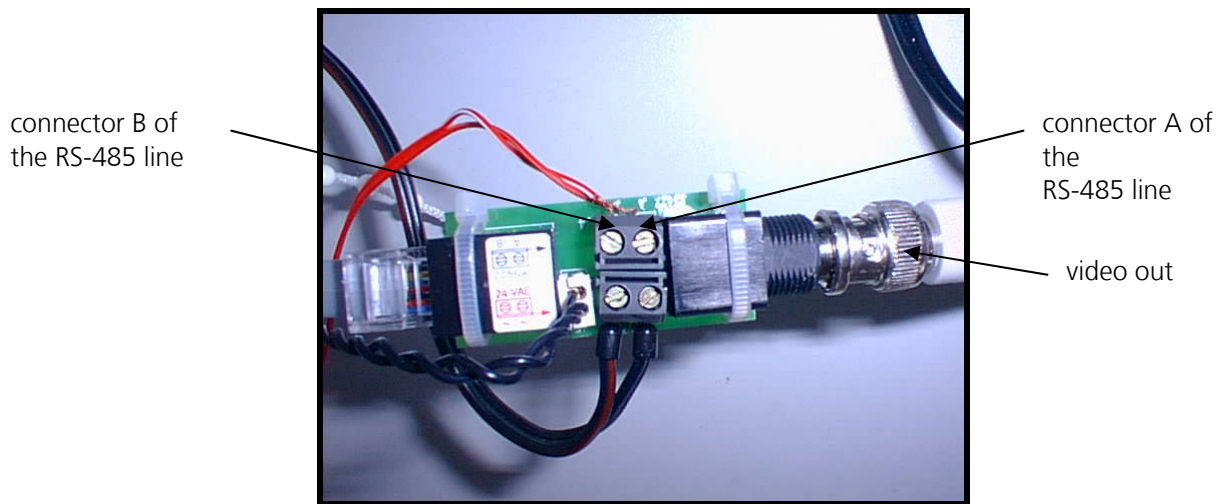
41 Connections and Configuration

The description of the connections and the configuration is made based on the Kalatel Cyberdome Day/Night 25x PAL (referred to as Cyberdome in the following).

Names and descriptions of the devices are set in the text in inverted commas, e.g. „Rx“.

You must establish the connection (9600 baud) between the remote adapter and the Kalatel Cyberdome using an RS485 cable. Connect as follows:

Remote Adapter	Kalatel Cyberdome
D-	„B“
D+	„A“



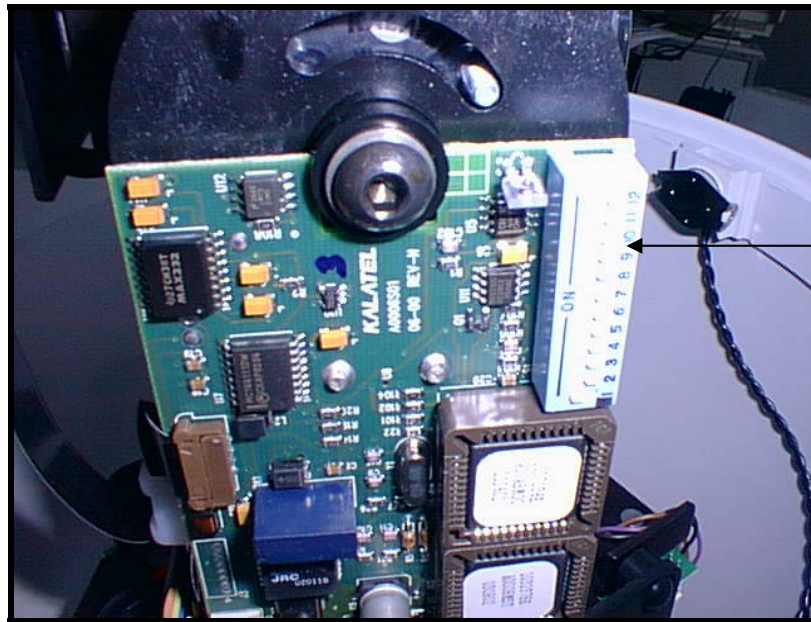
Connection Adapter of the Kalatel Cyberdome

To ensure that the commands from the remote adapter only address one dome, each dome must be assigned its own address. The address is set using address switch S1 (figure below).

We recommend that you use addresses with the camera numbers of the receiver software (1-4 or 1-10). In this way, the R01 example files delivered with the device can be used directly without requiring any adjustment to them. This means that a dome connected to camera input 1 must be assigned address 1 and a dome connected to camera input 2 must be assigned address 2, etc.

Address switch S1 is binary coded (number system with two conditions; here „ON“ and OFF“) and is set as follows:

Dome Address	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8	Dip 9	Dip 10	Dip 11	Dip 12
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
...
511	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON



Address switch S1

Address Switch S1 of the Cyberdome

42 Commands

42.1 S Command (Pan / Tilt / Zoom / Focus Speeds)

The pan, tilt, zoom and focus speed is set using the S command. The speed applies globally for all connected systems.

General construction of the S command:

CT1 = " description text for command "

CMD1 = *00010AAS0003XY!xy

AA = camera address (00 to 99 (decimal values), camera address – 511 refer to 3.7)

X = sub-function

Function Number X	Description
0	Set pan speed
1	Set tilt speed

YY = 00 to 31, specifies the speed (decimal values)

00 (slow) <-----> 31 (fast)

Examples: S command, all domes or pan / tilt heads:

Set pan speed to 12:

CT1= PanSpd 12

CMD1= *0001001S0003012!xy

Set tilt speed to 23:

CT2= TiltSpd 23

CMD2= *0001001S0003123!xy

42.2 D Command (diverse functions)

CT1= "description text for the function"

CMD1= *00010AAD0003XYY!xy

AA = camera address (00 to 99 (decimal values), camera address 100 – 511 refer to 3.7)

X = not relevant

The functions are defined by the letters "YY" (decimal values).

Function Number YY	Description
01	Gate Open/Off START
02	Gate Open/Off STOP
03	Gate Close/On START
04	Gate Close/On STOP
05	Fast START
06	Fast STOP
07	Slow START
08	Slow STOP
09	Door 1 Open START (only for KTR-11 board ID read devices)
10	Door 1 Open STOP (only for KTR-11 board ID read devices)
11	Door 2 Open START (only for KTR-11 board ID read devices)
12	Door 2 Open STOP (only for KTR-11 board ID read devices)
13	Face Video START (only for KTR-11 board ID read devices)
14	Face Video STOP (only for KTR-11 board ID read devices)
15	Badge Video START (only for KTR-11 board ID read devices)
16	Badge Video STOP (only for KTR-11 board ID read devices)
17	Overhead Video START (only for KTR-11 board ID read devices)
18	Overhead Video STOP (only for KTR-11 board ID read devices)
19	Door 1 Video START (only for KTR-11 board ID read devices)
20	Door 1 Video STOP (only for KTR-11 board ID read devices)
21	Door 2 Video START (only for KTR-11 board ID read devices)
22	Door 2 Video STOP (only for KTR-11 board ID read devices)
23	Talk START (only for audio converter KTD-336)
24	Talk STOP (only for audio converter KTD-336)

42.3 H Command (diverse functions)

CT1= "description text for the function"

CMD1= *00010AAH0003XYY!xy

AA = camera address (00 to 99 (decimal values), camera address 100 – 511 refer to 3.7)

X = defines the function (decimal values).

YY = not relevant

Function Number X	Description
1	Autopan
2	Universal cancel
3	Camera select
4	Annunciate
5	Annunciate cancel
6	Alarm On
7	Alarm Off
8	Auto focus

42.4 Z Command (diverse functions)

CT1= "description text for the function"

CMD1= *00010AAZ0003XYY!xy

AA = camera address (00 to 99 (decimal values), camera address – 511 refer to 3.7)
Function 4 (Time/Date) is an exception and is used in transmitting the time/date (otherwise camera address, refer to example 3).

X = defines the function (decimal values).

YY = defines the parameter of the function (decimal values).

Function Number X	Description	Parameter YY	Parameter AA
1	Sequence	01 – 04	camera address 00 – 99
2	Alarm enable/disable	not relevant	camera address 00 – 99
3	Clear screen	not relevant	camera address 00 – 99
4	Time/Date (KTS-53's)	01 = set second 02 = set minute 03 = set hour 04 = set Day 05 = set month 06 = set year	00 – 99 Values for the seconds, minutes, hour, day, month and year (only the last two numerals of the year are entered, e.g. for 2003 = 03). The seconds must be entered last as the time and the date is accepted with the entry.

1. Example for sequence 3, camera 1:

CT1 = Sequence 3
 CMD1 = *0001001Z0003103!xy

2. Example for alarm enable/disable, camera 1:

CT2 = Alarm enable/disable
 CMD2 = *0001001Z0003200!xy

3. Example for complete date and time (e.g.: 25.12.2003 15:47:33), camera 1:

CT3 = Set Year
 CMD3 = *0001003Z0003406!xy

CT4 = Set Month
 CMD4 = *0001012Z0003405!xy

CT5 = Set Day
 CMD5 = *0001025Z0003404!xy

CT6 = Set Hour
 CMD6 = *0001015Z0003403!xy

CT7 = Set Minute
 CMD7 = *0001047Z0003402!xy

CT8 = Set Second
 CMD8 = *0001033Z0003101!xy

42.5 G Command (iris functions)

CT1= "description text for the function"
 CMD1= *00010AAG0003XYY!xy

AA = camera address (00 to 99 (decimal values), Camera address 100 – 511 refer to 3.7)

X = defines the function (decimal values).

YY = not relevant

Function Number X	Description
1	Iris Open START
2	Iris Open STOP
3	Iris Close START
4	Iris Close STOP

42.6 E Command (monitor functions)

The monitor number is valid generally for all connected systems.

CT1= "Description text for the function"

CMD1= *00010AAE0003XYY!xy

AA = camera address (00 bis 99 (decimal values), camera address 100 – 511 refer to 3.7)

X = not relevant

YY = 01 – 64 , monitor number (for all camera addresses)

Example for monitor number 32, camera 1:

CT1 = monitor 32

CMD1 = *0001001E0003032!xy

42.7 B Command (address function)

The remote adapter supports the decimal addresses 0-99 by inputting the command (AA). To be able to use additional camera addresses, you can switch over to the "hundreds range".

By setting the YY values to 00, cameras 0-99 are called up by inputting the camera address in AA (0-99).

A YY value of 01 causes cameras 100-199 to be called up by inputting the camera address in AA (0-99).

A YY value of 02 causes cameras 200-299 to be called up by inputting the camera address in AA (0-99), etc.

CT1= "Description text for the function"

CMD1= *00010AAB0003XYY!xy

AA = camera address (00 to 99 (decimal values), camera address 100 – 511

X = not relevant

YY = 00 – 05 , switches over the camera addresses to the hundreds (decimal values)

Example for switching over to the 100's camera numbers (sites), camera 1:

CT1 = Site 1xx

CMD1 = *0001001B0003001!xy

42.8 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „description text for the function“

CMD1 = *00010AAF0003XYY!xy

AA = camera address (00 to 99 (decimal values), camera address 100 – 511 refer to 3.7)

X = sub-function

0 = call up fixed position

1 = set fixed position

YY = 00 to 63 (decimal values), specifies the fixed position number and Autopan Limit Function

YY = 00 to 63, fixed positions as in KTA-8Cx-xxxx

YY = 00 to 09, fixed positions in all systems

YY = 62 „set left autopan limit“, valid for the systems: KTA-12x-xx-A, KTA-12x-xx-P,
Discrete Domes and Cyberdome

YY = 62 „set right autopan limit“, valid for the systems: KTA-12x-xx-A, KTA-12x-xx-P,
Discrete Domes and Cyberdome

1. Examples for setting and calling up fixed positions at camera 1:

Set fixed position 1:

CT1 = SetPreset 1
CMD1 = *0001001F0003101!xy

Set fixed position 7:

CT2 = Preset 7
CMD2 = *0001001F0003007!xy

2. Example for „set left autopan Limit“ (for, e.g. the Cyberdome) and setting fixed position 62 (for, e.g. the KTA-8Cx-xxxx):

„set left autopan limit“:

CT2 = I left autopan
CMD2 = *0001001F0003162!xy

bzw.

Set fixed position 62:

CT2 = SetPreset 62
CMD2 = *0001001F0003162!xy

The commands are identical. They are only different in respect to their application in the respective systems!

43 Lilin Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

This version of the Remote Adapter (1.00) supports the Fastdome protocol for the Lilin Dome (e.g. systems PIH-717X or PIH-7000/7600).

43.1 Functions

The Lilin remote adapter, version 1.00, supports the following functions:

- pan, tilt, zoom, focus (pan and tilt speeds can each be set in up to 8 steps)
- iris control (auto, open, close, stop)
- set / call-up 128 fixed positions
- 64 cameras can be controlled
- autopan
- relay support (light, spray, wiper, aux)
- autofocus

44 Connections

The description of the connections and the configuration is made based on the Lilin PIH-7000PF Domes.

Names and descriptions of the devices are set in the text in inverted commas, e.g. „Tx“.

You must establish the connection (9600 baud) between the remote adapter and the Lilin dome using an RS485 cable. Connect as follows:

Remote Adapter	Lilin Dome
D-	„TxDI-“
D+	„TxDI+“

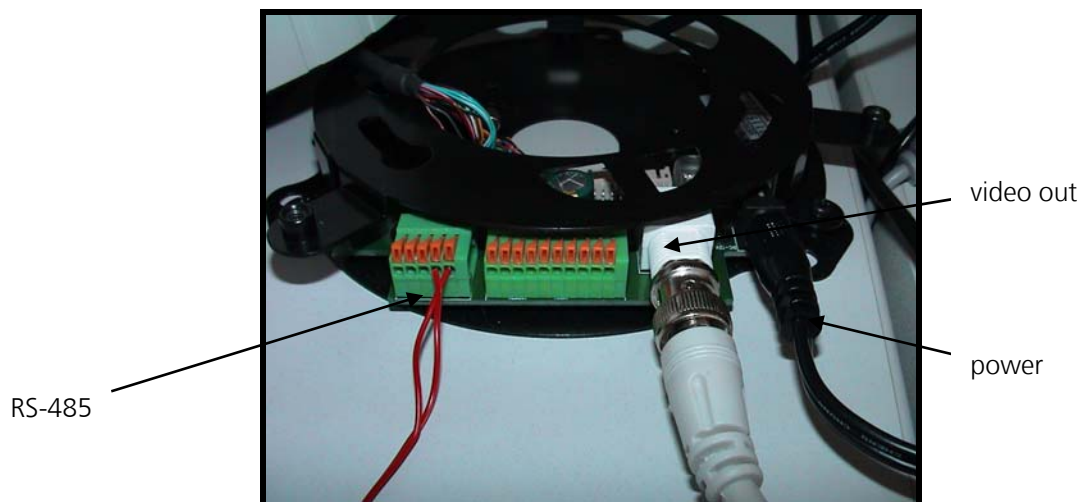


Figure : Connection Adapter of the Lilin Dome PIH-70000PF

45 Configuration

To ensure that the commands from the remote adapter only address one dome, each dome must be assigned its own address. The address is set using address switch S1 (figure below) located at the base of the dome.

We recommend that you use addresses with the camera numbers of the receiver software (1-4 or 1-10). In this way, the R01 example files delivered with the device can be used directly without requiring any adjustment to them. This means that a dome connected to camera input 1 must be assigned address 1 and a dome connected to camera input 2 must be assigned address 2, etc.

Address switch S1 is binary coded (number system with two conditions; here „ON“ and OFF“) and is set as follows:

Dome Address	Dip 1	Dip 2	Dip 3	Dip 4	Dip 5	Dip 6	Dip 7	Dip 8	Dip 9	Dip 10	Dip 11	Dip 12
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
...
64	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF



address switch S1

Figure: Base of the Lilin Domes with address switch S1

46 Commands

46.1 S Command (Pan / Tilt / Zoom / Focus Speeds)

The pan, tilt, zoom and focus speed is set using the S command. The speed applies globally for all connected systems.

General construction of the S command:

CT1 = "description text for the function"

CMD1 = *00010AAS0003XY!xy

AA = camera address (01h to 40h (hexadecimal values))

X = sub-function

Function Number X	Description
0	set pan speed
1	set tilt speed

YY = 00 to 07, specifies the speed (decimal values)

00 (slow) <-----> 07 (fast)

Examples: S command, all domes or pan / tilt heads

Set panspeed to 05:

CT1= PanSpd 5

CMD1= *0001001S0003005!xy

Set tilt speed to 02:

CT2= TiltSpd 2

CMD2= *0001001S0003102!xy

A table of hexadecimal values is located in the appendix to the remote adapter manual.

46.2 D Command (diverse functions)

CT1= "description text for the function"

CMD1= *00010AAD0003XYY!xy

AA = camera address (01h to 40h (hexadecimal values)

X = not relevant (e.g. : 0)

The functions are defined by the letters "YY" (decimal values).

Function Number YY	Description
01	Auto pan
02	Auto pan STOP
03	Auto focus
04	Light
05	Spray (washer)
06	Wiper
07	AUX 1
08	AUX 2 / 180° Flip

46.3 H Command (diverse functions)

CT1= "description text for the function"

CMD1= *00010AAH0003XYY!xy

AA = camera address (01h to 40h (hexadecimal values)

X = defines the function (decimal values)

YY = parameter of the function

Function Number X	Description	Parameter YY
1	Preset Speed	01h – FFh (1-255°/sec.)
2	Dwell Time	00h – FFh (0 – 255 sec.)

1. Example for a preset speed of 18°/sec , camera 1:

CT1 = Pre Speed 18
 CMD1 = *0001001H0003112!xy

2. Example for a dwell time of 7°/sec., camera 1:

CT2 = DwellTime 7
 CMD2 = *0001001H0003207!xy

46.4 G Command (iris functions)

CT1= "Description text for the function"
 CMD1= *00010AAG0003XYY!xy
AA = camera address (01h to 40h (hexadecimal values))
X = defines the function (decimal values)
YY = not relevant

Function Number X	Description
1	Iris open START
2	Iris open STOP
3	Iris close START
4	Iris close STOP
5	Iris auto

46.5 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „description text for the function“
 CMD1 = *00010AAF0003XYY!xy
AA = camera address (01h to 40h (hexadecimal values))
X = sub-function
 0 = call up fixed position **YY** = 00 to 7F (hexadecimal values), specifies the fixed position number
 1 = set fixed position **YY** = not relevant

Examples for setting and calling up fixed positions at camera 1:

Set fixed position:

CT1 = SetPreset
 CMD1 = *0001001F0003100!xy

Calling up fixed position 7:

CT2 = Preset 7
 CMD2 = *0001001F0003007!xy

A fixed position is set in the following order:

1. Call up the desired new fixed position number (e.g. No.7).
2. Move the dome to the required position using pan, tilt, zoom, iris and focus.
3. When required, set the preset speed and dwell time.
4. Store the action with „set preset“.

47 LMW OWL Protocol Description

The Remote Adapter (RA) is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video matrix. For some pan-and-tilt devices, additional preset positions can also be called up using the RA. These functions are called up by the Windows Receiver software (Version 1.69 onwards).

The LMW OWL Remote Adapter supports the OWL-PC INTERFACE BOX and the connected Pan and Tilt devices. The Remote Adapter controls the dome via an RS485 data line.

47.1 Functions

The range and type of the functions are described in detail in the respective LMW OWL manual.

The LMW OWL Remote Adapter, version 1.00, supports the following functions:

- Addressing and controlling of up to 16 clusters.
- Executing pan, tilt (each with separate speed settings).
- Executing zoom and focus
- Setting and calling-up of up to 6 preset positions per dome.
- Setting the automatic focus (Auto Focus).
- Setting the camera (e.g. Backlight, Shutter).
- Setting to black and white or to colour
- Addressing of 15 outstations

48 Connections and Configuration

48.1 Connecting the Remote Adapter

The connection (9600 baud) between the Remote Adapter (RA) and the LMW OWL must be established via the RS-485 interface. The control connection of the Interface Box is a 1412 Military connector named OWL-REM (Fig. 1).

Establish connections as follows:

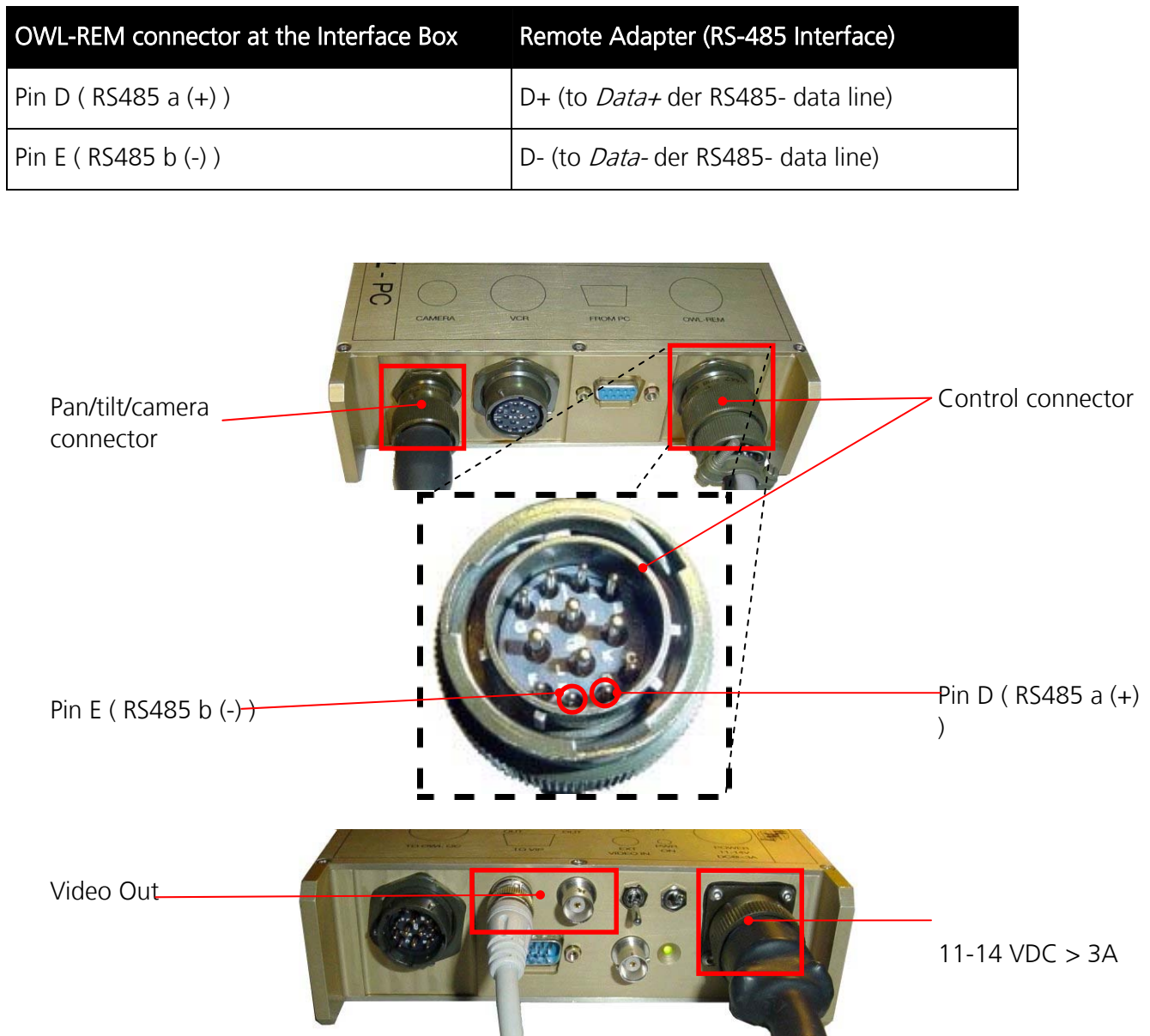


Figure 1: OWL-PC INTERFACE BOX – Connectors at front and rear

48.2 Addressing

For further information please refer to the LMW OWL manual.

49 Commands

49.1 S- Command(setting of pan and tilt speed)

You can set the Pan/Tilt speeds using the S Command. The speeds apply globally for all connected systems.

The speed set is **not** stored on switching off the device. When you switch the Remote Adapter back on, the speeds are reset to the factory settings (default value: *Pan10Hex, Tilt 10 Hex*).

The S command is constructed as follows:

CT1 = "Description text for command"

CMD1 = *00010**AA**S0003**XY**!xy

AA = Cluster-address (01 to 16 - any, as command is global)

X = Indicates the function in question (decimal values).

YY = Function parameter (hexadecimal value)

No. X	Parameter YY	Description
0	00 to FF	Set pan speed (from 00 = slow to FF = fast)
1	00 to FF	Set tilt speed (from 00 = slow to FF = fast)

Example: S command, valid for all connected systems

Set speed to 12 (*hexadecimal 12*)

CT1 = Speed 12

CMD1 = *0001001S0003012!xy

49.2 B-Command (setting the address of outstation)

You can set the address of an outstation using the B Command.

The addresses are **not** stored on switching off the device. When you switch the Remote Adapter back on, the addresses are reset to the factory settings (default value: address 0E hex).

The B command is constructed as follows:

CT1 = " Description text for command "

CMD1 = *00010**AA**B0003**XY**!xy

AA = Cluster-address (01 to 16 – any, as command is global)

X = Indicates the function in question (decimal values).

YY = Address parameter (hexadecimal value)

No. X	Parameter YY	Description
0	01 to 0F	Set outstation address (01 = address 1 to 0F = address 15)

Example: S command, valid for all connected systems

Set address to 08 (*hexadecimal 08*)

CT1 = Outstation 8

CMD1 = *0001001B0003008!xy

49.3 D Command (General Setting with Parameters)

You can make general settings with parameters using the D command. The D command is constructed as follows:

CT1 = " Description text for command "

CMD1 = *00010AAD0003XYY!xy

AA = Cluster-address (01 to 16 – hexadecimal value)

X = Indicates the function in question (decimal values).

YY = Function parameter (hexadecimal value)

No. X	Parameter YY	Description
0	00	Auto Focus Off – switch off auto focus
	01	Auto Focus On – switch on easy auto focus
1	00	Backlight Off – manual backlight control off
	01	Backlight On – manual backlight control on
	02	Backlight Up – increase backlight
	03	Backlight Down – decrease backlight
2	00	Shutter Off – manual shutter control off
	01	Shutter On – manual shutter control on
	02	Shutter Up – increase shutter
	03	Shutter Down – decrease shutter
3	00	Mono – set camera to black and white mode
	01	Colour – set camera to colour mode
4	00	Night – set camera to night mode
	01	Day – set camera to day mode
5	00	IR Off – IR-mode off (not possible with all cameras)
	01	IR On – IR-mode on (not possible with all cameras)

Example: D command

Set camera to black and white mode (Cluster 08 hex)

CT1 = B&W

CMD1 = *0001008D0003300!xy

49.4 F-Command ((Setting and Calling-Up Preset Positions)

You can set and call-up preset positions using the F command. The F command is constructed as follows:

CT1 = " Description text for command" "

CMD1 = *00010AAAF0003XYY!xy

AA = Cluster address (01 to 16 – decimal value)

X = Indicates the function in question (hexadecimal values).

YY = Function parameter (hexadecimal value)

No. X	Parameter YY	Description
0	01 to 06	Go to Preset – Call preset position (position 1 to position 6)
1	01 to 06	Save Preset – Save as preset position (position 1 to position 6)

Example: F Command

Set preset position 01 for Cluster 09 (*hexadecimal 09*)

CT1 = SavePreset 1

CMD1 = *0001009F0003101!xy

50 Mark Mercer Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix).

The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video crossbar. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These functions are called up by the Windows Receiver software from Version 1.69.

This version of the Remote Adapter (1.00) supports the dome protocol for the Mark Mercer Dome D150 „Quick Switch“.

In the following, the connection and configuration of the device is documented based on the Mark Mercer Dome D150 ‚Quick Switch‘ Pan Tilt Unit.

The remote adapter supports the Meridian Control Protocol Version: 232MX-B7_5 of the MM500 Series from Mark Mercer.



Mark Mercer D150QSPT

50.1 Functions

The Remote Adapter Version 1.00 supports the following (and other) functions (additional information regarding the individual functions is contained in the manual of the Dome in question)

- 256 cameras can be controlled
- pan / tilt / zoom / focus,
- set pan, tilt and zoom speed,
- iris control (open, close, stop)
- 130 fixed positions can be set and called up,
- dwell-time and speed can be set for every fixed position,
- 2 tour paths can be set and called up from the fixed positions,
- a random tour and a normal tour can be called up in both paths from all fixed positions,
- automatic and manual 180° rotation,
- automatic park and automatic tour function,
- on-board alarms can be controlled,
- switch-over between colour and b/w (mono), and also between limit values,
- other functions as specified in the respective device manual.

51 Configuration

In the text, names and labels of the device are in double-inverted commas, e.g. "Rx". To ensure that the commands from the Remote Adapter control the addressed camera in a targeted manner, each dome must be assigned an individual address.

51.1 Setting the Address at the Dome

The address is set using switches SW1, SW2 and SW3. The address switches are located on a board that is fixed on the inside at the mounting plate of the dome. To reach address switches SW1, SW2 and SW3, loosen the locking screw at the side of the mounting plate and rotate the dome cover carefully to the left (anticlockwise). Lift the entire dome from the locking unit of the mounting plate. Please also observe the instructions in the Mark Mercer Installation Document.



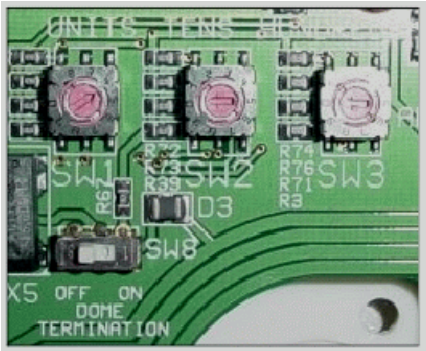
Configuring the Dome

After disassembling the dome, you can now see the three address switches (arrow). Set the receiving address accordingly using address switches SW1, SW2 and SW3 (refer to the following table).

The address switches are decimal encoded. Depending on the installation (refer to the installation document of the manufacturer), the last switch SW8 is to be set to „ON“ or „OFF“.

We recommend that you use addresses with the camera numbers of the CamTel Windows Software (1-4 or 1-10) so that the preconfigured (default) files can be used immediately.

Example configuration of the address switches:



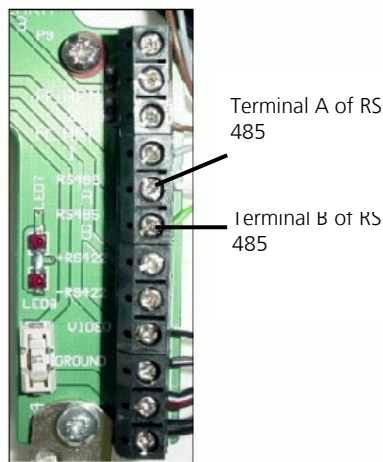
Address switches SW1, SW2 and SW3

SW1	SW2	SW3	Dome-Adresse
0	0	0	0
1	0	0	1
2	0	0	2
5	7	0	75
6	7	0	76
4	5	2	254
5	5	2	255

Note: When putting together, make sure that the plug connections on the mounting plate and at the dome housing are positioned at a distance next to each other. The connection must be re-established on rotating the housing. Please also read the instructions in the installation document from Marc Mercer in this regard.

51.2 Establish RS-485 Connection between the Remote Adapter and the Dome

The RS-485 connection must be established to communicate between the Remote Adapter and the Dome.



- Connect „D -“ of the Remote Adapter to connection „RS-485 B“ of the terminal strip.
- Connect „D+“ of the Remote Adapter to connection „RS-485 A“ of the terminal strip.
- Make sure that the transparent interface of the image transmitter is set to 9600 baud / 8N1 (via transmitter settings/serial channel/baud, mode of the installed Windows software).

The designations of the terminals are located on the board.

RS-485

Terminal strip (RS-485 terminals)

51.3 Loading the Control Files (R01)

After the required Windows software for video viewing has been installed on the PC, you can then copy the files for control and command support (R01 files) of the Dome into the corresponding directory. These files are included in the scope of delivery.

The binary file *markmercerc.bin* is copied into the directory of the Windows software in the subdirectory...\\RM\\BIN.

Depending on the command support, you can copy all R01 files or just the R01 file *MarkMercer_All.026*, *MarkMercer_Prog.026*, *MarkMercer_Tour.026* or *MarkMercer_User.026* into the ...\\RM\\RM01 directory of the Windows software.

MarkMercer_All.026: all command functions are located here, independent of the actually used function.

MarkMercer_Prog.026: the commands used in setting the dome with the respective Windows software are located here.

MarkMercer_User.026: selected commands for the respective user are located here.

MarkMercer_Tour.026: commands for defined sequences of the pan-and-tilt movements are located here.

51.4 Setting Up the Control File (R01) for the Remote Adapter

An existing connection to your image transmitter can be called up in the "Serial Channel" submenu of the "Transmitter Settings Menu" field. The external serial interface must be set to 9600 baud, mode 8N1.

- Select the "Locate Connected RA" menu item. On successful connection to the remote adapter, the available protocol implementations are displayed in the "Remote Adapter" window.

If the message "Timeout, is the RA connected to the transmitter" appears then please check the following points:

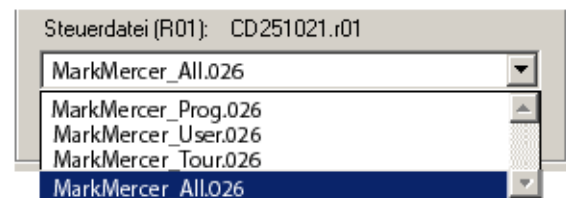
- is the V.24 cable correctly connected?
- Is the supply voltage connected to the remote adapter?
- Is the serial channel correctly set (9600 baud, 8N1)?



Mark Mercer V1.00 with R01 files

Installing your R01 file:

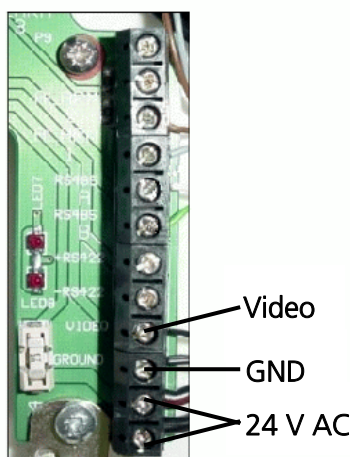
- To install, select the appropriate control file from the list and activate the control field marked "Update Remote Adapter".
- After making the selection, click on the **OK** button and terminate the connection to actuate the altered settings for the remote adapter.



Selecting the R01 files

Please observe that the settings are only updated after the connection has been terminated or can only take effect after a new connection has been established!

51.5 Establishing a Video Connection and the Power Supply



Terminal strip (Video and 24 VAC)

Video connection:

- Connect the wires of the video cable to the "Video" and "GND" terminals on the terminal strip. The designations of the terminals are located on the board.

Power supply:

- Connect the cable of the power supply (delivers with the device) to the terminals of the terminal strip (24 VAC).

52 Commands

Depending on the range of the command support, either all R01 files or just one R01 file (*MarkMercer_All.026*, *MarkMercer_Prog.026*, *MarkMercer_User.026*, *MarkMercer_Tour.026*) have been copied into the directory of the Windows software and from there into the ...RM\RM01 subdirectory. Command lines whose parameters are described in the following are located in these files. Additional explanations of the commands are located in the device manual of the remote adapter.

52.1 S Command (Pan/Tilt/Zoom speeds)

The pan, tilt and zoom speed is set using the S command. The speed applies globally for all systems connected to the RA.

Note: The speeds are not stored and reset themselves automatically to the **default values** after switching the RA back on:

pan speed **6**

tilt speed **6**

zoom speed **3**

General construction of the S command:

CT1 = "description text for the function"

CMD1 = *00010AAS0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = sub-function

YY = indicates the parameter of the function (decimal).

Function Number X	Description	Parameter Y (decimal)	Error correction, when the value range is exceeded (decimal).
0	Set the pan speed	01 – 12	05
1	Set the tilt speed	01 – 12	05
2	Set the zoom speed	01 – 06	03

01 (slow) <-----> **12** (fast)

Examples: S command, all cameras

Set pan speed to 1:

CT1=Hor Spd slow

CMD1=*0001001S0003001!xy

Set tilt speed to 6:

CT2=Ver Spd average

CMD2=*0001001S0003106!xy

52.2 B Command (General Commands)

CT1=" description text for the function"

CMD1=*00010AAB0003XYY!xy

AA = camera address (00 to FF (hexadecimal)).

X = indicates the function in question (hexadecimal).

YY = Irrelevant here (don't care).

Function number X	Description
0	U turn
1	Auto U turn toggle
2	Home position
3	Patrol
4	Auxiliary output switch on
5	Auxiliary output switch off
6	Digital zoom toggle
7	On board alarms on
8	On board alarms off
9	Auto set up routine
A	Acknowledge dome alarms

Examples: B command

Digital zoom, camera no. 8 (08 hexadecimal):

CT1=digital zoom

CMD1=*0001008B0003600!xy

Alarm Off, camera no. 2 (02 hexadecimal):

CT2=Alarm Off

CMD2=*0001002B0003800!xy

52.3 D Command (dome OSD functions)

Information regarding the dome that is shown in the picture on the camera can be controlled using the D command. It is constructed as follows:

CT1=" description text for the function"

CMD1=*00010AAD0003XYY!xy

AA = camera address (00 to FF (hexadecimal)).

X = indicates the function in question (hexadecimal).

YY = Irrelevant here (don't care).

Function number X	Description
0	Dome OSD off
1	Dome OSD on
2	Dome OSD bottom of screen
3	Dome OSD top of screen

Examples: D command

Dome OSD on, camera no. 8 (08 hexadecimal):

CT1=OSD On

CMD1=*0001008D0003100!xy

Dome OSD top of screen, camera no. 26 (1A hexadecimal):

CT2=OSD top

CMD2=*000101AD0003300!xy

52.4 P Command (patrol / tour functions)

The various patrol / tour functions are called up using the P command. Among these are single and endless tours as well as automatic tour starts after a specified time.

CT1= "description text for the function"

CMD1=*00010AAP0003XYY!xy

AA = camera address (00 to FF (hexadecimal)).

X = indicates the function in question (hexadecimal).

YY = function parameter (decimal).

Function Number X	Description	Parameter YY (decimal)	Error correction, when the value range is exceeded (decimal).
0	Touring patrol All	00	00
	Touring patrol path1	01	
	Touring patrol path2	02	
	Touring patrol random	03	
1	One pass patrol All	00	00
	One pass patrol path1	01	
	One pass patrol path2	02	
2	Clear patrol path1	01	01
	Clear patrol path2	02	
3	Auto patrol 1	00 – 99	10
4	Auto patrol 2	00 – 99	10
5	Auto patrol 3	00 – 99	10
6	Auto park	00 – 99	10

Examples: P command

Touring patrol random, camera no. 3 (03 hexadecimal):

CT23=Patrol Random

CMD23=*0001003P0003003!xy

Auto patrol 2, camera no. 8 (08 hexadecimal):

CT28=Patrol 2 12min

CMD28=*0001008P0003412!xy

52.5 E Command (set patrol / tour settings)

The patrol / tour settings apply globally for all systems connected to the RA. They are effective for all of the presets set in the following

Note: The settings are not stored and reset themselves automatically to the default values after switching the RA back on:

Dwell time : **10s**

Patrol speed: **3**

Patrol path : Path 1 = **1** (enable) Path 2 = **0** (disable)

CT1= "description text for the function"

CMD1=*00010AAE0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = indicates the function in question (hexadecimal).

YY = function parameter (hexadecimal).

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
0	Dwell Time	01 – FF	10
1	Patrol speed	01 – 04	03
2	Both paths enable	11	00
	Both paths disable	00	
	Only path1 enable	10	
	Only path2 enable	01	

Examples: E command, all cameras

Dwell time:

CT23=Dwell time 120s (78 hexadecimal)

CMD23=*0001001E0003078!xy

Both paths enable:

CT28=Both paths

CMD28=*0001001E0003211!xy

52.6 Z Command (test functions)

Various test functions can be called up using the Z command. It is constructed as follows:

CT1= "description text for the function"

CMD1=*00010AAZ0003XYY!xy

AA = camera address (00 to FF (hexadecimal)).

X = indicates the function in question (hexadecimal).

YY = Irrelevant here (don't care).

Function number X	Description
0	Wiring check
1	Soak test
2	Manual patrol start
3	Port test Attention: only use this when no motors are connected.
4	Communications test
5	Display version details on
6	Display version details off

Examples: Z Command

Wiring check, camera no. 22 (16 hexadecimal): Display version details, camera no. 5 (05 hexadecimal):

CT21= Wiring check

CMD21= *0001016Z0003000!xy

CT22= Version details

CMD22= *0001005Z0003500!xy

52.7 G Command (iris functions)

The iris can be controlled using the G command. It is constructed as follows:

CT1= "description text for the function"

CMD1=*00010**AAG**0003**XY**!xy

AA = camera address (00 to FF (hexadecimal)).

X = indicates the function in question (hexadecimal).

YY = Irrelevant here (don't care).

Function number X	Description
1	Iris open (+) auto
2	Iris close (-) auto
3	Iris open/close STOP
A	Iris open (+) manual

B	Iris close (-) manual
---	-----------------------

Examples: G command

Iris stop, camera no. 9 (09 hexadecimal):

CT21= Iris stop

CMD21= *0001009G0003300!xy

Iris close manual, camera no. 10 (0A hexadecimal):

CT22= Iris close m

CMD22= *000100AG0003B00!xy

52.8 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = "description text for the function"

CMD1 = *00010AAF0003XYY!xy

AA = camera address (00 to FF (hexadecimal)).

X = indicates the function in question (hexadecimal).

YY = 0x01 (1) to 0x82 (130) (hexadecimal), indicates the fixed position number

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
0	call up fixed position	01 – 82	01
1	set fixed position	01 – 82	01

Examples for setting and calling up fixed positions at camera 9 (09 hexadecimal):

Set fixed position 1:

CT1 = SetPreset 1

CMD1 = *0001009F0003101!xy

Call up fixed position 7:

CT2 = Preset 7

CMD2 = *0001009F0003007!xy

52.9 L Command (baud rate)

The baud rate applies globally for all systems connected to the RA.

Note: The baud rate is not stored and resets itself to **9600 baud** automatically after switching back on the RA:

CT1= "description text for the function"

CMD1=*00010AAL0003XYY!xy

AA = camera address (00 to FF (hexadecimal)).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description
1	9600 Baud
2	4800 Baud
3	2400 Baud

52.10 N Command (colour / mono functions)

The N command is used for setting the colour / b/w (mono) functions of the dome.

CT1= "description text for the function"

CMD1=*00010**AA**N0003**XY**!xy

AA = camera address (00 to FF (hexadecimal)).

X = indicates the function in question (hexadecimal).

YY = Irrelevant here (don't care).

Function number X	Description
0	Automatic colour / mono switching mode
1	Black and white mode
2	Colour mode
3	Increment camera integration level
4	Decrement camera integration level
5	Set colour / mono switching level 1
6	Set colour / mono switching level 2
7	Set colour / mono switching level 3

1. Examples for the N command at camera no. 1 (01 hexadecimal):

Set receiver category F3 (hexadecimal):

CT1 = Set R-Cat. F3

CMD1 = *0001001N00031F3!xy

Set transmitter address 2B (hexadecimal):

CT2 = Set S-Add. 2B

CMD2 = *0001001N000332B!xy

53 Miscellaneous

In addition to the binary file *markmercercer.bin*, the R01 files *MARKMERCER_All.026*, *MARKMERCER_Path.026*, *MARMERCER_Prog.026* and *MARKMERCER_User.026* are also included.

54 VIDO Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix).

The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video crossbar.

This version of the remote adapter (1.00) supports the dome protocol for the VIDO High Speed Dome Cameras CC-100P, CC-180P and CC-230P from Merk. In the following, the connection and configuration of the device is documented based on the CC-100 P18S High Speed Dome Camera (referred to as VIDO in the following).

Additional fixed positions can be called up by the Remote Adapter for pan-and-tilt systems. These functions are called up by the Windows Receiver software from Version 1.69.



VIDOCamera CC-100 P

54.1 Functions

The Remote Adapter Version 1.00 supports the following (and other) functions (additional information regarding the individual functions is contained in the manual of the Dome in question)

- 256 cameras can be controlled
- pan / tilt / zoom / focus,
- pan and tilt speeds can each be set in 64 steps,
- zoom and focus speeds can each be set in 8 steps,
- auto focus (on/off),
- iris control (open, close, auto, stop)
- set/call up 64 fixed positions,
- 6 tours can be stored,
- switch between b/w and colour,
- digital zoom on/off
- against-the-light compensation on/off
- frame mirroring on/off
- and other functions as listed in the respective manual.

55 Configuration

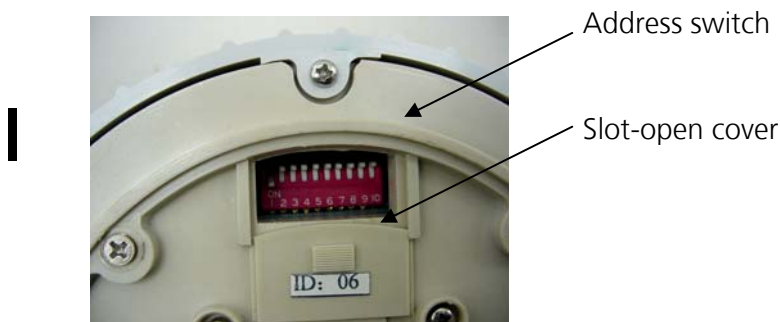
Note:

In the text, names and labels of the device are in double-inverted commas, e.g. "Rx". To ensure that the commands from the Remote Adapter control the addressed VIDO in a targeted manner, each dome must be assigned an individual address.

55.1 Setting the Address at the VIDO

The window for the address switches is located on the cable-connection surface of the dome (refer to the diagram of VIDO address switch S1)

- Open the window cover (can be pushed open (referred here as: ID: 06)).
- Rotate part of the VIDO until the DIP switch in the window can be seen in its entirety.
- Set the appropriate address. Address switch S1 is binary encoded. We recommend that you use addresses with the camera numbers of the receiver software (1-4 or 1-10) so that the preconfigured (default) files can be used immediately.



Examples for Setting the Addresses

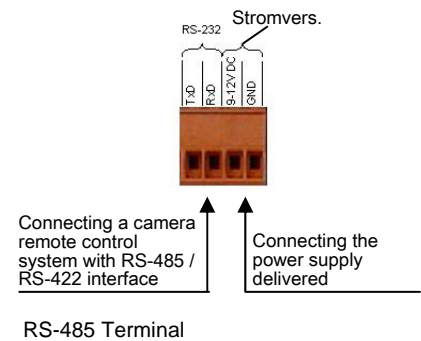
Address	DIP Switch ON	Address	DIP Switch ON
0	-	8	4
1	1	9	1 + 4
2	2	10	2 + 4
3	1 + 2	16	5
4	3	32	6
5	3 + 1	64	7
6	2 + 3	128	8
7	1 + 2 + 3	255	1 + 2 + 3 + 4 + 5 + 6 + 7 + 8

Additional examples for setting the addresses are located in the user manual of the VIDO.

55.2 Establish RS-485 Connection between the Remote Adapter and the VIDO

The RS-485 connection must be established to communicate between the Remote Adapter and the VIDO.

- Connect „D-“ of the Remote Adapter to connection „ RS-485-“ (yellow) of the VIDO.
- Connect „D+“ of the Remote Adapter to connection „ RS-485+“ (blue) of the VIDO.
- Make sure that the transparent interface of the image transmitter is set to 9600 baud / 8N1 (via transmitter settings/serial channel/baud, mode of the installed Windows software).



55.3 Loading the Control Files (R01)

After the required Windows software for video viewing has been installed on the PC, you can then copy the files for control and command support (R01 files) of the VIDO into the corresponding directory. These files are included in the scope of delivery.

The binary file *VIDO.bin* is copied into the directory of the Windows software in the subdirectory...\\RM\\BIN.

Depending on the command support, you can copy all R01 files or just the R01 file *VIDO_All.023*, *VIDO_Prog.023* or *VIDO_User.023* into the ...\\RM\\RM01 directory of the Windows software.

VIDO_All.023: all command functions are located here, independent of the actually used function.

VIDO_Prog.023: the commands used in setting the VIDO CC-100P with the respective Windows software are located here.

VIDO_User.023: selected commands for the respective user are located here.

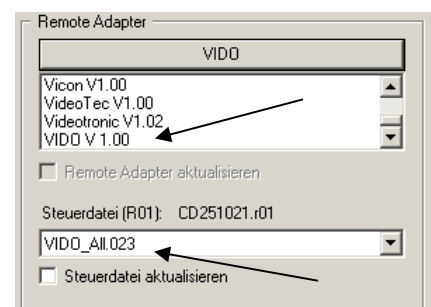
55.4 Setting Up the Control File (R01) for the Remote Adapter

An existing connection to your image transmitter can be called up in the "Serial Channel" submenu of the "Transmitter Settings Menu" field. The external serial interface must be set to 9600 baud, mode 8N1.

- Select the "Locate Connected RA" menu item. On successful connection to the remote adapter, the available protocol implementations are displayed in the "Remote Adapter" window.

If the message "Timeout, is the RA connected to the transmitter" appears then please check the following points:

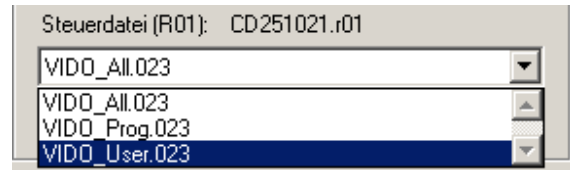
- is the V.24 cable correctly connected?
- is the supply voltage connected to the remote adapter?
- is the serial channel correctly set (9600 baud, 8N1)?



VIDO V1.00 with one R01 file

Installing your R01 file:

- To install, select the appropriate VIDO control file from the list and activate the control filed marked "Update Control File".
- After making the selection, click on the **OK** button and terminate the connection to actuate the altered settings for the remote adapter.



Selecting the R01 files

Please observe that the settings are only updated after the connection has been terminated or can only take effect after a new connection has been established!

55.5 Establishing the Power Supply for the VIDO

A suitable mains adapter for the VIDO is included in the scope of delivery. Please also observe the safety instructions contained in the installation manual of the VIDO. Only operate the camera using the stipulated AC current of 12 V (12 VAC). Observe correct polarity when connecting! Incorrect polarity may result in damage to your camera! We do not accept any guarantee liabilities ensuing from damage caused by incorrect polarity!

Check and mark the correct polarity at the terminal of the power supply (delivered with device). Connect the VIDO to the 12 VDC/2A power supply.

- Connect GND (-) to the green wire of the VIDO,
- Connect +12 VDC to the red wire of the VIDO.

56 Commands

Depending on the range of the command support, either all R01 files or just one R01 file (*VIDO_All.023*, *VIDO_Prog.023*, *VIDO_User.023*) have been copied into the directory of the Windows software and from there into the ...RM\RM01 subdirectory. Command lines whose parameters are described in the following are located in these files. Additional explanations of the commands are located in the device manual of the remote adapter.

56.1 S Command (Pan / Tilt / Zoom / Focus Speeds)

The pan, tilt, zoom and focus speed is set using the S command.

The speed set applies to all connected systems controlled via the RA.

General construction of the S command:

CT1 = "description text for the function"

CMD1 = *00010AAS0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = sub-function

YY= command parameter (hexadecimal).

If the value range is exceeded then a programmed mean value (error correction) is used (refer to the following table).

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
0	Set the pan speed	01 – 40	21 (progr. mean value)
1	Set the tilt speed	01 – 40	21 (progr. mean value)
2	Set the zoom speed	01 – 08	04 (progr. mean value)
3	Set the focus speed	01 – 08	04 (progr. mean value)

00 hexadecimal (slow) <-----> 40 hexadecimal (fast)

Examples: S-command (all domes and/or pan-and-tilt heads)

- Set pan speed (0) to 12:
CT1=PanSpd 12
CMD1=*0001001S0003012!xy
- Set tilt speed (1) to 23:
CT2=TiltSpd 23
CMD2=*0001001S0003123!xy

56.2 D Command (various functions)

CT1=" description text for the function"

CMD1=*00010AAD0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = indicates the function in question (decimal).

YY = indicates the parameter of the function (hexadecimal).

If the value range is exceeded then a programmed value (error correction) is used (refer to the following table).

Function Number X	Description	Abbr.	Parameter YY	Error correction, when the value range is exceeded (hexadecimal).
1	Start Pan Swing	Start Pan	00 – 3F	00 (progr. value)
2	Start Pan Swing	Stop Pan	00 – 3F	01 (progr. value)

3	Sequence Speed	Seq Speed	01 – 08	04 (progr. value)
4	Sequence Time	Seq Time	01 – FF	05 (progr. value)
5	Sequence Preset No.	Seq Preset	00 – 3F	00 (progr. value)

56.3 H Command (diverse functions)

CT1= "description text for the function"

CMD1=*00010AAH0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care). This value can be, e.g.00 (hexadecimal).

Function number X	Description
1	Run Pan Swing
2	Stop Pan Swing
3	Camera Display ON
4	Camera Display OFF
5	Camera Power Off
6	Camera Power On
7	Digital zoom ON
8	Digital zoom OFF
9	Auto Focus
10	Manual Focus
11	Manual AE
12	Auto AE
13	Camera Reset
14	Exposure Compensation OFF
15	Exposure Compensation ON

16	01X Shot OFF
17	01X Shot ON
18	Digital Zoom off
19	Digital Zoom on
20	Manual focus
21	Auto focus
22	Manual iris
23	Auto iris
24	Manual white balance mode
25	Auto white balance mode
26	White balance indoor mode !!! ATTENTION, other function: Mirror Off
27	White balance outdoor mode !!! ATTENTION, other function: Mirror On
28	One push white balance
29	Auto tracing white balance
30	Black and white pictures
31	Colour pictures
32	Wash off
33	Wash on
34	Brush off
35	Brush on
36	Power off
37	Power on
38	Lamp off
39	Lamp on
40	Auto off
41	Auto on

56.4 Z Command (diverse functions)

CT1= "description text for the function"

CMD1=*00010AAZ0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = indicates the function in question (decimal).

YY = indicates the parameter of the function (decimal).

If the value range is exceeded then a programmed value (error correction) is used (refer to the following table).

Function Number X	Description	Abbr.	Parameter YY	Error correction, when the value range is exceeded (hexadecimal).
0	Set Sequence	Set Seq	00 – 05	00 (progr. value)
1	Start Code Seq.	Start Code	00 – 05	00 (progr. value)
2	Stop Code Seq.	Stop Code	00 – 05	00 (progr. value)
3	Run Sequence	Run Seq	00 – 05	00 (progr. value)
1	Stop Sequence	Stop Seq	06	

Example for sequence 3, camera 7:

CT1 = Run Sequence 5

CMD1 = *0001007Z0003305!x

56.5 G Command (iris functions)

CT1= "description text for the function"

CMD1=*00010AAG0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description	Function number X	Description
1	Iris Open START	3	Iris Close START
2	Iris Open STOP	4	Iris Close STOP

56.6 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = "description text for the function"

CMD1 = *00010AAFF0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = indicates the function in question (decimal).

YY = 01 to 3F (hexadecimal), indicates the fixed position number

If the value range is exceeded then a programmed value (error correction) is used (refer to the following table).

Function number X	Description	Parameter YY (hexadecimal)	Error-correction, when the value range is exceeded (hexadecimal).
0	call up fixed position	00 – 3F	00
1	set fixed position	00 – 3F	00

Examples for setting and calling up fixed positions at camera 1:

- Set fixed position 1:

CT1 = SetPreset 1

CMD1 = *0001001F0003101!xy

- Call up fixed position 7:

CT2 = Preset 7

CMD2 = *0001001F0003007!xy

56.7 L Command (baud rate)

The baud rate applies to all connected systems controlled via the RA.

CT1= "description text for the function"

CMD1=*00010AAL0003XYY!xy

AA = camera address (00 to FF (hexadecimal))

X = indicates the function in question (decimal).

NOTE: The baud rate is not stored and after switching back on the RA is set to:

9600 Baud.

YY = Irrelevant here (don't care).

Function number X	Description
1	9600 Baud
2	4800 Baud
3	2400 Baud

57 Sources of Information

Additional information can be found in the following manuals:

- Remote Adapter Device Manual
- CamTel-Windowssoftware Manual,
- Operating Instructions for the VIDO High Speed Dome Camera
- High Speed Dome Camera Installation Instructions (engl.),
- Merk Specifications for High Speed Dome Cameras (engl.).

58 Panasonic Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbar). The module is used for the remote control of pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video crossbar. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software.

In this version of the remote module, the Dome WV-CSR850, WV-CSR400 and WV-BSR300 (all from Panasonic) are supported. The Remote Adapter controls the Dome via a two-wire RS485 line.

58.1 Functions

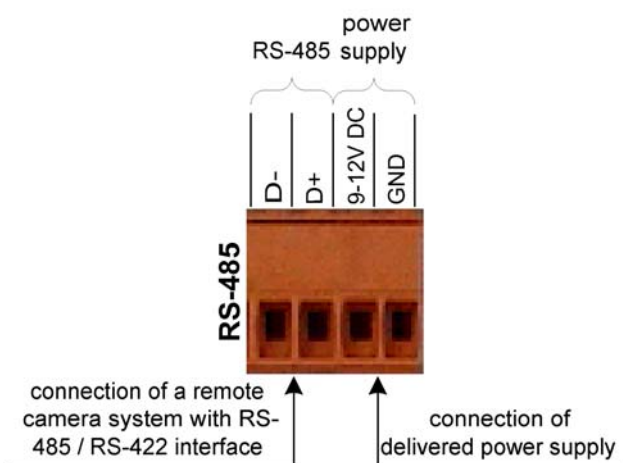
The following features are supported by the Remote Adapter:

- 10 domes can be controlled
- pan, tilt, zoom, focus
- 64 fixed positions for each dome
- set fixed positions
- autofocus, homeposition, reset
- pan-, tilt speeds can be set

59 Connection

59.1 Integrating the Remote Module into the Picture Transmission System

The RS232 cable and SUB-D plug is connected to the corresponding COM1 (V.24, transp. SIO) connection of the transmitter. The Remote Adapter has to be supplied with power by the power unit delivered with it. The connections at the Remote Adapter are marked by "GND" and "9-12 VDC".



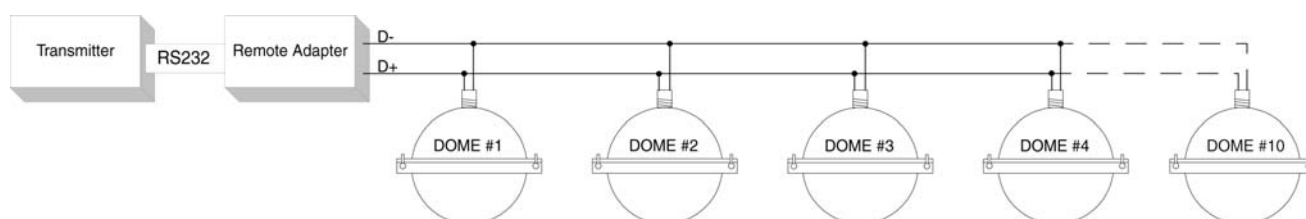
The RS422/RS485 data lines of the dome are connected by a western plug (WV-CSR600). The following two-wire connections must be made for the data connection between the Remote Adapter and the dome:

Panasonic -Dome Western Plug	Remote Module
red	D- / TxD
orange	D+ / RxD

The dome can be put into operation once additional connections, such as power supply, video signal, etc., have been established (refer to the DOME setup manual).

59.2 Addressing Several Domes

Up to 10 domes can be directly connected to the transmitter system. The data lines of the individual domes are wired in parallel (see figure below).



Example Connection of 4 Domes to the Remote Adapter

60 Configuration

60.1 Addressing

To ensure that the Remote Adapter commands only address one DOME, each DOME must be assigned a different address (from 1 to 10). The addresses can be set via the Panasonic control console (refer to the user manual of the Panasonic Dome). When selecting one of the 10 cameras via the Windows receiver software, the corresponding DOME is addressed by the Remote Adapter via its address.

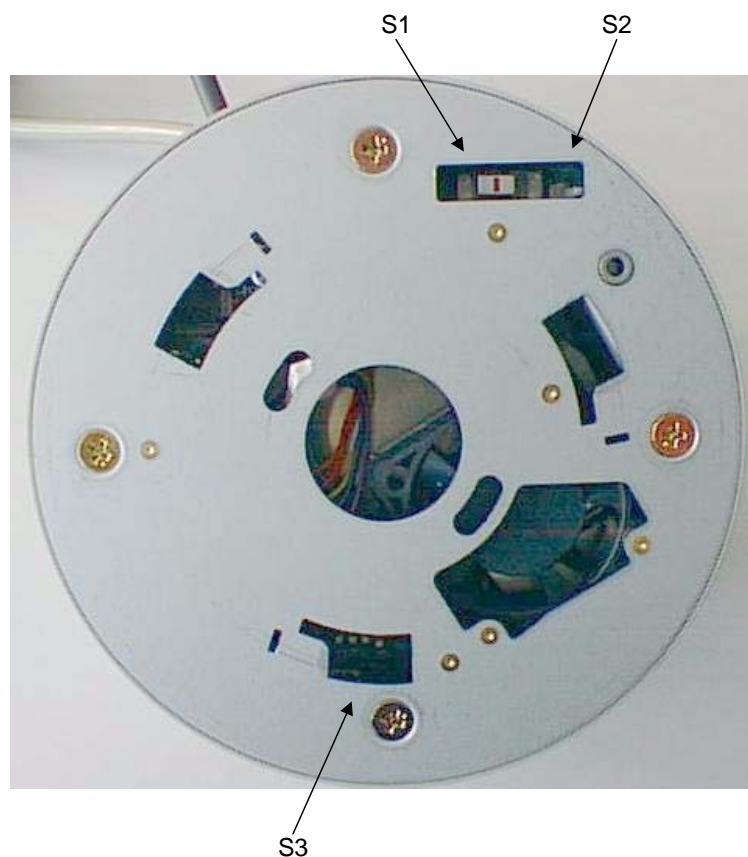
60.2 Setting switches S1, S2 and S3

S1: 2-wire data connection (semi-duplex) Set the switch to the left as indicated in the figures.

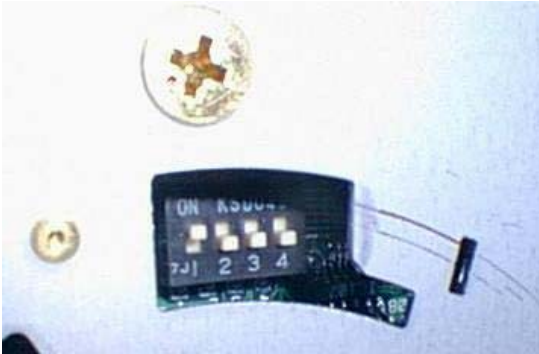
S2: Termination, data connection is set to "On". The switch must be set to the right as depicted in the figures.

S3: The quadruple DIP switch is set as follows:

- DIP1: always on (PAL)
- DIP2: off
- DIP3: off
- DIP4: off

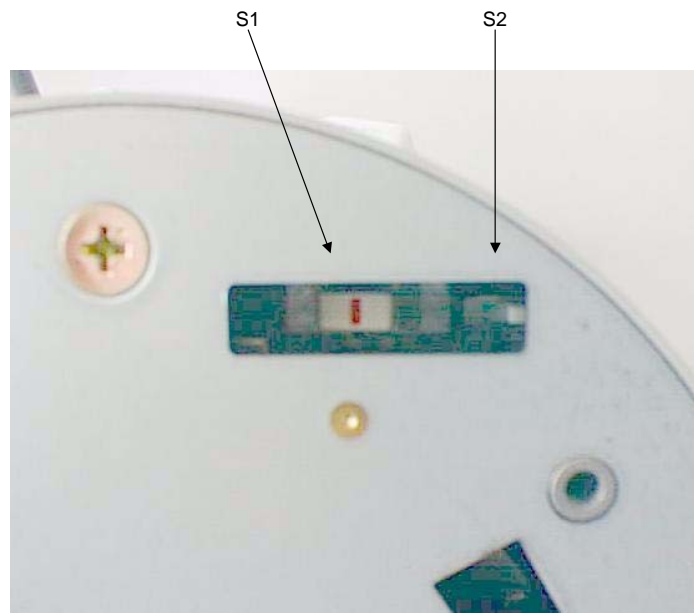


Disassembled Dome with Switches S1, S2 and S3



Quadruple DIP Switch S3

DIP 4 is used to reset the dome to the factory settings (refer also to the user manual of the Panasonic Dome)



Enlarged View of Switches S1 and S2

61 Commands

61.1 Construction of the Commands in the R01 File

The commands in the R01 file are constructed as follows:

Start char.	Camera address	Command	Parameter number	Parameter 1	Parameter 2	Parameter 3	End
*	00010yy	X	0003	a	b	c	!xy

Start character: Each command begins with a star symbol "*" "

Camera address: The Remote Adapter is instructed on which camera the command is to be executed. The two numbers "yy" indicate the camera number

Examples: yy=01 for camera 1, yy=10 for camera 10

Command: The following commands can be used here

S set speed for pan / tilt

F set / call up fixed positions

special functions, when parameter 1=4 or 5

D special functions

K special functions

Parameter 1,2,3: for the corresponding parameter command

End: each command ends with the characters "!xy"

61.2 Fixed Positions

This chapter describes how to fix and to call up fixed positions. There are two ways in which fixed positions can be set.

61.2.1 Setting the Fixed Position using two Commands

Normally, two commands must be used in order to set a fixed position. The commands used are:

Command 1:

Start char.	Camera address	Command	Parameter number	Parameter 1	Parameter 2	Parameter 3	End
*	00010yy	F	0003	2	b	c	!xy

yy = camera number, e.g. 01

Command = F (fixed positions)

Parameter 1 = 2 (set fixed positions using two commands)

Parameter 2 and 3 (bc) = fixed position as a hexadecimal value (64 possible fixed positions, $64_d = 3F_h$)

Command 2:

Start char.	Camera address	Command	Parameter number	Parameter 1	Parameter 2	Parameter 3	End
*	00010yy	F	0003	3	0	0	!xy

yy = camera number, e.g. 01

Command = F (fixed positions)

Parameter 1 = 3 (confirm fixed positions)

Parameter 2 and 3 = 0, meaningless

This confirmation applies to all fixed positions !

The dome behaves as follows when this functions is called up:

- On calling up the fist command, the dome moves to the previous fixed position, if a position has been stored.
- The dome can then move to the desired fixed position.
- The position is confirmed and stored using the second command.

61.2.2 Calling Up Fixed Positions

The following command can be used to call up fixed positions:

Start char.	Camera address	Command	Parameter number	Parameter 1	Parameter 2	Parameter 3	End
*	00010yy	F	0003	0	b	c	!xy

yy = camera number, e.g. 01

Command = F (fixed positions)

Parameter 1 = 0 (call up fixed positions)

Parameter 2 and 3 (bc) = fixed position as a hexadecimal value (64 possible fixed positions, $64_{10} = 3F_{16}$)

The dome moves to the stored fixed position. If no fixed position has been stored previously then the dome remains in its current position.

61.3 Entries in the R01 File

The commands used for the first camera section (Dome Address 1) are explained in the following:

[CAM1]	Entries for Camera 1
MODE = 5	Available features 0 no features 1 only pan / tilt panel 2 features in upper window can be called up (here: fixed positions) 4 features in the upper and lower windows can be called up; here: fixed positions and vector scans 5 pan / tilt panel and features in both windows can be called up
ADDRESS = 0001001	The last two numbers indicate the camera number (decimal), the other numbers should not be changed
CT1 = Set Pos 01	Any description text (Set Pos 01) used to set a fixed position. Description texts may have a maximal length of 12 characters
CMD1 = *0001001F0003101!xy	The corresponding command for Setting a fixed position using one command. The last two numbers indicate the fixed position as a hexadecimal value. 64 fixed positions are possible.
CT2 = Set Pos 02	Command description text for setting the fixed positions
CMD2 = *0001001F0003202!xy	The corresponding command for Setting a fixed position using two commands (refer to Chapter 61.2.1). The last two numbers indicate the fixed position as a hexadecimal value.
CT3 = Pos set done	Command description text for confirming the fixed position
CMD3 = *0001001F0003300!xy	The corresponding command for Confirming a fixed position if the second method has been used to set the fixed positions (refer to Chapter 61.2.1).
CT4 = Reset	Command description text for executing a reset
CMD4 = *0001001D0003761!xy	Special command used to reset Dome 1. The D-Command transmits the command sequence GC7:0021761 to Dome 1. Additional commands can be found in the "Panasonic Protocol Information Manual".
CT5 = Autofocus	Command description text used to activate the autofocus
CMD5 = *0001001D0003A06!xy	Command used to activate the autofocus for Dome 1. The D-Command transmits the command sequence GC7:0021A06 to Dome 1. Additional commands can be found in the "Panasonic Protocol Information Manual".
FCT1 = Speed 5	Command description text, set pan / tilt speed. The "F" in front of the entry causes the command description text to be displayed in the lower window
FCMD1 = *0001001S0003005!xy	Command used to determine the pan / tilt speed. The "F" in front of the entry allows the command to be executed in the lower window.
CT6 = Home Pos	Command description text used to call up the home position
CMD6 = *0001001G0003410!xy	Command used to call up the home position. The G-Command transmits the command sequence GC7:0021410 to Dome 1. Additional commands can be found in the "Panasonic Protocol Information Manual".
CT7 = Mot. on/off	Command description text used to switch on/off motion detect
CMD7 = *0001001H0003476!xy	Command used to switch on/off motion detect. The H-command transmits the command sequence GC7:0020176 to Dome 1. Additional commands can be found in the "Panasonic Protocol Information Manual".

CT8 = Auto Pan	Command description text used to switch on/off Auto Pan
CMD8 = *0001001L0003532!xy	Command used to switch on/off Auto Pan. The L-command transmits the command sequence GC7:2020132 to Dome 1. Additional commands can be found in the "Panasonic Protocol Information Manual".

61.4 Setting the Pan / Tilt Speed

Using the "S" command, the pan / tilt speeds can be set by the receiver program. The speed is set globally, i.e. the set speed is valid for all connected domes. The "S" command is constructed as follows:

*0001001	S	0003	0	1D	!xy
Address; is always 0001001 using this command	Identification for S command	Always 3 parameters for each command	always 0	Speed. Speeds can be between 01 to 07	End identification

The speed is set to 03 when turning on the remote module.

62 Pelco Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The module is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

In this version of the Remote Adapter, the Pelco Spectra-Dome series are supported. The Remote Adapter controls the Spectra Dome via a two-wire RS422/RS485 line.

62.1 Functions

The following features are supported by the Remote Adapter:

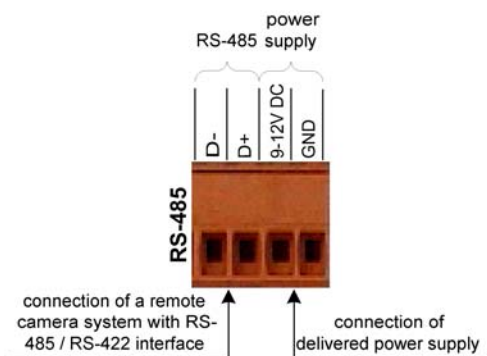
- 10 domes can be controlled
- pan, tilt, zoom, focus
- 32 fixed positions for each dome
- call up/set fixed positions
- 1-8 relays can be controlled (depending on the dome)
- 180° rotation, home position
- call up/set patterns
- (de)activate zone-scan; zones must be set via the control console
- Reset (call up the dome factory defaults)
- pan, tilt, zoom speeds can be set separately
- support for D- and P-protocol

63 Connection

This chapter describes the connection and configuration of the Remote Adapter with the Pelco Dome.

63.1 Integrating the Remote Adapter into the Picture Transmission System

The RS232 cable and SUB-D plug is connected to the corresponding COM1 (V.24, transp.SIO) connection of the transmitter. The Remote Adapter has to be supplied with power by the power unit delivered with it. The connections at the Remote Adapter are marked by "GND" and "9-12 VDC"



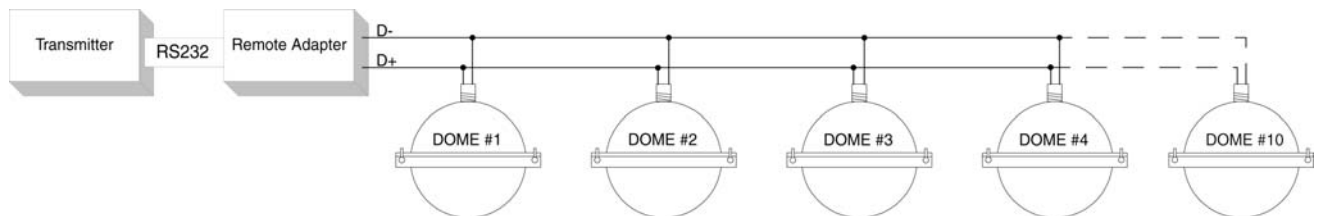
The RS422/RS485 data lines of the dome are connected to its screw terminal "CONTROL".
The following two-wire connection must be established for the data connection between the Remote Adapter and the dome:

Pelco-Dome Screw Terminal "CONTROL "	Remote Adapter
RX +	D+ / RxD
RX -	D- / TxD

When the remaining connections (refer to DOME Installation Manual) such as power supply, video signal, etc. have been established, the DOME can be put into operation.

63.2 Addressing Several Domes

Up to 10 domes can be directly connected to the transmitter system. The data lines of the individual domes are wired in parallel (see figure).

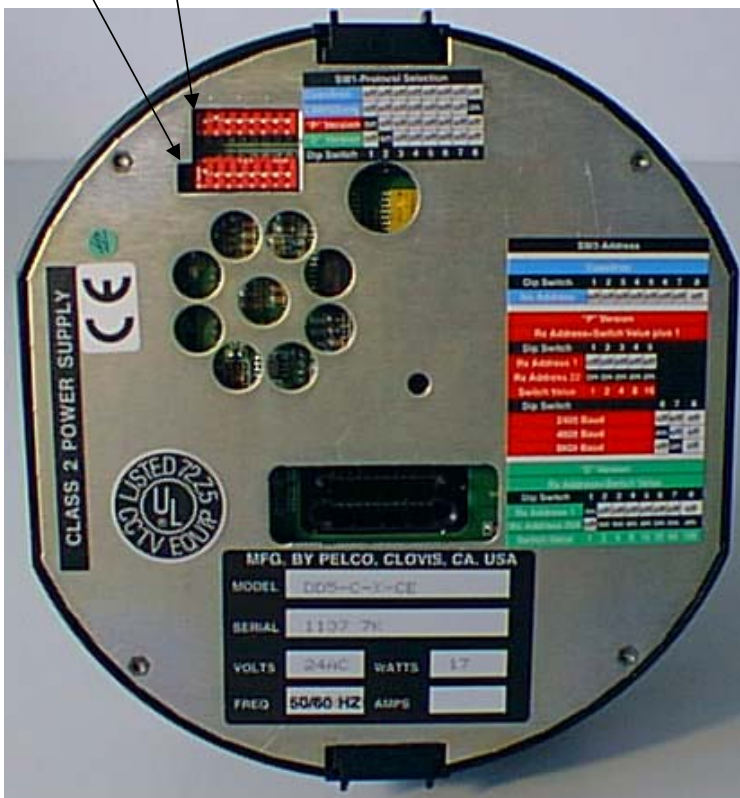


64 Configuration

To ensure that the commands from the Remote Adapter only address one dome, each DOME must be assigned a unique address (from 1 to 10) using the built-in DIP switch **SW2**. When selecting one of the 10 cameras via the Windows receiver software, the appropriate DOME is addressed by the Remote Adapter via the addresses.

64.1 Addressing

SW2 SW1



Base of Dome with DIP Switches SW1 and SW2

64.2 Settings of switches SW1 and SW2

SW1: Only switch 2 to "ON", to activate the D-protocol or only switch 1 to „ON“ to activate the P-protocol

SW2: Dome address (1-10), as the following tables. The baudrate of the DOME is 2400 baud.

Address / SW2	1	2	3	4	5	6	7	8
1	on	off	off	off	off	off	off	off
2	off	on	off	off	off	off	off	off
3	on	on	off	off	off	off	off	off
4	off	off	on	off	off	off	off	off
5	on	off	on	off	off	off	off	off
6	off	on	on	off	off	off	off	off
7	on	on	on	off	off	off	off	off
8	off	off	off	on	off	off	off	off
9	on	off	off	on	off	off	off	off
10	off	on	off	on	off	off	off	off

Setting the Dome Address via SW2, D-protocol

Adresse / SW2	1	2	3	4	5	6	7	8
1	off	off	off	off	off	off	off	off
2	on	off	off	off	off	off	off	off
3	off	on	off	off	off	off	off	off
4	on	on	off	off	off	off	off	off
5	off	off	on	off	off	off	off	off
6	on	off	on	off	off	off	off	off
7	off	on	on	off	off	off	off	off
8	on	on	on	off	off	off	off	off
9	off	off	off	on	off	off	off	off
10	on	off	off	on	off	off	off	off

Setting the Dome Address via SW2, P-protocol

65 Commands

65.1 Entries in the R01 File

The commands used for the first camera section (dome address 1) are explained in more detail here:

[CAM1]	Entries for camera 1
MODE = 5	Available features 0 no features 1 only pan / tilt panel 2 features in upper window can be called up (here: fixed positions) 4 features in the upper and lower windows can be called up; here fixed positions and vector scans 5 pan / tilt panel and features in both windows can be called up.
ADDRESS = 0001001	The last two numbers indicate the camera number as a decimal value; the other numbers should not be changed
CT1 = Preset 01	Any required descriptive text (preset 01) for calling up a fixed position. Descriptive texts must have a maximum of 12 characters
CMD1 = *0001001F0003001!xy	The corresponding command for calling up a fixed position. The last two numbers indicate the fixed position as a decimal value. There can be up to 32 fixed positions.
CT2 = Set Pre. 01	Command description text used in setting the fixed position.
CMD2 = *0001001F0003101!xy	The corresponding command for setting a fixed position. The last two numbers indicate the fixed position as a decimal value.
CT3 = Clr Pre. 01	Command description text used in deleting a fixed position.
CMD3 = *0001001F0003201!xy	The corresponding command for deleting a fixed position. The last two numbers indicate the fixed position as a decimal value.
CT4 = Flip 180°	Command description text for a 180° rotation
CMD4 = *0001001F0003033!xy	Command used to activate a 180° rotation. In principle, this command corresponds to the command for calling up invalid fixed position 33.
CT5 = Zero Pan	Command description text for horizontal home position.
CMD5 = *0001001F0003034!xy	Command used to call up the horizontal home position. In principle, this command corresponds to the command for calling up invalid fixed position 34.
CT6 = Set Aux 01	Command description text, switch on relay 1.
CMD6 = *0001001B0003101!xy	Command used to switch on relay 1. The last two numbers indicate the relay number.
CT7 = Clr Aux 01	Command description text, switch off relay 1.
CMD7 = *0001001B0003001!xy	Command used to switch off relay 1. The last two numbers indicate the relay number.
CT8 = Reset	Command description text, reset dome

CMD8 = *0001001D000300F!xy	Command used to execute a reset of the corresponding dome.
CT9 = Clear Screen	Command description text, delete dome text messages.
CMD9 = *0001001D0003017!xy	Command for clear screen.
CT10 = ZoneScan on	Command description text, activate zone scan.
CMD10 = *0001001D000301B!xy	Command used to activate zone scan; Zone scans must be programmed using the appropriate control console!
CT11 = ZoneScan off	Command description text, deactivate zone scan.
CMD11 = *0001001D000301D!xy	Command used to activate zone scan; Zone scans must be programmed using the appropriate control console!
CT12 = SetPat start	Command description text, set start point for "pattern" .
CMD12 = *0001001D000301F!xy	Command used to set the start point for "pattern".
CT13 = SetPat end	Command description text, set end point for "pattern" .
CMD13 = *0001001D0003021!xy	Command used to set the end point for "pattern".
CT14 = Run Pattern	Command description text, execute "pattern". The dome can store the last operations for approx. 60 secs. These operations can be repeated as "patterns". Processing of these commands is interrupted by a pan/tilt command.
CMD14 = *0001001D0003023!xy	Command used to execute "pattern".
FCT1 = hor Spd low	Command description text, set pan speed. The "F" in front of the command causes the command to be displayed in the lower window.
FCMD1 = *0001001S0003005!xy	Command used to set the pan speed. Please refer to Chapter 0. The "F" in front of the command allows the command to be displayed in the lower window.
FCT2 = Zoom Spd 00	Command description text, set zoom speed.
FCMD2 = *0001001S0003200!xy	Command used to set the zoom speed. The last two numbers indicate the speed. The following speeds are possible: 00, 01, 02 and 03

65.2 Setting the Pan/Tilt Speed

Using the "S" command, the horizontal and vertical speeds for pan / tilt can be set separately by the receiver program. The speed is set globally, i.e. the set speed is valid for all connected domes. The "S" command is constructed as follows:

*0001001	S	0003	0	1D	!xy
Address; is always 0001001 using this command	Identification for S command	Always 3 parameters for each command	0 = horizontal speed 1 = vertical speed 2 = zoom speed	Speed as a hexadecimal value. Capital letters must be used. Values can be between 01 to 3F	End identification

The following standard values are set when turning on the module:

- Horizontal Speed: 20H
- Vertical Speed: 20H

66 Philips Protocol Description

Pan-and-tilt systems and other periphery devices can be remotely controlled using our digital video transmission systems. The requirement for this is a transmitter system with an additional transparent interface.

The Remote Adapter is used to convert the „general“ control commands from the video transmission system into proprietary control signals of the third-party system.

The „Philips“ Remote Adapter processes the signals for controlling the dome from the Philips LTC0809/LTC0828 series.

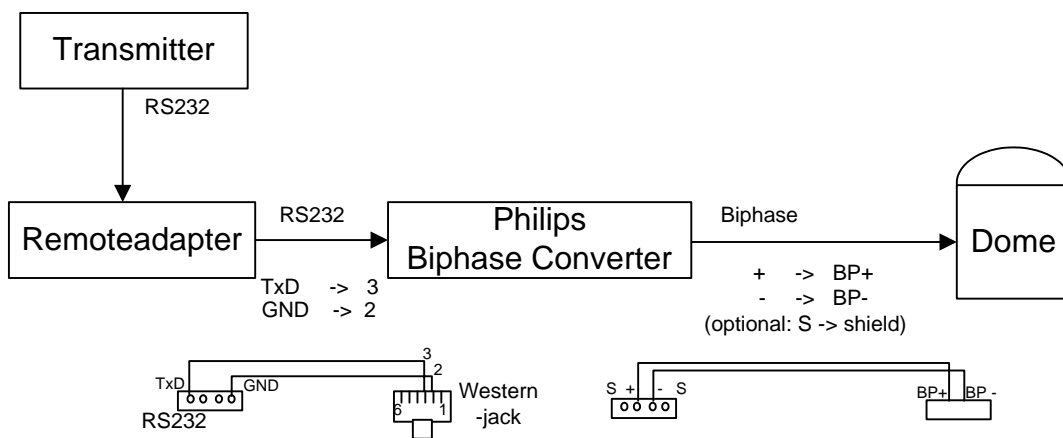
66.1 Functions

The following functions are supported by the Remote Adapter:

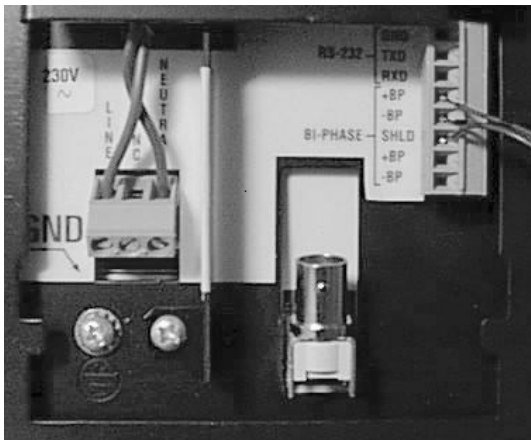
- up to 10 domes can be controlled
- 99 fixed positions can be set for each camera
- adjustable speeds for pan/tilt/zoom.
- auxiliary commands are supported.

67 Connections

The control data from the video transmission device must be converted by two devices in this system (see diagram).



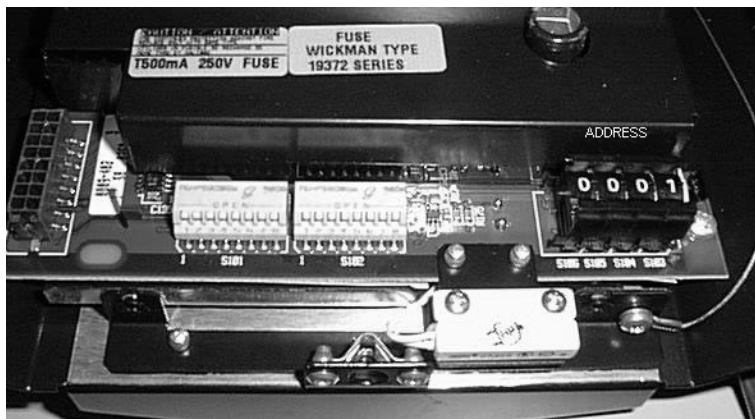
Starting from the picture sensor/storage unit, the first conversion is made by the Remote Adapter in the Philips (RS232) protocol. As the Philips dome does not recognise any RS232 signals, the „Philips-Biphase-Converter“ makes the second conversion into the actual code to be analysed.



Control connections of the Philips DomeConfiguration

68 Configuration

The baud rate must be set to 9600 baud



The address is set using the setting wheels. In the example, camera 1 is set using the address „0001“.

69 Commands

69.1 R01 Files

The available commands are entered in the „R01 control file“ that is stored in the main directory of the receiver software. The R01 file enters the series number of a transmitter as the name (e.g. PP123456.r01); all commands entered are thereby made available to this unique transmitter.

The construction of the R01 files and the structure of the commands is described in the Remote Adapter manual.

Functions (with their usual abbreviations):

- fixed position commands: F commands
- Iris commands: G commands
- Speed commands: S commands
- General commands: D commands

69.2 Dome Addressing

The domes are addressed using the camera buttons on the receiver software. The addresses (0001001 bis 0001010) are set in the R01 file.

The addresses of the individual domes must be set correctly.

69.3 Fixed Positions

Fixed positions can be set and called up using the F command. There are a total of 99 fixed positions for each dome.

Example for F command (call up fixed position 2 from dome 1):

CT1=Preset 2

CMD1=*0001001F0003002!xy

Example of the F command (set fixed position 8 of dome 3):

CT1=Set Pre. 8

CMD1=*0001003F0003108!xy

Example of F command (call up fixed position 43 of dome 5):

CT1=Preset 43

CMD1=*0001005F000302B!xy

The two numbers for the fixed positions must be in hex code (capital letters). The home position is called up by fixed position 110 (hex=6E). (Refer to the Autodome user manual).

69.4 Iris

The iris of a dome can be stopped, opened and closed using the G command.

Note: before the iris is opened or closed, the stop command should be called up. Directly switching between „open“ and "close" does not always work.

Example of G command (open iris , dome 1):

CT1=open Iris

CMD1=*0001001G0003001!xy

Example of G command (stop iris, dome 2):

CT1=stop Iris

CMD1=*0001002G0003000!xy

Example of G command (close iris, dome 10):

CT1=close Iris

CMD1=*0001010G0003002!xy

69.5 Pan/Tilt/Zoom Speed

The pan/tilt/zoom speed can be set using the S command. This command applies globally for all connected cameras, i.e. the address does not matter. The respective speed must be indicated as a decimal value. The range for pan and tilt is between 0=slow and 15=fast; for zoom, the range is between 0=slow and 7=fast. The remote module sets all speeds to 0=slow when turned on.

Example of S command (set pan speed to 15=fast):

CT1=PanSpeed 15

CMD1=*0001000S0003015!xy

Example of S command (set tilt speed to 7):

CT1=TiltSpeed 7

CMD1=*0001000S0003107!xy

Example of S command (set zoom speed to 3):

CT1=ZoomSpeed 3

CMD1=*0001000S0003203!xy

69.6 General Commands

A whole range of individual functions can be called up using the D command. In principle, the auxiliary functions of the dome are hereby activated. The three letters „TXX“ in the D command indicate the

function. If T=1, then this is an On command; if T=0 then this is an Off command. „XX“ represents a hexadecimal code in capital letters. The letters „AA“ indicate the address of the dome. (AA in the range between 01 and 10).

General construction of the D command:

CT1=Function

CMD1=*00010AAD0003TXX!xy

Some functions are listed in the following (additional commands can be looked up in the Autodome user manual):

TXX	Function
128	Factory Default Settings
114	Backlight Compensation on
014	Backlight Compensation off
13D	On-screen display adjust (start)
03D	On-screen display adjust (ok, end)
13E	Pre-position title set (start)
03E	Pre-position title set (ok, end)
101	Scan on
001	Scan off
102	Autopan on
002	Autopan off
108	Pre-Position Tour on
008	Pre-Position Tour off
164	Record (start)
064	Record (ok, end)
132	Playback, continuous (start)
032	Playback, continuous (ok, end)
042	Show software version

The Hex codes must be entered in capital letters !

69.6.1 Example

A D command for dome 4 is to be created using the dome manual:

The „White Balance“ is to be changed from „manual“ to „Auto“.

According to the dome manual, „AUXILIARY 30“ must be switched on to do this.

T=1, Auxiliary is switched on

XX=1E, the number 30 must be converted to the hexadecimal system. (30dez=1Ehex)

CT1=White Auto

Description text, max. 12 characters

CMD1=*0001004D000311E!xy

Command

70 Samsung Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

This version (1.00) of the Remote Adapter supports the Samsung domes from the SCC-641(P) series and compatible modules. The Remote Adapter controls the domes at 9600 baud via RS485.

70.1 Functions

The following features are supported by the Remote Adapter:

- up to 10 domes can be connected
- pan, tilt, zoom, focus (pan and tilt speeds can be set separately)

Note: The focus can only be changed when the "auto-focus function (AF)" has been deactivated.

- iris control (open, close, stop)
- 99 fixed positions can be set and called up
- Autopan
- Pattern
- Almost all camera functions can be set using the menu control (camera and preset names, home position, motion, set factory settings)
- on ending or cancelling the connection to the transmitter, the last activated dome is stopped.

71 Connections

The connections are located at the base of the dome and are to be assigned as follows:

Samsung Dome	Remote Adapter
Rxd (+)	D+ / TxD
Rxd (-)	D- / RxD



Connection terminals of the Samsung Dome

72 Configuring the Dome

Every connected dome must be assigned its own address. The address can be set using DIP switch SW500 located at the base of the dome (see picture).



The dome address should always agree with the number of the camera input of the transmitter to allow the example RO1 file (delivered with the device) to be used directly and without any changes having to be made to it. This means that a dome connected to camera input 1 must receive the address 1 and a dome at camera input 2 must receive the address 2, etc.

Setting DIP switch SW501:

- | | | |
|---|-----|---|
| 1 | ON | When only one dome is connected
(if several domes are connected, then only the corresponding switch from the last dome is set to ON, otherwise always OFF) |
| 2 | OFF | |
| 3 | ON | |
| 4 | OFF | |
| 5 | ON | |
| 6 | OFF | |
| 7 | OFF | |
| 8 | OFF | |

73 Commands

73.1 S Command (Pan-/Tilt speed)

The pan-/tilt speed is set separately using the S command. The speed applies globally for all connected domes.

General construction of the S command:

CT1 = "description text for command"

CMD1 = *00010AA S0003XYY!xy

AA = camera address (01 to 10, any, because global)

X = sub-function

X = 0 (set the pan speed)

X = 1 (set the tilt speed)

YY = 01 to 40, sets the speed directly in hexadecimal form (capital letters)

01 (slow) <-----> 40 (fast)

Example for the S command, all domes:

Set pan speed to 12

CT1=PanSpd 12

CMD1=*0001001S0003012!xy

Set tilt speed to 1B

CT2=TiltSpd 1B

CMD2=*0001001S000311B!xy

73.2 G Command (Iris)

The iris can be controlled using the G command. The G command is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AAG00030YY!xy

AA = camera address (01 to 10)

YY = (00 to 02)

00 = stop iris

01 = open iris

02 = close iris

Example for G command, camera 1

CT1 = Iris open

CMD1 = *0001001G0003001!xy (Iris open)

The iris functions are only enabled when the ALC (automatic lens control) function of the dome is deactivated.

73.3 D Command (diverse functions)

Various auxiliary functions can be controlled using the D command.

CT1=Function

CMD1=*00010AAD0003YYY!xy

AA = camera address (01 to 10)

The three letters "YYY" indicate the function in question.

Function Number YYY	Description
000	Scan stop
001	Scan start
002	Menu off
003	Menu on
004	Autopan stop
005	Autopan start
100	0 Key
101	1 Key
102	2 Key
104	3 Key
105	4 Key
106	5 Key
107	6 Key
108	7 Key
109	8 Key
10A	9 Key
118	Enter
130	Download start
131	Download end
132	Upload start
133	Upload end
140	Factory reset, deletes all settings

73.4 P Command (Pattern)

The P command is used in starting and stopping patterns.

CT1 = „description text for command“

CMD1 = *00010AAF0003XYY!xy

AA = Camera address (01 to 10)

X = sub-functions

0 = stop pattern

1 = start pattern

YY = 01 to 03, indicates the pattern number

Example for starting pattern 3 at camera 1:

CT1 = Pat 1 start

CMD1 = *0001001P0003103!xy

73.5 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „Description text for command“

CMD1 = *00010**AA**F0003**XY**!xy

AA = Camera address (01 to 10)

X = Sub-function

0 = call up fixed position

1 = set fixed position

2 = delete fixed position

YY = 01 to 99, indicates the fixed position number

Examples for setting and calling up fixed positions at camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F0003110!xy

73.6 Menu Control

Almost all camera settings such as, e.g. pattern, motion, camera labels, etc. can be set using the menu control.

The menu is activated by calling up the D command "003" (refer to Chapter 4.3). The command for calling up the menu is already contained in the R01 example files and is called up in the preset key panel under "menu on"

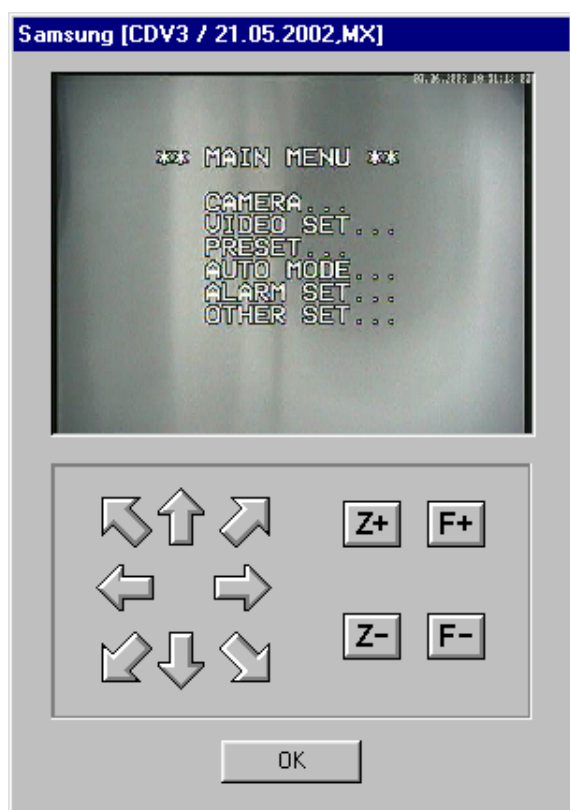
To ensure that the text of the menu control can be easily read, the picture quality should be changed as required using the thumb (shown below) after calling up the pan/tilt panel. Menu control can be cancelled at any time using the D command "002" (menu off).

To correctly operate the menu, extra buttons are required in addition to the arrow keys on the pan- and tilt panel. These extra buttons are located on the preset keypad (see diagram):

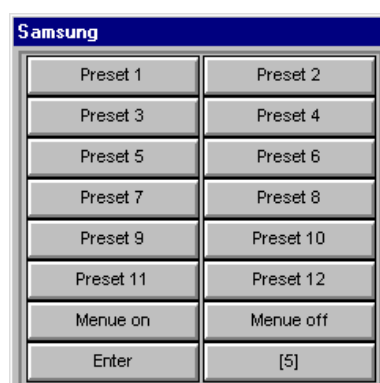
"Menu on"	start menu
"Menu off"	end menu
"Enter"	select menu item
"[5]"	is required in the „motion detection“ menu item, D command "106", (refer to chapter 73.3)



Thumb for picture quality



Menu control using the pan- and tilt panel



Preset key panel

74 Santec Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

This version of the Remote Adapter (1.00) supports the dome protocol for the Santec Dome VDC-300ID and VDC-400ID.

74.1 Functions

The Santec remote adapter, version 1.00, supports the following functions:

- pan, tilt, zoom, focus (pan and tilt speeds can each be set in up to 8 steps)
- iris control (open, close, stop)
- set / call-up 240 fixed positions
- 99 cameras can be controlled
- 8 camera tours with 36 camera positions
- 180° flip function

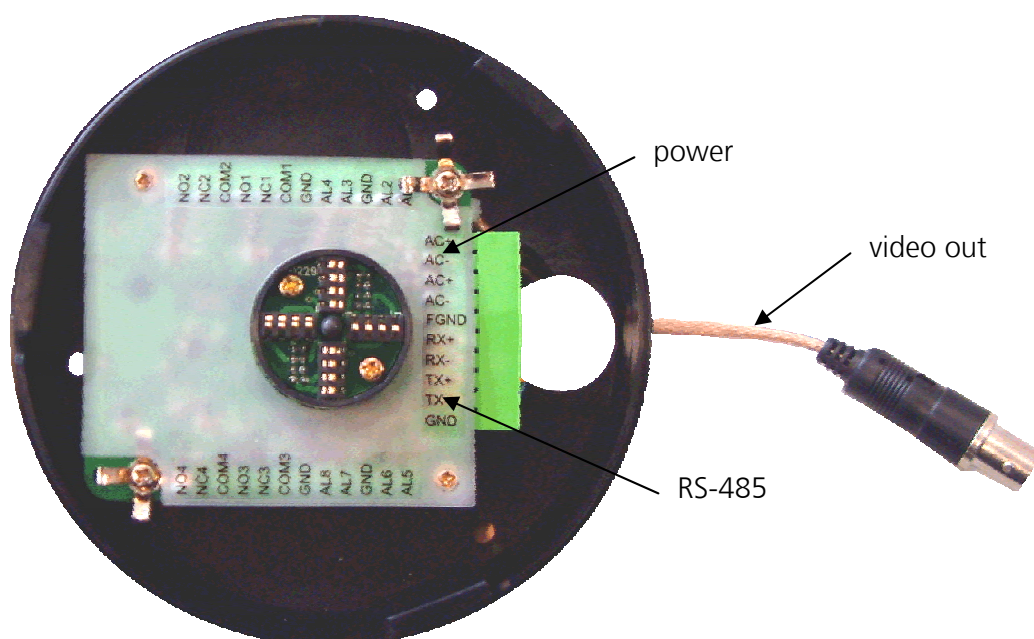
75 Connections

The description of the connections and the configuration is made based on the Santec VDC-300ID Dome, version 1.1x.

Names and descriptions of the devices are set in the text in inverted commas, e.g. „Rx“.

You must establish the connection (9600 baud) between the remote adapter and the Lilin dome using an RS-485 cable. Connect as follows:

Remote Adapter	Santec Dome
D-	„Tx-“
D+	„Tx+“



Connection Adapter of the Santec Dome

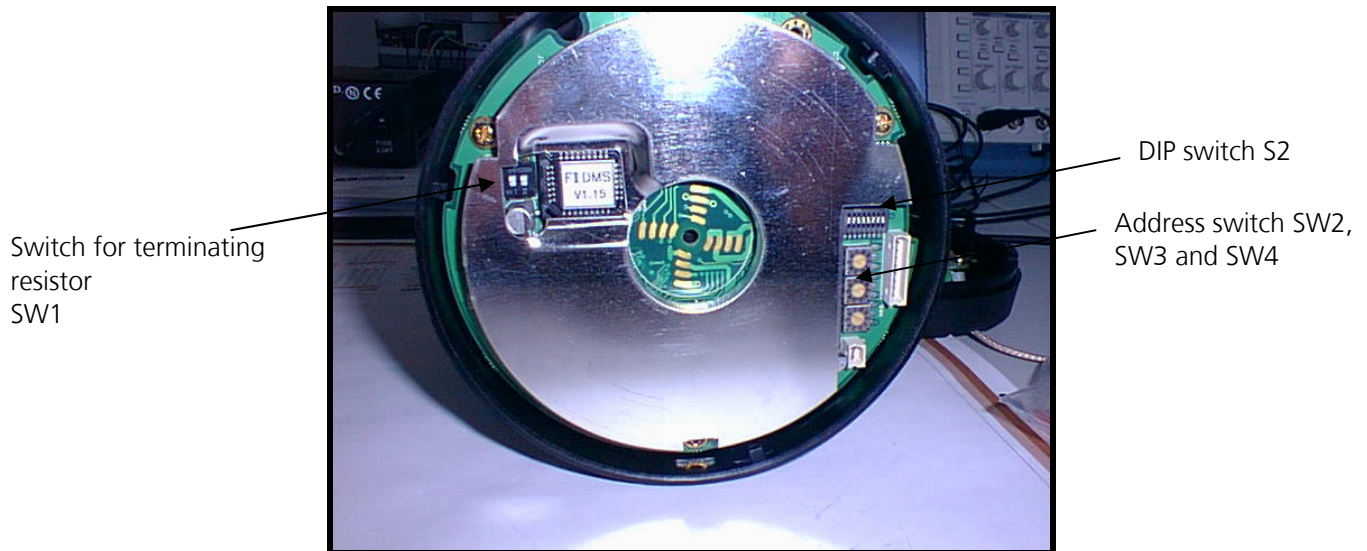
76 Configuration

76.1 Address

To ensure that the commands from the remote adapter only address one dome, each dome must be assigned its own address. The address is set using address switches SW2, SW3 and SW4 (figure below) located at the base of the dome.

We recommend that you use addresses with the camera numbers of the receiver software (1-4 or 1-10). In this way, the R01 example files delivered with the device can be used directly without requiring any adjustment to them. This means that a dome connected to camera input 1 must be assigned address 1 and a dome connected to camera input 2 must be assigned address 2, etc.

Dome Address	SW2	SW3	SW4
1	0	0	1
2	0	0	2
3	0	0	3
...
99	0	9	9



Configuration Switch of the Santec Domes

Both SW1 switches for the terminator resistors must be switched off (contrary to the specification in the manufacturer's manual) (data line terminator is not completed).

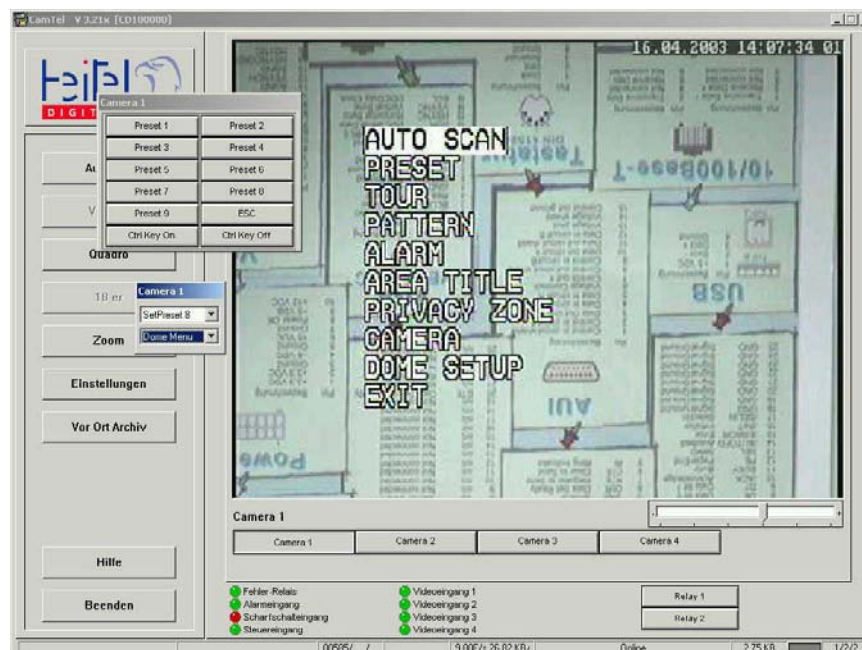
DIP switch S2 should be set to 9600 baud and Fastrax 2 protocol.

Example for setting DIP switch S2:

1	2	3	4	5	6	7	8
ON	ON	ON	OFF	OFF	OFF	OFF	OFF

76.2 Menu Control

With the Santec Dome, you can carry out almost all camera settings via a menu. The menu is controlled via the arrow keys of the pan-and-tilt panel and via the zoom keys.



Call: Dome Menu

By pressing the arrow key of the pan-and-tilt function, you can call up a submenu. You can change a preset function using the „Zoom+“ or „Zoom-“ key.

The arrow keys can be used for navigating when parameter **YY** of the S command for the pan/tilt speeds is set to at least 05 (refer to 4.1). This speed corresponds to the „Hor Spd 2“ or to the „Ver Spd 2“ function (and greater), of the R01 file delivered with the device.

To ensure that the text of the menu can be easily read, the picture quality should be changed accordingly using the thumb control after calling up the pan-and-tilt panel.

77 Commands

77.1 S Command (Pan / Tilt / Zoom / Focus Speeds)

The pan, tilt, zoom and focus speed is set using the S command. The speed applies globally for all connected systems.

General construction of the S command:

CT1 = "description text for the function"

CMD1 = *00010AAS0003XYY!xy

AA = camera address (01h to 63h (hexadecimal values)

X = sub-function

Function Number X	Description
0	set pan speed
1	set tilt speed

YY = 00 to 07, specifies the speed (decimal values)
00 (slow) <-----> 07 (fast)

Examples: S command, all domes or pan / tilt heads

Set pan speed to 05:

CT1= PanSpd 5

CMD1= *0001001S0003005!xy

Set tilt speed to 02:

CT2= TiltSpd 2

CMD2= *0001001S0003102!xy

A table of hexadecimal values is located in the appendix to the remote adapter manual.

77.2 D Command (diverse functions)

CT1= "Description text for the function"

CMD1= *00010AAD0003XYY!xy

AA = camera address (01h to 63h (hexadecimal values))
 X = not relevant (e.g.: 0)

The function is defined by the letters "YY" (decimal values):

Function Number YY	Description
01	Fast Zoom In
02	Fast Zoom Out
03	Stop Zoom
04	Preset Menu
05	Tour Menu
06	Pattern Menu
07	Autoscan Menu
08	Dome Menu
09	Alarm Menu
10	Run Home
11	ESC Command
12	Pattern Record

77.3 H Command (diverse functions)

CT1= "description text for the function"
 CMD1= *00010AAH0003XYY!xy

AA = camera address (01h to 63h (hexadecimal values))
 X = defines the function (decimal values)
 YY = not relevant (e.g.: 00)

Function Number X	Description
1	Ctrl Key On
2	Ctrl Key Off

1. Example for Ctrl Key On:

CT1 = Ctrl Key On
 CMD1 = *0001001H0003100!xy

77.4 G Command (iris functions)

CT1= "description text for the function"
 CMD1= *00010AAG0003XYY!xy
 AA = camera address (01h to 63h (hexadecimal values))
 X = defines the function (decimal values)
 YY = not relevant (z.B. 00)

Function Number X	Description
1	Iris open START
2	Iris open STOP
3	Iris close START
4	Iris close STOP

77.5 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „description text for the function“
 CMD1 = *00010AAF0003XYY!xy
 AA = camera address (01h to 63h (hexadecimal values))
 X = sub-function

Function Number X	Description
0	Call up the fixed position
1	Set the fixed position
2	Delete the fixed position
3	Delete and set the fixed position

YY = 01h to F0h (hexadecimal values), indicates the number of the fixed position

1. Examples for setting and calling up fixed positions at camera 1:

Set fixed position 26 (1Ah):

CT1 = SetPreset 26
 CMD1 = *0001001F000311A!xy

Call up fixed position 7:

CT2 = Preset 7
 CMD2 = *0001001F0003007!xy

77.6 Z Command (general command with parameters)

CT1 = „description text for the function“
 CMD1 = *00010AAZ0003XYY!xy
 AA = camera address (01h to 63h (hexadecimal values))
 X = sub-function

Function Number X	Description	Parameter YY (hexadec. values)
0	Run Tour	00h – FFh
1	Run Pattern	00h – FFh
2	Run Autoscan	00h – FFh
3	On Command	00h – FFh
4	Off Command	00h – FFh
5	Run Global Preset	00h – FFh
6	Zerolux On Command	not relevant (e.g.: 00h)
7	Zerolux Off Command	not relevant (e.g.: 00h)

78 Miscellaneous

We do not recommend that you connect a keyboard parallel to the remote adapter as the dome control will thereby be impaired.

79 Sanyo Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix).

The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video crossbar.

In the following, the connection and configuration of the Sanyo Colour CCD Camera Model VCC-ZM400P (referred to in the following as the SANYO camera) is documented. The RA supports the Security Serial Protocol (SSP) Specifications Ver. 1.13 from Sanyo. The SSP is a general protocol for Sanyo security devices.



Sanyo Colour CCD Camera Model VCC-ZM400P

Additional fixed positions can be called up by the Remote Adapter for pan-and-tilt systems. These functions are called up by the Windows Receiver software from Version 1.69.

79.1 Functions

The Remote Adapter Version 1.00 supports the following (and other) functions (additional information regarding the individual functions is contained in the manual of the camera in question)

- 128 cameras can be controlled
- pan / tilt / zoom / focus,
- set pan and tilt speed,
- set transmitter address and transmitter/receiver category,
- auto focus,
- iris control (open, close, stop, centre),
- 255 fixed positions can be set and called up,
- call-up/reset pan, auto pan, tour sequence,
- menu (call up and control camera menu),
- electronic lock (ELS) on/off,
- background lighting compensation (BLC) on/off,
- automatic white compensation (AWC) on/off,
- alarm output (alarm out) on/off,
- security locks on/off
- 16 auxiliary devices (AUX) on/off
- other functions as specified in the respective device manual.

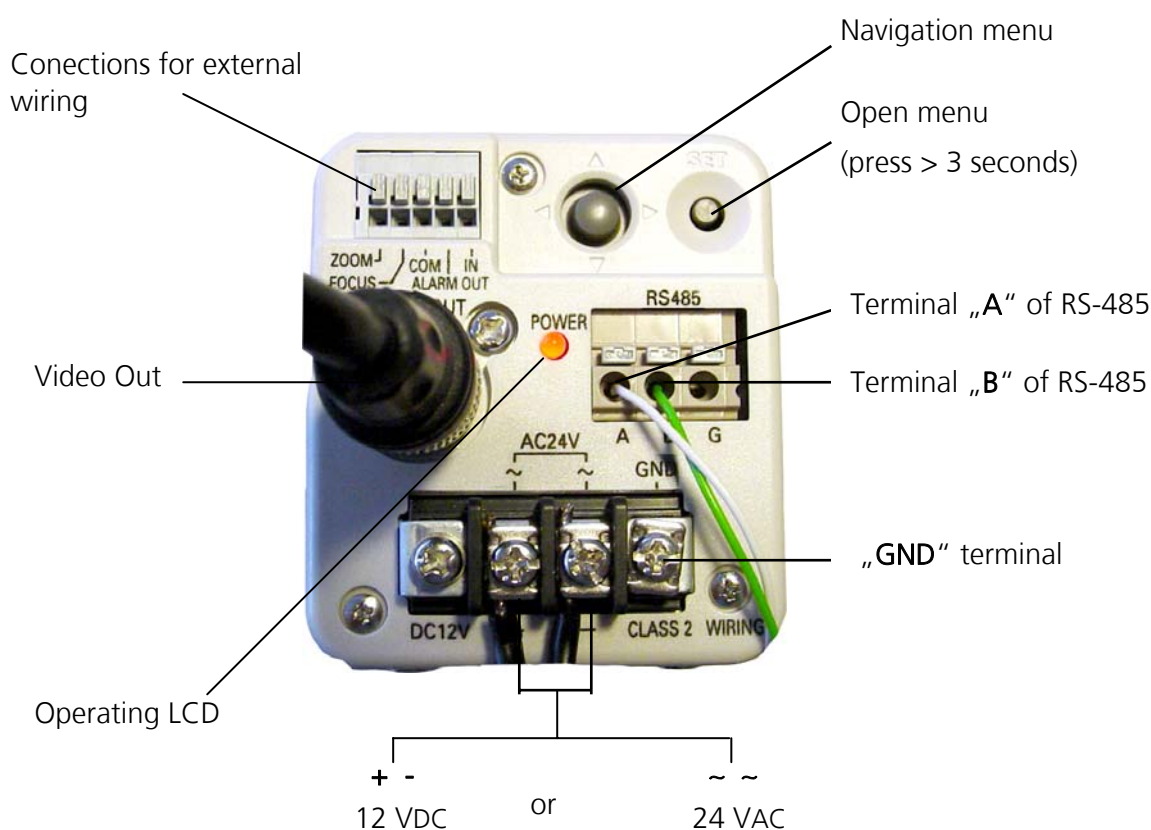
80 Configuration

In the text, names and labels of the device are in double-inverted commas, e.g. “Rx”.

To ensure that the commands from the Remote Adapter control the addressed camera in a targeted manner, each camera must be assigned an individual address. With regard to the VCC-ZM400P camera, please observe further instructions in Section 2.2. “Setting the Interface, Baud Rate and Receiver Address”.

80.1 Connections and Menu Buttons

The following diagram shows the connection assignments and menu buttons of the Sanyo Colour CCD Camera Model VCC-ZM400P (additional information can be found in the Sanyo operating instructions).



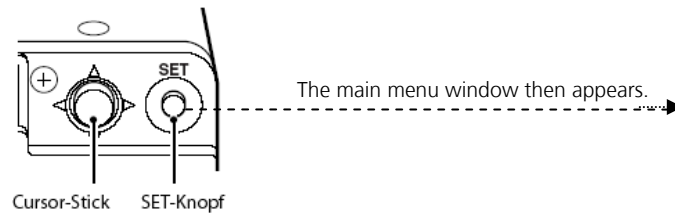
Rear of the VCC-ZM400P Camera

80.2 Setting the Interface, Baud Rate and Receiver Address

The interface, baud rate and receiver address are set in the menu of the camera. First install and start the Windows software for picture viewing (picture viewer). To reach the menu, press the SET button of the camera for more than 3 seconds.

MAIN MENU screen

MAIN MENU	
LANGUAGE	SET
CAMERA ID	OFF
SYNC	INT
PRIVACY MASK	SET
LENS	SET
MIRROR	OFF
VIEW SETTING	1
OPTION	SET
PRESET	OFF
MENU	END



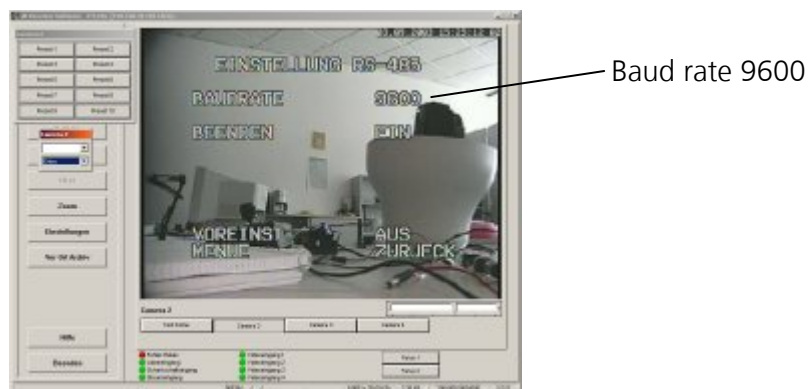
To move within the menu, use the cursor stick in the direction of the arrows (▲▼◀▶). Use the SET button to confirm your selection. Additional information is contained in the SANYO operating instructions.

The **interface** is set in „OPTION“ -> „CONTROL“ to „485“.



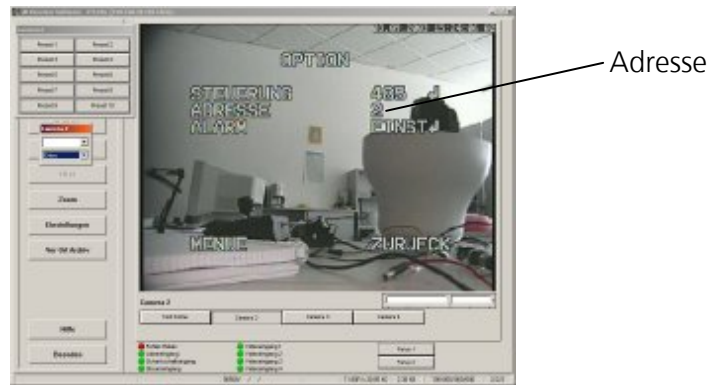
Option Window of the Menu: RS-485 Interface

The **baud rate** is set in „OPTION“ -> „CONTROL“-> „BAUD RATE“ to „9600“.



Setting the RS-485 Baud Rate

The **address** is set as a decimal value in the menu in „OPTION“ -> „ADDRESS“. We recommend that you use addresses with the camera numbers of the CamTel Windows Software (1-4 or 1-10) so that the preconfigured (default) files can be used immediately.



Options Window of the Menu with Address 2

80.3 Establish RS-485 Connection between the Remote Adapter and the Camera

The RS-485 (9600 baud) connection must be established to communicate between the Remote Adapter and the camera.

- Connect „D -“ of the Remote Adapter to connection „B“ of the camera.
- Connect „D+“ of the Remote Adapter to connection „A“ of the camera.
- Check the setting of the transparent interface of the image transmitter to make sure it is set at 9600 baud / mode: 8N1 (via transmitter settings/serial channel/baud, mode of the installed Windows software).

80.4 Loading the Control Files (R01)

After the required Windows software for video viewing has been installed on the PC, you can then copy the files for control and command support (R01 files) of the Sanyo camera into the corresponding directory. These files are included in the scope of delivery.

The binary file *sanyo.bin* is copied into the directory of the Windows software in the subdirectory...\\RM\\BIN.

Depending on the command support, you can copy all R01 files or just the R01 file *SANYO_All.025*, *SANYO_CamUser.025* or *SANYO_CamProg.025* into the ...\\RM\\RM01 directory of the Windows software.

SANYO_CamUser.025: selected commands for the respective user are located here.

SANYO_CamProg.025: the additional commands used in setting the camera (e.g. menu) with the respective Windows software are located here.

SANYO_All.025: all command functions are located here, independent of the actually used function.

80.5 Establishing the Power Supply for the Camera

Select the appropriate power supply for the camera. Please also observe the security instructions regarding the power supply in the operating instructions of the Sanyo camera.

Only operate the camera using the stipulated AC current of 24 V (24 VAC) or with a direct current of 12-15 volts. Observe the instructions regarding the power consumption of the camera located in the respective manual and select an appropriate power supply correspondingly.

Connect the AC current in accordance to the diagram shown above ("Connection Assignments of the Camera"). For AC power supply, use the additional GDN terminal for a universal ground connection.

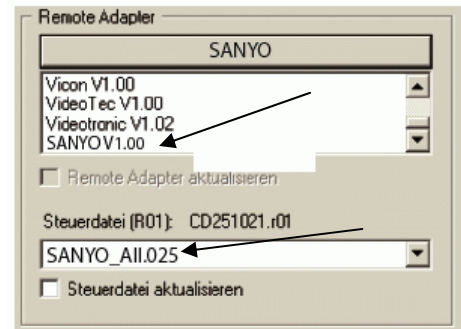
80.6 Setting up the Control File (R01)

An existing connection to your image transmitter can be called up in the "Serial Channel" submenu of the "Transmitter Settings Menu" field. The external serial interface must be set to 9600 baud, mode 8N1.

- Select the "Locate Connected RA" menu item. On successful connection to the remote adapter, the available protocol implementations are displayed in the "Remote Adapter" window.

If the message "Timeout, is the RA connected to the transmitter" appears then please check the following points:

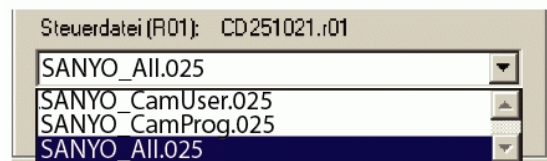
- is the V.24 cable correctly connected?
- is the supply voltage connected to the remote adapter?
- is the serial channel correctly set (9600 baud, mode: 8/N/1)?



Remote Adapter V1.00 with one R01 file

Installing your R01 file:

- To install, select the appropriate SANYO control file from the list and activate the control file marked "Update Control File".
- After making the selection, click on the **OK** button and terminate the connection to actuate the altered settings for the remote adapter.



Selecting the R01 files

Please observe that the settings are only updated after the connection has been terminated or can only take effect after a new connection has been established!

81 Commands

Depending on the range of the command support, either all R01 files or just one R01 file (*SANYO_All.025*, *SANYO_CamProg.025*, *SANYO_CamUser.025*) have been copied into the directory of the Windows software and from there into the ...RM\RM01 subdirectory. Command lines whose parameters are described in the following are located in these files. Additional explanations of the commands are located in the device manual of the remote adapter.

81.1 S Command (Pan and Tilt Speeds)

The pan and tilt speed is set using the S command. The speed applies globally for all systems connected to the RA.

Note:

The speeds are not stored. After switching the remote adapter back on, the values for the pan and tilt speed are reset to their **default value 4**.

General construction of the S command:

CT1 = "description text for the function"

CMD1 = *00010AAS0003XdY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = sub-function

d = irrelevant here (don't care).

Y = indicates the parameter of the function (decimal).

Function Number X	Description	Parameter Y (decimal)	Error correction, when the value range is exceeded (decimal).
0	Set the pan speed	0 – 7	4
1	Set the tilt speed	0 – 7	4

0 (slow) <-----> 7 (fast)

Examples: S command, all cameras

Set pan speed to 1:

CT1=Hor Spd slow

CMD1=*0001001S0003001!xy

Set tilt speed to 7:

CT2=Ver Spd fast

CMD2=*0001001S0003107!xy

81.2 B Command (alarm functions)

CT1=" description text for the function"

CMD1=*00010AAB0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (1 or 2 (decimal)).

YY = Irrelevant here (don't care).

Function number X	Description
1	Alarm Out On
2	Alarm Out Off

Examples: B command

Alarm Out On, camera no. 93 (5D hexadecimal):

CT1=Alarm Out On

CMD1=*000105DB0003100!xy

Alarm Out Off, camera no. 2 (02 hexadecimal):

CT2=Alarm Out Off

CMD2=*0001002B0003200!xy

81.3 D Command (AUX, „Aux Devices“ functions)

CT1=" description text for the function"

CMD1=*00010AAD0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (0 or 1 (decimal)).

YY = Aux. Device no. (00 to 0F or FF (hexadecimal)).

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
0	AUX Off	00 – 0F	00
	AUX All Off	FF	00
1	AUX On	00 – 0F	00
	AUX All On	FF	00

Examples: D command

Aux device no. 5 (05 hexadecimal) on, camera no. 8 (08 hexadecimal):

CT1=AUX 5 On

CMD1=*0001008D0003105!xy

All aux devices off, camera no. 26 (1A hexadecimal):

CT2=AUX All Off

CMD2=*000101AD00030FF!xy

81.4 H Command (sequence, tour functions)

CT1= "description text for the function"

CMD1=*00010AAH0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description	Function number X	Description
1	Sequence Pan	3	Tour
2	Auto Pan	4	Reset

Examples: H Command

Tour, camera no. 3 (03 hexadecimal):

CT23=Tour

CMD23=*0001003H0003300!xy

Reset, camera no. 3 (03 hexadecimal):

CT28=Reset

CMD28=*0001003H0003400!xy

81.5 Y Command (locking functions)

CT1= "description text for the function"

CMD1=*00010AAH0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description	Function number X	Description
1	Security Lock On	3	Master Lock On
2	Security Lock Off	4	Master Lock Off

Examples: Y Command

Security Lock On, camera no. 10 (0A hexadecimal):

CT23=Security On

CMD23=*000100AY0003100!xy

Master Lock Off, camera no. 7 (07 hexadecimal):

CT28=Master Off

CMD28=*0001007Y0003400!xy

81.6 Z Command (general functions)

CT1= "description text for the function"

CMD1=*00010AAZ0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (hexadecimal).

YY = irrelevant here (don't care).

Function number X	Description	Function number X	Description
1	Zoom On	8	BLC On
2	Zoom Off	9	BLC Off
3	Auto Focus	A	ELS On
4	Menu	B	ELS Off
5	Enter	C	L-L. Phase Up
6	AWC Set	D	L-L. Phase Down
7	AWC Reset		

Examples: Z Command

Ele. Verschluss an, Kamera-Nr. 22 (16 hexadecimal)

CT21= ELS On

CMD21= *0001016Z0003A00!xy

Auto Focus, camera no. 5 (05 hexadecimal)

CT22= Auto Focus

CMD22= *0001005Z0003300!xy

81.7 G Command (iris functions)

CT1= "description text for the function"

CMD1=*00010AAG0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description
1	Iris Open (+)
2	Iris Close (-)
3	Iris Open/Close STOP

81.8 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = "description text for the function"

CMD1 = *00010**AAF**0003**XYY**!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = 01 to FF (hexadecimal), indicates the fixed position number.

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
0	call up fixed position	01 – FF	01
1	set fixed position	01 – FF	01

Examples for setting and calling up fixed positions at camera 9 (09 hexadecimal):

Set fixed position 1:

CT1 = SetPreset 1

CMD1 = *0001009F0003101!xy

Call up fixed position 7:

CT2 = Preset 7

CMD2 = *0001009F0003007!xy

81.9 L Command (baud rate)

The baud rate applies globally for all systems connected to the RA.

Note: The baud rate is not stored and resets itself to **9600 baud** automatically after switching back on the RA:

CT1= "description text for the function"

CMD1=*00010**AAL**0003**XY**!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description
1	9600 Baud
2	4800 Baud
3	2400 Baud

81.10 N Command (address/category)

The settings for transmitter addresses, for the transmitter category and for the receiver category apply for all systems connected to the RA.

Note: None of the entries are stored. After switching back on the RA, they are automatically reset to the following **default value**:

Transmitter address: **00** (hexadecimal),

Transmitter category: **F1** (hexadecimal),

Receiver category: **F4** (hexadecimal).

CT1= "description text for the function"

CMD1=*00010**AAN**0003**XY**!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = defines the parameter of the function (hexadecimal).

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
1	Receiver category	F0 – F7	F4

2	Transmitter category	F0 – F7	F1
3	Transmitter address	00 – 7F	00

Examples for the N command at camera no. 1 (01h):

Set receiver category F3 (hexadecimal):

CT1 = Set R-Cat. F3

CMD1 = *0001001N00031F3!xy

Set transmitter address 2B (hexadecimal):

CT2 = Set S-Add. 2B

CMD2 = *0001001N000332B!xy

82 Miscellaneous

In addition to the file *sanyo.bin*, the R01 files *SANYO_All.025*, *SANYO_CamUser.025* and *SANYO_CamProg.025* are also included.

83 Sanyo Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix).

The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video crossbar.

In the following, the connection and configuration of the Sanyo Colour CCD Camera Model VCC-ZM400P (referred to in the following as the SANYO camera) is documented. The RA supports the Security Serial Protocol (SSP) Specifications Ver. 1.13 from Sanyo. The SSP is a general protocol for Sanyo security devices.



Sanyo Colour CCD Camera Model VCC-ZM400P

Additional fixed positions can be called up by the Remote Adapter for pan-and-tilt systems. These functions are called up by the Windows Receiver software from Version 1.69.

83.1 Functions

The Remote Adapter Version 1.00 supports the following (and other) functions (additional information regarding the individual functions is contained in the manual of the camera in question)

- 128 cameras can be controlled
- pan / tilt / zoom / focus,
- set pan and tilt speed,
- set transmitter address and transmitter/receiver category,
- auto focus,
- iris control (open, close, stop, centre),
- 255 fixed positions can be set and called up,
- call-up/reset pan, auto pan, tour sequence,
- menu (call up and control camera menu),
- electronic lock (ELS) on/off,
- background lighting compensation (BLC) on/off,
- automatic white compensation (AWC) on/off,
- alarm output (alarm out) on/off,
- security locks on/off
- 16 auxiliary devices (AUX) on/off
- other functions as specified in the respective device manual.

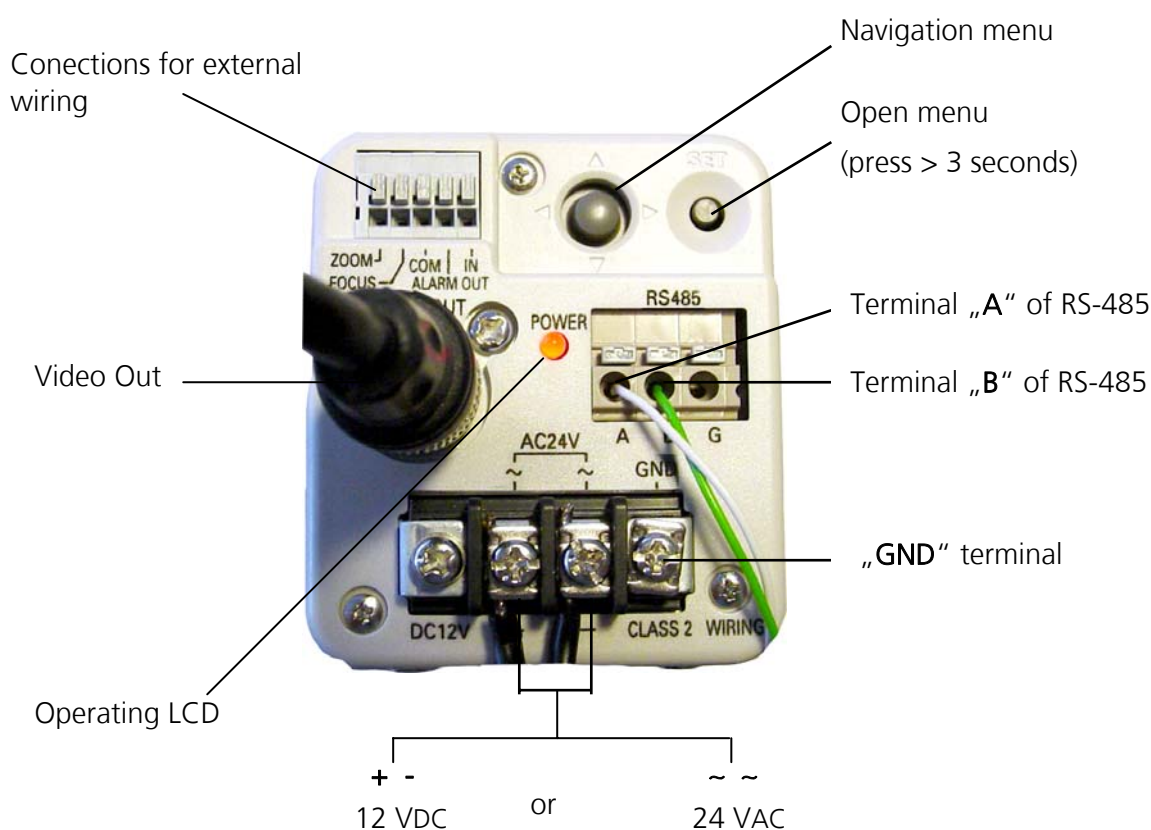
84 Configuration

In the text, names and labels of the device are in double-inverted commas, e.g. “Rx”.

To ensure that the commands from the Remote Adapter control the addressed camera in a targeted manner, each camera must be assigned an individual address. With regard to the VCC-ZM400P camera, please observe further instructions in Section 2.2. “Setting the Interface, Baud Rate and Receiver Address”.

84.1 Connections and Menu Buttons

The following diagram shows the connection assignments and menu buttons of the Sanyo Colour CCD Camera Model VCC-ZM400P (additional information can be found in the Sanyo operating instructions).

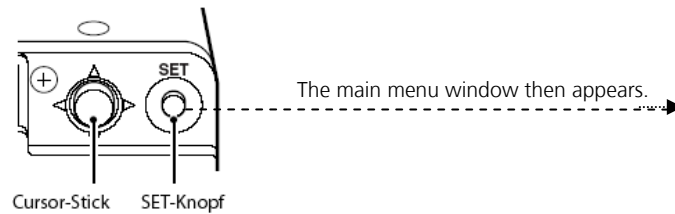


Rear of the VCC-ZM400P Camera

84.2 Setting the Interface, Baud Rate and Receiver Address

The interface, baud rate and receiver address are set in the menu of the camera. First install and start the Windows software for picture viewing (picture viewer). To reach the menu, press the SET button of the camera for more than 3 seconds.

MAIN MENU screen		
MAIN MENU		
LANGUAGE	SET	↵
CAMERA ID	OFF	↵
SYNC	INT	↵
PRIVACY MASK	SET	↵
LENS	SET	↵
MIRROR	OFF	↵
VIEW SETTING	1	↵
OPTION	SET	↵
PRESET	OFF	↵
MENU	END	↵



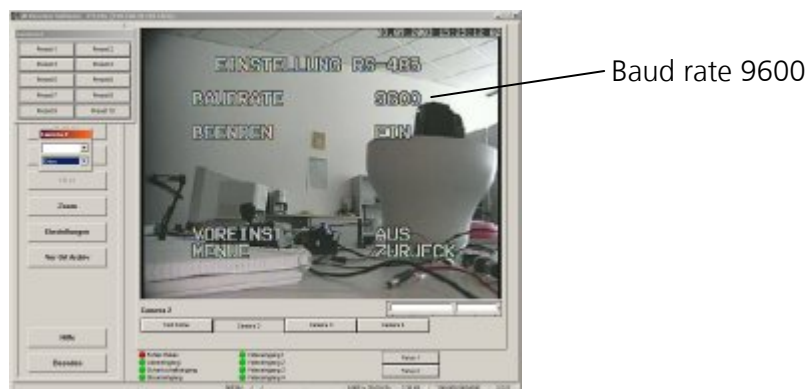
To move within the menu, use the cursor stick in the direction of the arrows (▲▼◀▶). Use the SET button to confirm your selection. Additional information is contained in the SANYO operating instructions.

The **interface** is set in „OPTION“ -> „CONTROL“ to „485“.



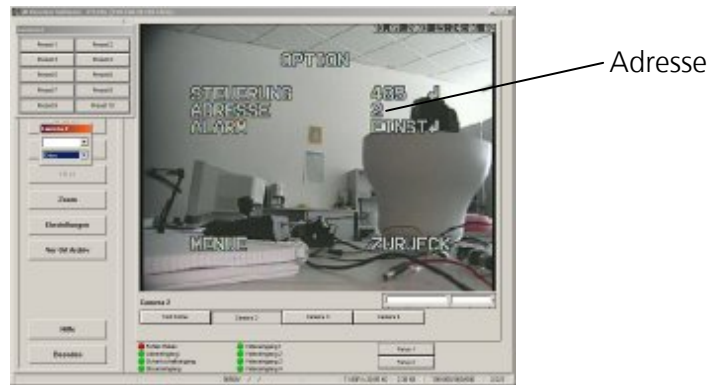
Option Window of the Menu: RS-485 Interface

The **baud rate** is set in „OPTION“ -> „CONTROL“-> „BAUD RATE“ to „9600“.



Setting the RS-485 Baud Rate

The **address** is set as a decimal value in the menu in „OPTION“ -> „ADDRESS“. We recommend that you use addresses with the camera numbers of the CamTel Windows Software (1-4 or 1-10) so that the preconfigured (default) files can be used immediately.



Options Window of the Menu with Address 2

84.3 Establish RS-485 Connection between the Remote Adapter and the Camera

The RS-485 (9600 baud) connection must be established to communicate between the Remote Adapter and the camera.

- Connect „D -“ of the Remote Adapter to connection „B“ of the camera.
- Connect „D+“ of the Remote Adapter to connection „A“ of the camera.
- Check the setting of the transparent interface of the image transmitter to make sure it is set at 9600 baud / mode: 8N1 (via transmitter settings/serial channel/baud, mode of the installed Windows software).

84.4 Loading the Control Files (R01)

After the required Windows software for video viewing has been installed on the PC, you can then copy the files for control and command support (R01 files) of the Sanyo camera into the corresponding directory. These files are included in the scope of delivery.

The binary file *sanyo.bin* is copied into the directory of the Windows software in the subdirectory...\\RM\\BIN.

Depending on the command support, you can copy all R01 files or just the R01 file *SANYO_All.025*, *SANYO_CamUser.025* or *SANYO_CamProg.025* into the ...\\RM\\RM01 directory of the Windows software.

SANYO_CamUser.025: selected commands for the respective user are located here.

SANYO_CamProg.025: the additional commands used in setting the camera (e.g. menu) with the respective Windows software are located here.

SANYO_All.025: all command functions are located here, independent of the actually used function.

84.5 Establishing the Power Supply for the Camera

Select the appropriate power supply for the camera. Please also observe the security instructions regarding the power supply in the operating instructions of the Sanyo camera.

Only operate the camera using the stipulated AC current of 24 V (24 VAC) or with a direct current of 12-15 volts. Observe the instructions regarding the power consumption of the camera located in the respective manual and select an appropriate power supply correspondingly.

Connect the AC current in accordance to the diagram shown above ("Connection Assignments of the Camera"). For AC power supply, use the additional GDN terminal for a universal ground connection.

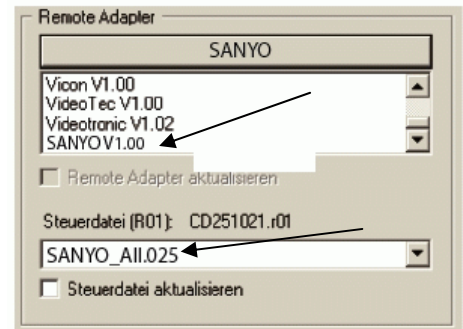
84.6 Setting up the Control File (R01)

An existing connection to your image transmitter can be called up in the "Serial Channel" submenu of the "Transmitter Settings Menu" field. The external serial interface must be set to 9600 baud, mode 8N1.

- Select the "Locate Connected RA" menu item. On successful connection to the remote adapter, the available protocol implementations are displayed in the "Remote Adapter" window.

If the message "Timeout, is the RA connected to the transmitter" appears then please check the following points:

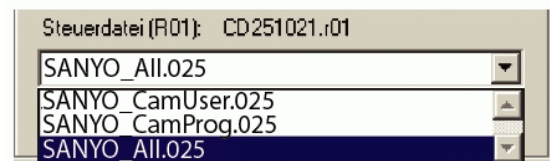
- is the V.24 cable correctly connected?
- is the supply voltage connected to the remote adapter?
- is the serial channel correctly set (9600 baud, mode: 8/N/1)?



Remote Adapter V1.00 with one R01 file

Installing your R01 file:

- To install, select the appropriate SANYO control file from the list and activate the control file marked "Update Control File".
- After making the selection, click on the **OK** button and terminate the connection to actuate the altered settings for the remote adapter.



Selecting the R01 files

Please observe that the settings are only updated after the connection has been terminated or can only take effect after a new connection has been established!

85 Commands

Depending on the range of the command support, either all R01 files or just one R01 file (*SANYO_All.025*, *SANYO_CamProg.025*, *SANYO_CamUser.025*) have been copied into the directory of the Windows software and from there into the ...RM\RM01 subdirectory. Command lines whose parameters are described in the following are located in these files. Additional explanations of the commands are located in the device manual of the remote adapter.

85.1 S Command (Pan and Tilt Speeds)

The pan and tilt speed is set using the S command. The speed applies globally for all systems connected to the RA.

Note:

The speeds are not stored. After switching the remote adapter back on, the values for the pan and tilt speed are reset to their **default value 4**.

General construction of the S command:

CT1 = "description text for the function"

CMD1 = *00010AAS0003XdY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = sub-function

d = irrelevant here (don't care).

Y = indicates the parameter of the function (decimal).

Function Number X	Description	Parameter Y (decimal)	Error correction, when the value range is exceeded (decimal).
0	Set the pan speed	0 – 7	4
1	Set the tilt speed	0 – 7	4

0 (slow) <-----> 7 (fast)

Examples: S command, all cameras

Set pan speed to 1:

CT1=Hor Spd slow

CMD1=*0001001S0003001!xy

Set tilt speed to 7:

CT2=Ver Spd fast

CMD2=*0001001S0003107!xy

85.2 B Command (alarm functions)

CT1=" description text for the function"

CMD1=*00010AAB0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (1 or 2 (decimal)).

YY = Irrelevant here (don't care).

Function number X	Description
1	Alarm Out On
2	Alarm Out Off

Examples: B command

Alarm Out On, camera no. 93 (5D hexadecimal):

CT1=Alarm Out On

CMD1=*000105DB0003100!xy

Alarm Out Off, camera no. 2 (02 hexadecimal):

CT2=Alarm Out Off

CMD2=*0001002B0003200!xy

85.3 D Command (AUX, „Aux Devices“ functions)

CT1=" description text for the function"

CMD1=*00010AAD0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (0 or 1 (decimal)).

YY = Aux. Device no. (00 to 0F or FF (hexadecimal)).

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
0	AUX Off	00 – 0F	00
	AUX All Off	FF	00
1	AUX On	00 – 0F	00
	AUX All On	FF	00

Examples: D command

Aux device no. 5 (05 hexadecimal) on, camera no. 8 (08 hexadecimal):

CT1=AUX 5 On

CMD1=*0001008D0003105!xy

All aux devices off, camera no. 26 (1A hexadecimal):

CT2=AUX All Off

CMD2=*000101AD00030FF!xy

85.4 H Command (sequence, tour functions)

CT1= "description text for the function"

CMD1=*00010AAH0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description	Function number X	Description
1	Sequence Pan	3	Tour
2	Auto Pan	4	Reset

Examples: H Command

Tour, camera no. 3 (03 hexadecimal):

CT23=Tour

CMD23=*0001003H0003300!xy

Reset, camera no. 3 (03 hexadecimal):

CT28=Reset

CMD28=*0001003H0003400!xy

85.5 Y Command (locking functions)

CT1= "description text for the function"

CMD1=*00010AAH0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description	Function number X	Description
1	Security Lock On	3	Master Lock On
2	Security Lock Off	4	Master Lock Off

Examples: Y Command

Security Lock On, camera no. 10 (0A hexadecimal):

CT23=Security On

CMD23=*000100AY0003100!xy

Master Lock Off, camera no. 7 (07 hexadecimal):

CT28=Master Off

CMD28=*0001007Y0003400!xy

85.6 Z Command (general functions)

CT1= "description text for the function"

CMD1=*00010AAZ0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (hexadecimal).

YY = irrelevant here (don't care).

Function number X	Description	Function number X	Description
1	Zoom On	8	BLC On
2	Zoom Off	9	BLC Off
3	Auto Focus	A	ELS On
4	Menu	B	ELS Off
5	Enter	C	L-L. Phase Up
6	AWC Set	D	L-L. Phase Down
7	AWC Reset		

Examples: Z Command

Ele. Verschluss an, Kamera-Nr. 22 (16 hexadecimal)

CT21= ELS On

CMD21= *0001016Z0003A00!xy

Auto Focus, camera no. 5 (05 hexadecimal)

CT22= Auto Focus

CMD22= *0001005Z0003300!xy

85.7 G Command (iris functions)

CT1= "description text for the function"

CMD1=*00010AAG0003XYY!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description
1	Iris Open (+)
2	Iris Close (-)
3	Iris Open/Close STOP

85.8 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = "description text for the function"

CMD1 = *00010**AAF**0003**XYY**!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = 01 to FF (hexadecimal), indicates the fixed position number.

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
0	call up fixed position	01 – FF	01
1	set fixed position	01 – FF	01

Examples for setting and calling up fixed positions at camera 9 (09 hexadecimal):

Set fixed position 1:

CT1 = SetPreset 1

CMD1 = *0001009F0003101!xy

Call up fixed position 7:

CT2 = Preset 7

CMD2 = *0001009F0003007!xy

85.9 L Command (baud rate)

The baud rate applies globally for all systems connected to the RA.

Note: The baud rate is not stored and resets itself to **9600 baud** automatically after switching back on the RA:

CT1= "description text for the function"

CMD1=*00010**AAL**0003**XY**!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description
1	9600 Baud
2	4800 Baud
3	2400 Baud

85.10 N Command (address/category)

The settings for transmitter addresses, for the transmitter category and for the receiver category apply for all systems connected to the RA.

Note: None of the entries are stored. After switching back on the RA, they are automatically reset to the following **default value**:

Transmitter address: **00** (hexadecimal),

Transmitter category: **F1** (hexadecimal),

Receiver category: **F4** (hexadecimal).

CT1= "description text for the function"

CMD1=*00010**AAN**0003**XY**!xy

AA = camera address (00 to 7F (hexadecimal))

Error correction, when the value range is exceeded. 00 (hexadecimal).

X = indicates the function in question (decimal).

YY = defines the parameter of the function (hexadecimal).

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
1	Receiver category	F0 – F7	F4

2	Transmitter category	F0 – F7	F1
3	Transmitter address	00 – 7F	00

Examples for the N command at camera no. 1 (01h):

Set receiver category F3 (hexadecimal):

CT1 = Set R-Cat. F3

CMD1 = *0001001N00031F3!xy

Set transmitter address 2B (hexadecimal):

CT2 = Set S-Add. 2B

CMD2 = *0001001N000332B!xy

86 Miscellaneous

In addition to the file *sanyo.bin*, the R01 files *SANYO_All.025*, *SANYO_CamUser.025* and *SANYO_CamProg.025* are also included.

87 Sensormatic Protocol Description

The Remote Adapter (RA) is a protocol converter that is connected between the transmitter and the camera control unit (DOM control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video matrix. For some pan-and-tilt devices, additional fixed positions can also be called up using the RA. These functions are called up by the Windows Receiver software from Version 1.69.

The Sensormatic Remote Adapter supports the Ultra Dome Series IV, V, VI, Speed Dome and AD Delta Dome (according to the protocol). The Remote Adapter version number is 1.00.

87.1 Functions

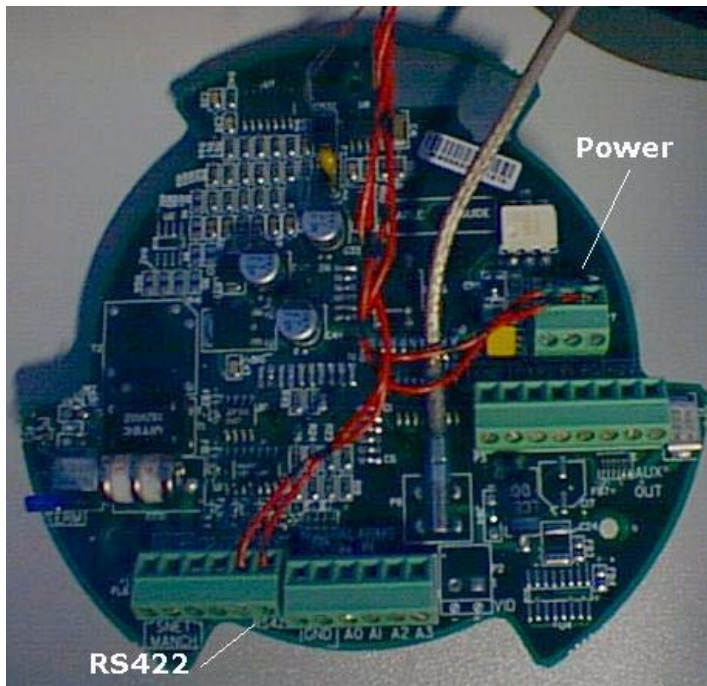
The following functions are supported by the Remote Adapter:

- Up to 10 domes can be connected
- Pan, tilt, zoom, focus (pan-, tilt speeds can be separately set from 1 to 100°/s)
- Iris control (auto Iris, open, close, stop)
- 7 fixed positions (96 fixed positions depending on the dome, set via menu control)
- 8 privacy zones
- Almost all camera functions can be set using the menu control (camera and areal labelling, shutter, autom. flip, line lock, AGC mode, automatic alignment, home position, setting the areal limits, setting the factory settings)

88 Connections

The connections are located at the removeable connection board of the dome. The following connections must be established between the dome and the Remote Adapter:

Dome Connection	Remote Adapter
P1-connection (Pin 1)/ RS422 IN+	must be connected to D+/TxD of the Remote Adapter
P1-connection (Pin 2)/ RS422 IN-	must be connected to D-/RxD of the Remote Adapter
P7-connection (Pin 1)/ 24 VAC	power supply
P7-connection (Pin 3)/ 24 VAC	power supply

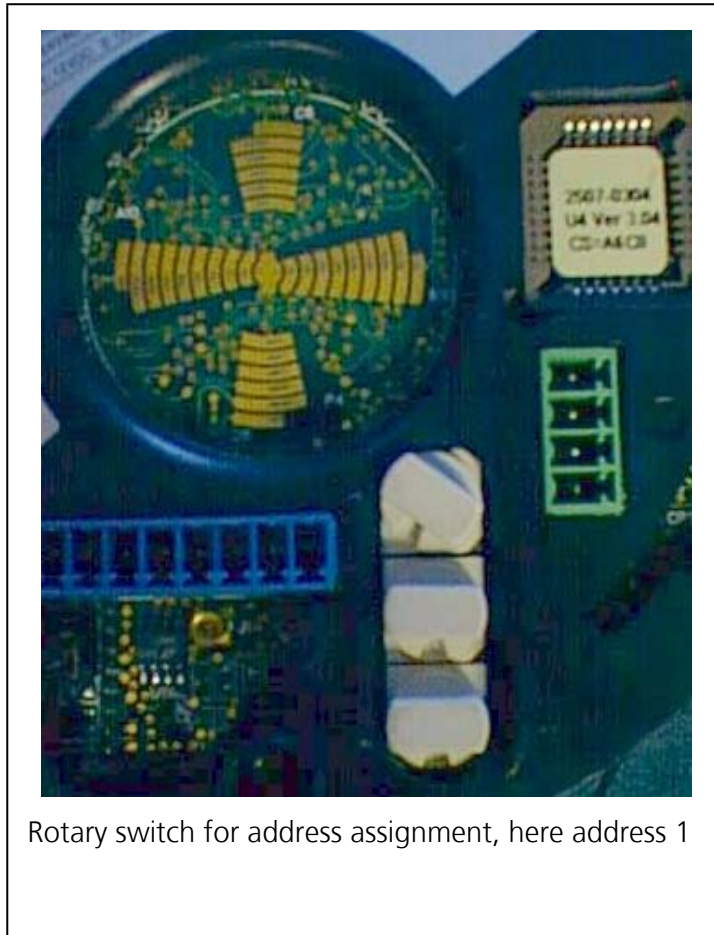


Ultra Dome Connection Board

The LEDs on the underside of the dome board can not be used as indicators for a correct installation (even though this is described as such in the Dome manual).

89 Configuring the Dome

Every connected dome must be assigned its own address. The address can be set using the rotary switches contained in the dome (see figure below).



Rotary switch for address assignment, here address 1

The dome address
with the number
the transmitter to

should always agree
of the camera input of
allow the example RO1
file (delivered with the device) to be used directly and without any changes having to be made to it. This means that a dome connected to camera input 1 must receive the address 1 and a dome at camera input 2 must receive the address 2, etc.

90 Commands

90.1 S Command (Pan-/Tilt speed)

The pan-/tilt speed is set separately using the S command. The speed applies globally for all connected domes.

General construction of the S command:

CT1 = "description text for the command"

CMD1 = *00010AA S0003XY!xy

AA = camera address (01 to 10, any, because global)

X = sub-function

X = 0 (set the pan speed)

X = 1 (set the tilt speed)

YY = 01 to 99, sets the speed directly in degrees/second

Example: S command, all domes

Set pan speed to 24 °/s

CT1=PanSpd 24°/s

CMD1=*0001001S0003024!xy

Set tilt speed to 72 °/s

CT2=TiltSpd 72°/s

CMD2=*0001001S0003172!xy

90.2 G Command (Iris)

The iris can be controlled using the G command. The G command is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AAG00030YY!xy

AA = camera address (01 to 10)

YY = (00 to 03)

00 = stop iris

01 = open iris

02 = close iris

03 = automatic iris control

Example for G command, camera 1

CT1 = Iris open

CMD1 = *0001001G0003001!xy (Iris open)

90.3 D Command (various functions)

Various individual functions of the Ultra Dome can be called up using the D command. Only some functions have been included in the example R01 file, as the list would otherwise be too unwieldy. The table listed below is provided to the user to allow him/her to incorporate functions into the R01 file as required.

General construction of the D command:

CT1=function

CMD1=*00010**AA**D0003**YYY**!xy

AA = camera address (01 to 10)

The three letters "**YYY**" indicate the function in question.

Function Number YYY	Description
090	Open iris; G command also possible
091	Close iris; G command also possible
092	Stop iris; G command also possible
0C6	Call up the default pattern
101	Flip 180°
102	Dome reset
103	Call up the menu
104	Close the menu and store all changes
105	Activate autofocus / autoiris; G command also possible
106	Increase V-phase delay
107	Decrease V-phase delay
108	Stop increase/decrease v-phase delay
08D	Fast
08E	Fastest
08F	Stop fast/fastest
09A	Faster
09B	Stop faster
09C	Start boundary definition
09D	Mark boundary
09E	Set "on air status"
09F	Reset
0A5	Request dome position
0C9	Software version

0Ex	Set output drivers, x = output
0A8	Set fixed position 1
0A9	Set fixed position 2
0AA	Set fixed position 3
0AB	Set fixed position 4
0B9	Set fixed position 5
0BA	Set fixed position 6
0BB	Set fixed position 7
0B4	Call up fixed position 1
0B5	Call up fixed position 2
0B6	Call up fixed position 3
0B7	Call up fixed position 4
0BC	Call up fixed position 5
0BD	Call up fixed position 6
0BE	Call up fixed position 7

90.4 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „Description text for command“

CMD1 = *00010AA0003XYY!xy

AA = Camera address (01 to 10)

X = Sub-function

0 = call up fixed position

1 = set fixed position

YY = 01 to 96, indicates the fixed position number

Examples for setting and calling up fixed positions at camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F0003110!xy

For some dome models (Ultra V), only the 7 preset positions referred to in the D command are supported.

90.5 Menu Control

Almost all camera settings, presets and privacy zones can be set using the menu control (refer to Chapter 90.3, D Command).

To ensure that the text of the menu control can be easily read, the picture quality should be changed as required using the thumb (shown below) after calling up the pan/tilt panel.



Thumb for picture quality

The menu is controlled using the following keys:

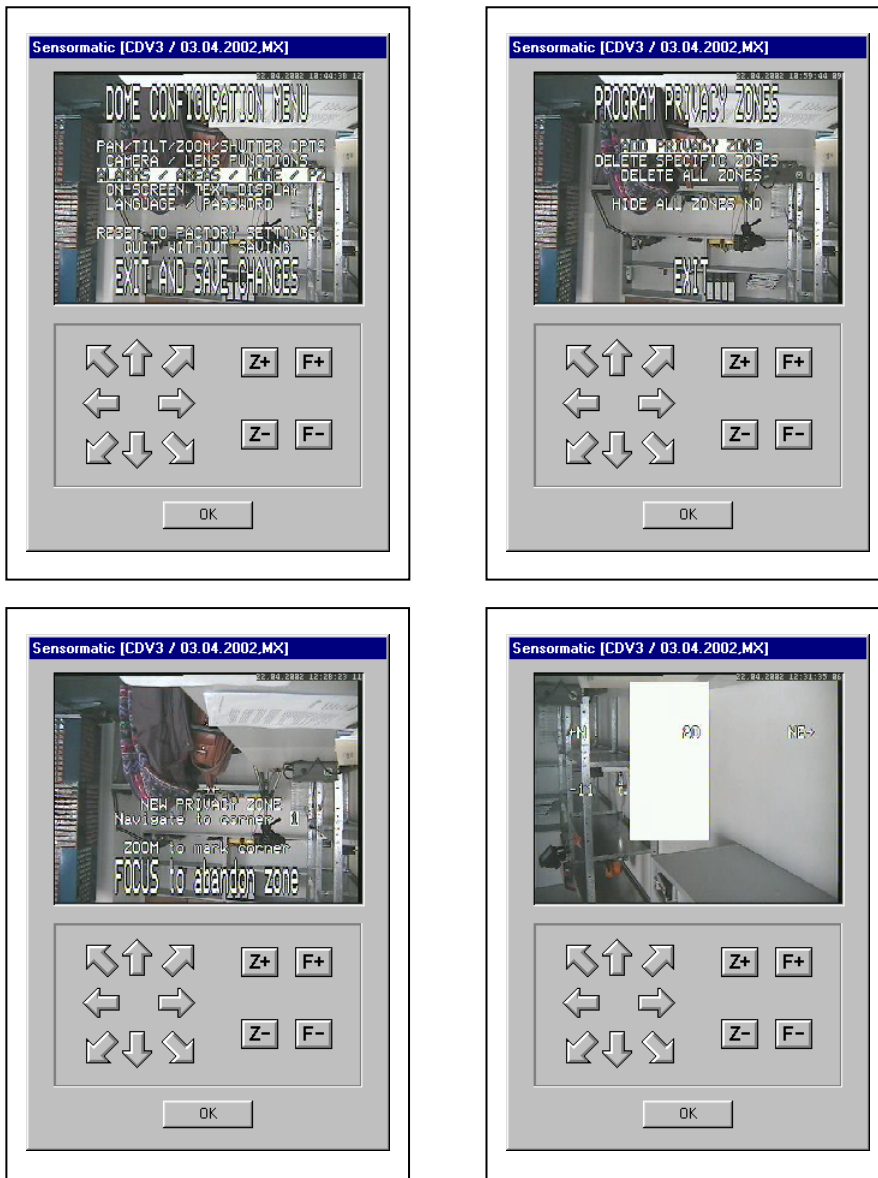


Menu control with pan/tilt panel

Move "Highlight bar" :	Pan/Tilt
Select menu item:	Focus -
Next selection or increase value:	Zoom +
Previous selection or decrease value:	Zoom -
Move cursor to the right when entering name:	Zoom +
Move cursor to the left when entering name:	Zoom -

90.5.1 Setting the Privacy Zones

The menu control described in Chapter 90.5 is described here in more detail using the "Privacy Zones". Using the D command "Start Menu", the main menu of the dome is first called up. The menu item „PZ“ (Privacy Zones) is then called up using the tilt buttons. The menu item is confirmed using the "Focus minus" button.



Note: A "Privacy Zone" is always set by three limit points and can therefore be defined as a triangle.

A control console (ADTT16E, Touch Tracker 16) is available as an accessory to the Ultra Dome. This control console **does not** function in parallel to the Remote Adapter. The dome only processes commands from the device (Remote Adapter or control console), from which commands were first transmitted.

91 Sony Protocol Description

The Remote Adapter (RA) is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbar). The module is used for the remote control of pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video crossbar. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

In this version of the Remote Adapter, the cameras (Sony EVI-D30/D31) are directly controlled by the Remote Adapter. The Remote Adapter controls the cameras via a two-wire RS232 line:

91.1 Functions

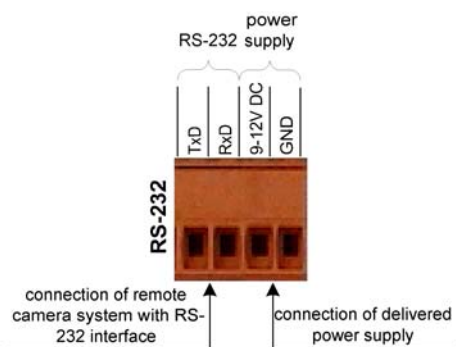
The following features can be controlled by the Remote Adapter:

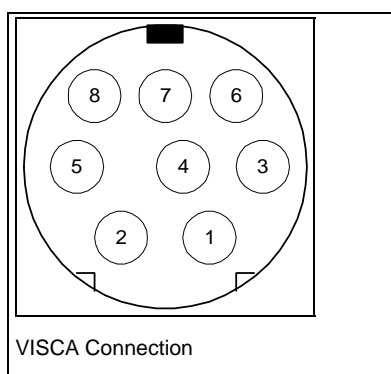
- pan, tilt, zoom, focus
- pan/tilt speeds can be set separately
- call up/set 6 fixed position per camera
- home position, reset
- indoor/outdoor mode
- picture lightening (black light)
- controllable display (frame display)
- Auto-Tracking

92 Connection

92.1 Integrating the Remote Module into the Picture Transmission System

First of all, all required connections must be established. The RS232 cable and SUB-D plug is connected to the corresponding COM1 (V.24, transp. SIO) connection of the transmitter. The Remote Adapter has to be supplied with power by a simple power plug supplying a current of at least 400 mA. The connections at the Remote Adapter are marked by "GND" and "9-12 VDC".





The camera data lines at the VISCA input (see figures) are connected to the corresponding terminals of the Remote Adapter. The following connections must be established:

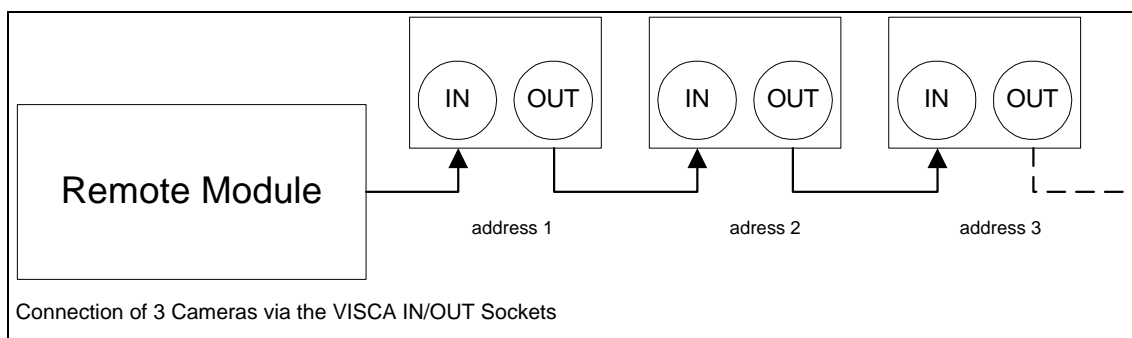
- Pin 4 to GND
- Pin 5 to D- / TxD

The data lines should not exceed 10 meters. When the remaining connections (refer to installation manual EVI-D30/D31), such as power supply, video signal, etc. have been established, the camera can be put into operation.

93 Configuration

93.1 Addressing Several Cameras

Up to 7 cameras can be directly connected to the transmitter system. The data lines of the individual cameras are established as in the following figure. The nearest camera to the Remote Adapter gets automatically address 1.



The Remote Adapter addresses the individual cameras via the camera set in the Windows receiver software. The camera address is determined at the rear of the housing via a switch (Camera No.).



VISCA-IN, Data Input

Data Input EVI-D30/D31

94 Commands

94.1 Entries in the R01 File

[CAM1]	Entries for camera 1
MODE=5	Available features 0 no features 1 only pan / tilt panel. Graphical Operating Panel 2 features in upper window can be called up (here: fixed positions) 4 features in both windows can be called up; here, the fixed positions are in the lower window and additional features are in the lower window. 5 pan / tilt panel and features in both windows can be called up
ADDRESS=0001001	The last number indicates the camera number, the other numbers should not be changed
CT1=Position 0	Fixed position description for fixed position 0 (upper window)
CMD1=*0001001F0003001!xy	Calls up fixed position command for fixed position 0 (upper window) The last two numbers in the command are the corresponding fixed position + 1.
CT2=Position 1	Command description text for fixed position 1
CMD2=*0001001F0003002!xy	Calls up fixed position command for fixed position 1 (upper window)
CT7=Set Pos 0	Set fixed position, set descriptive text for fixed position 0 (upper window)
CMD7=*0001001F0003101!xy	"F" command; set fixed position; the last number indicates the fixed position +1.
CT8=Set Pos 1	Set fixed position, set descriptive text for fixed position 1 (upper window).
CMD8=*0001001F0003102!xy	"F" command; set fixed position; the last number indicates the fixed position +1.
FCT1=Autofocus	Descriptive text used to activate the autofocus; The "F" in front of the command causes the command to be displayed in the lower window.
FCMD1=*0001001D0003001!xy	"D" command; The "F" in front of the command causes the command to be run in the lower window. The last number "1" activates the autofocus.
FCT2=man. Focus	Descriptive text used to activate the manual focus.
FCMD2=*0001001D0003002!xy	"D" command; the last number "2" activates the manual focus. Only when this feature has been activated can the focus be changed in the graphical operating panel using buttons "F+" and "F-"
FCT3=Auto in/out	Descriptive text used to automatically adjust the brightness.
FCMD3=*0001001D0003003!xy	"D" command; the last number "3" activates the automatic brightness adjustment.
FCT4=indoor mode	Descriptive text for brightness adjustment "indoor".
FCMD4=*0001001D0003004!xy	"D" command; the last number "4" activates the brightness adjustment "indoor".

FCT5=outdoor mode	Descriptive text for brightness adjustment "outdoor".
FCMD5=*0001001D0003005!xy	"D" command; the last number "5" activates the brightness adjustment "outdoor".
FCT6=light on	Descriptive text for turning on "back light" compensation.
FCMD6=*0001001D0003006!xy	"D" command; the last number "6" switches on "back light" compensation.
FCT7=light off	Descriptive text for turning off "back light" compensation.
FCMD7=*0001001D0003007!xy	"D" command; the last number "7" switches off "back light" compensation.
FCT8=Homeposition	Calls up the descriptive text for "home position".
FCMD8=*0001001D0003008!xy	"D" command; the last number "8" calls up the "home position".
FCT9=Reset	Runs descriptive text for reset of the current camera (1).
FCMD9=*0001001D0003009!xy	"D" command; the last number "9" executes a reset.
FCMD15=*0001001D0003010!xy	"D" command; the last number "10" switches the data screen on.
FCMD16=*0001001D0003011!xy	"D" command; the last number "11" switches the data screen off.
FCMD17=*0001001D0003012!xy	"D" command; the last number "12" switches the frame display on.
FCMD18=*0001001D0003013!xy	"D" command; the last number "13" switches the frame display off.
FCT10=A/M Strt/Stp	Descriptive text for switching on / off autotracking.
FCMD10=*0001001D0003016!xy	"D" command; the last number "16" switches autotracking on / off.
FCT11=AT on / off	Descriptive text for programming autotracking.
FCMD11=*0001001D0003017!xy	"D" command; the last number "16" starts the autotracking program
FCT12=Chase 1	Descriptive text for autotracking Chase 1, only "Frame" is tracked.
FCMD12=*0001001D0003018!xy	"D" command; the last number "18" activates "CHASE 1"
FCT13=Chase 2	Descriptive text for autotracking Chase 2; camera is tracked.
FCMD13=*0001001D0003019!xy	"D" command; the last number "19" activates "CHASE 2"
FCT14=Chase 3	Descriptive text for autotracking Chase 3, similar to CHASE 1, see SONY manual
FCMD14=*0001001D0003020!xy	"D" command; the last number "20" activates "CHASE 3"

94.2 Setting the Pan / Tilt Speed

Using the "S" command, the horizontal and vertical speeds for pan / tilt can be set separately by the receiver program. The speed is set globally, i.e. the set speed is valid for all connected cameras. The "S" command is constructed as follows:

*0001001	S	0003	0	1D	!xy
Address; is always 0001001 using this command	Identification for S command	Always 3 parameters for each command	0 = horizontal speed 1 = vertical speed	Speed as a hexadecimal value. Capital letters must be used. Values can be between 01 to 1F	End identification

The following standard values are set for pan / tilt speed when turning on the module:

- Horizontal Speed: 05H
- Vertical Speed: 06H

94.3 Autotracking

Using autotracking, the camera is able to follow moving objects. To use this feature, first call up the feature "AT on/off" (D command **17**). A square should then appear on the screen. Using the graphical operating panel (see Remote Adapter manual), move the square to the desired object. Then start the autotracking feature using the D command **16** "A/M Strt/Stp". To switch off the tracking, call up the "AT on/off" feature once again.

95 Ultrak Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbar). The adapter is used for the remote control of pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video crossbar. All Remote Adapter features are called up using the Windows receiver software from Version 1.69 on.

In this version of the Remote Adapter, the Eurodome (6", 9" und 15")/Smartscan II/III/KD6 as well as Eurocontrol 80 and/or 160 are supported. As the Eurocontrol and Eurodome protocols are different, the protocol can be switched-over via the Windows receiver software. The Remote Adapter controls the system via a two-wire RS485 line.

95.1 Functions

The following features are supported by the Remote Adapter:

Eurodome (6", 9" und 15")/Smartscan II/III/KD6:

- 10 domes can be controlled
- pan/tilt/zoom/focus
- 99 fixed positions per dome
- set fixed positions (Quick Preshots) (not available for every dome)
- 10 vector scans per Dome (several fixed positions can be called up one after the other)
- controllable display (coordinates and name of camera can be overlayed)
- pan/tilt/zoom/preset speeds can be set separately

Eurocontrol 80/160:

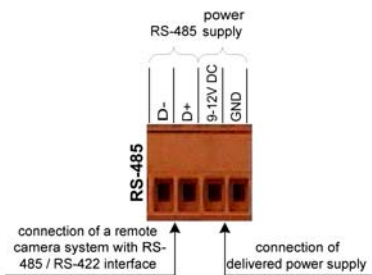
- 10 units can be controlled
- pan, tilt, zoom, focus
- 8 relays per camera (optional)
- 99 fixed positions
- set fixed positions

96 Connection

This chapter describes how to connect the Remote Adapter when used with the Eurodome (6", 9" und 15")/Smartsan II/III/KD6.

96.1 Set up the Remote Adapter for the Eurodome

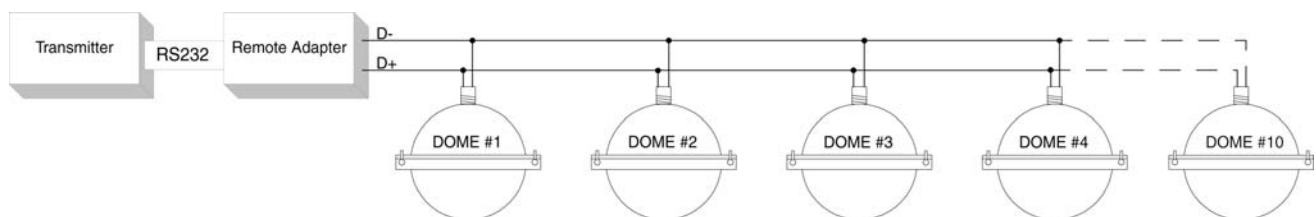
The data lines of the DOME are connected to the corresponding terminals of the Remote Adapter.



Remote Adapter	Data lines of Eurodome
D+	Data +, clear
D-	Data -, black

96.2 Set up the Eurodomes

Up to 10 Eurodomes can be directly connected to the transmitter system. The data lines of the individual Eurodomes are wired in parallel (see schematic and the connection plan in the Eurodome manual).



97 Configuration

To ensure that the Remote Adapter commands only address one DOME, each DOME must be assigned a different address (from 1 to 10) via the built-in DIP switches. When selecting one of the 10 cameras via the Windows receiver software, the corresponding DOME is addressed by the Remote Adapter via its address. The camera addresses are set according to the following table:

Camera Number	8	7	6	5	4	3	2	1
1	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	1
3	0	0	0	0	0	0	1	0
4	0	0	0	0	0	0	1	1
5	0	0	0	0	0	1	0	0
6	0	0	0	0	0	1	0	1
7	0	0	0	0	0	1	1	0
8	0	0	0	0	0	1	1	1
9	0	0	0	0	1	0	0	0
10	0	0	0	0	1	0	0	1

Table 1: Setting the Dome Address, 0 = off, 1 = on

98 Commands

98.1 List of commands (Entries in the R01 File)

[CAM1]	Entries for Camera 1
MODE = 5	Available features 0 no features 1 only pan / tilt panel 2 features in upper window can be called up (here: fixed positions) 4 features in the upper and lower windows can be called up; here: fixed positions and vector scans 5 pan / tilt panel and features in both windows can be called up
ADDRESS = 0001001	The last two numbers indicates the camera number (decimal), the other numbers should not be changed
FCT1 =VectorScan 0	FCTx command; The "F" in front of the command causes the command to be run in the lower window, in this case a vector scan. The descriptive text is "Vector Scan 0" and may only have a maximal length of 12 characters, as all descriptive text.
FCMD1 = *0001001V0003000!xy	The corresponding command for calling up a vector scan. In this case, the last number shows the vector scan. The "V" signifies the "vector scan" command. The "F" in front of the command causes the command to be run in the lower window
FCT12 = Display on	Command description text
FCMD12 = *0001001D0003001!xy	Display command; last number =1 Display =on
FCT13 = Display off	Command description text
FCMD13 = *0001001D0003002!xy	Display command; last number =2 Display =off
FCT14 = Coords on	Command description text
FCMD14 = *0001001D0003003!xy	Display command; last number =3 Coordinates display =on
FCT15 = Coords off	Command description text
FCMD15 = *0001001D0003004!xy	Display command; last number =4 Coordinates display =off
FCT17 = INIT DOME	Command description text to activate the "Eurodome" protocol
FCMD17 = *0001001D00030FE!xy	Command used to activate the Eurodome protocol. This command should be carried out once only after the installation. The command can then be removed from the R01-file. In this case, the command is called out in the lower window.
CT1 = Position 0	Fixed position description for fixed position 0 (upper window)
CMD1 = *0001001F0003000!xy	Calls up fixed position command for fixed position 0 (upper window) The last two numbers in the command are the corresponding fixed position.
CT2 = Position 1	Command description text for fixed position 1
CMD2 = *0001001F0003001!xy	Calls up fixed position command for fixed position 1 (upper window)
FCT16 = hor Spd nor	Command description text, e.g. set horizontal speed to "normal"; the text appears in the lower window
FCMD16 = *0001001S000301D!xy	Speed command "S" at speed 1D (lower window)

98.2 Setting the Pan/Tilt Speed

Using the "S" command, the horizontal and vertical speeds for pan/tilt can be set separately by the receiver program. The speed is set globally, i.e. the set speed is valid for all connected cameras. The "S" command is constructed as follows:

*0001001	S	0003	0	1D	!xy
Address; is always 0001001 using this command	Identification for S command	Always 3 parameters for each command	0 = horizontal speed 1 = vertical speed 2= Zoom in 3= Zoom out 4= Preset speed F= Save speeds	Speed as a hexadecimal value. Capital letters must be used.	End identification

The following standard values are set for pan / tilt speed when turning on the adapter or activating the protocol function:

- Horizontal Speed: 15H
- Vertical Speed: 1DH
- Zoom in: A0H
- Zoom out: 40H
- Preset: 28H

Use the following graph for setting the zoom speed



99 Eurocontrol 80/160

This chapter describes how to connect the Remote Adapter and its configuration when used with the Eurocontrol 80/160.

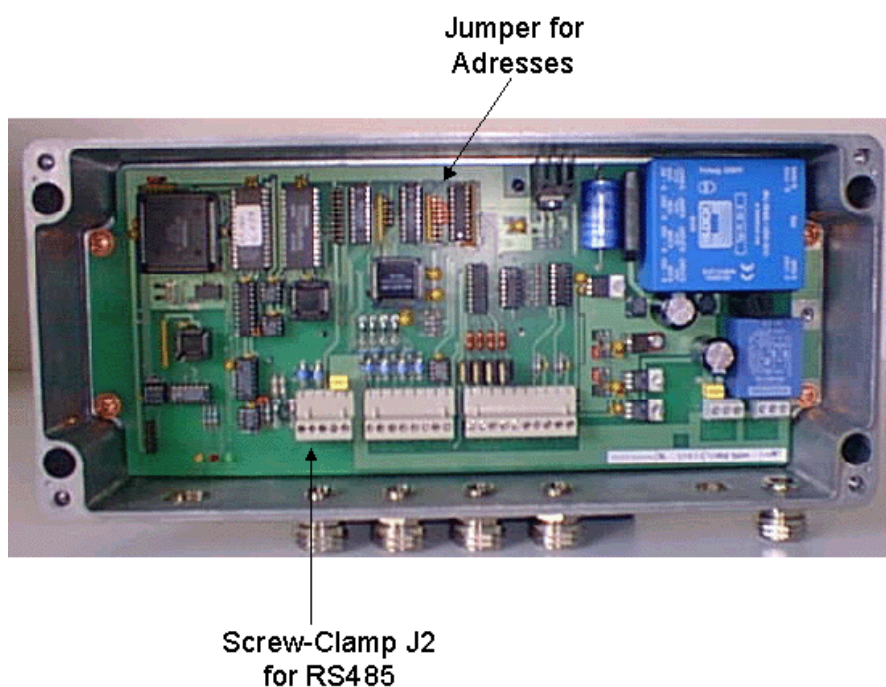
99.1 Setup the Remote Adapter for the Eurocontrol

The RS485 data lines from Eurocontrol 80/160 are attached on its "J2-Partyline" screw-clamp (see figure below) on pins 1 and 2. The following two-wire connections must be established for the data connection between the Remote Adapter and Eurocontrol:

Remote adapter	Eurocontrol 80/160, Screw-Clamp J2
D+	Pin 1
D-	Pin 2

99.2 Addressing Several Eurocontrol Units

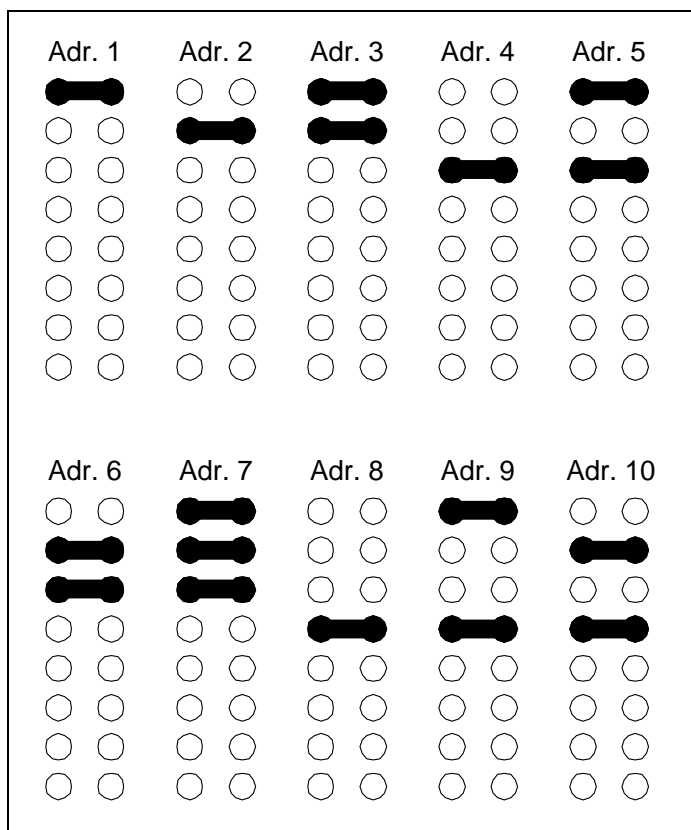
Up to 10 Eurocontrol units can be directly connected to the transmitter system. The data lines of the individual units are wired in parallel. The individual units are selected by the camera selection in the Windows receiver software. To do this, each Eurocontrol unit must be assigned its own unique address.



Eurocontrol: Addressing and RS485 Screw-Clamp

The addressing of the Eurocontrol units is preset as a binary number using 8 jumpers. The following figure indicates the 10 possible addresses.

The jumpers in the figure below are indicated as in the figure above in the vertical direction:



Jumper Settings for the First 10 Addresses

99.3 List of commands (Entries in the R01 File)

[CAM1]	Entries for Camera 1
MODE = 5	Available features 0 no features 1 only pan / tilt panel 2 features in upper window can be called up (here: fixed positions) 4 features in the upper and lower windows can be called up; here: fixed positions and vector scans 5 pan / tilt panel and features in both windows can be called up
ADDRESS = 0001001	The last two numbers indicates the camera number (decimal), the other numbers should not be changed.
CT1 = Position 0	The descriptive text used to call up fixed position 0 is "Position 0", and may only have a maximal length of 12 characters, as all descriptive text.
CMD1 = *0001001F0003000!xy	The corresponding command for calling up fixed position 0. In this case, the last two numbers indicate the fixed position as a decimal value. The command is set for the upper window.
CT2 = Position 12	Descriptive text for fixed position 12.
CMD2 = *0001001F000300C!xy	The corresponding F command for calling up fixed position 12. The number 12 (decimal) corresponds to "0C" in hexadecimal.
CT13 = Set Pos 0	Sets command description text for fixed position 0
CMD13 = *0001001F0003100!xy	The corresponding F command for calling up a fixed position.
CT14 = Set Pos 14	Sets command description text for fixed position 14
CMD14 = *0001001F000310E!xy	The corresponding F command. The number 14 (decimal) corresponds to "0E" in hexadecimal.
FCT1 = Relais 1 on	Command description text for switching on relay 1; The "F" causes the text to appear in the lower window.
FCMD1 = *0001001D0003011!xy	D command to control relays. The first number in bold type indicates the condition "on=1" or "off=0". The second number in bold type indicates the relay number. The "F" causes the command to run in the lower window
FCT2 = Relais 7 off	Command description text for switching off relay 7
FCMD2 = *0001001D0003007!xy	Command to switch off relay 7
FCT3 = all Rel. off	Description text „switch off all 8 relays“
FCMD3 = *0001001D0003020!xy	Command to switch off all 8 relays together
FCT4 = all Rel. on	Description text „switch on all 8 relays“
FCMD4 = *0001001D0003030!xy	Command to switch on all 8 relays together
FCT5 = Pos.Seq. on	Description text, switch on position sequencer
FCMD5 = *0001001D0003050!xy	Command to switch on the position sequencer
FCT6 = Pos.Seq. off	Description text, switch off position sequencer
FCMD6 = *0001001D0003040!xy	Command to switch off the position sequencer

FCT16 = INIT EC160	Command description text for activating the "Eurocontrol" protocol
FCMD16 = *0001001D00030FF!xy	Command for activating the "Eurocontrol" protocol. This command should be carried out once only after the installation. The command can then be removed from the R01 file. In this case, the command is called up in the lower window.

100 VCL Dome Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbar). The module is used for the remote control of pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video crossbar. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

In this version of the Remote Adapter, the DOME Orbiter Microsphere from VCL and its compatible modules are supported.

100.1 Functions

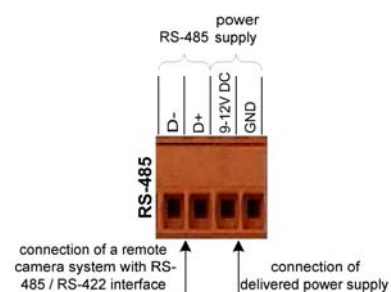
The following features are supported by the Remote Adapter:

- Up to 10 domes can be connected
- PAN/TILT/ZOOM/FOCUS (pan and tilt with speed setting, auto focus)
- IRIS control (auto iris on/off, iris open/close)
- Up to 128 fixed positions can be set and called up
- Setup of privacy zones (fading out of the areas of the picture that are marked as private)
- Setup of tours (sequence of presets, processing of a series of telemetry commands)
- Setup of home positions (preset or tour as home function)
- Can be rotated by 180°
- 16 relays available for switching

101 Connections

101.1 Integrating the Remote Module into the Picture Transmission System

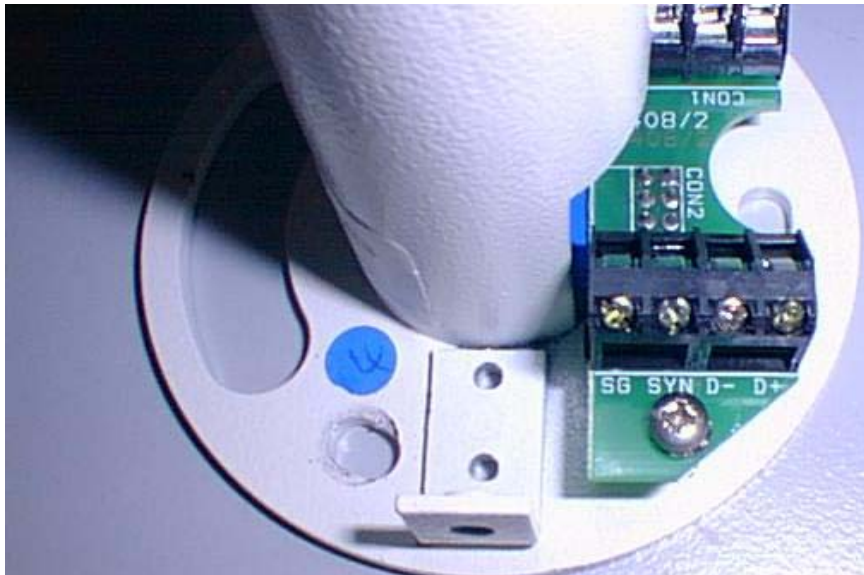
The data lines at the fixture of the Dome are connected to the corresponding terminals of the Remote Adapter.



Data lines of the VCL Dome	Remote Adapter
D-	Data- for RS485, must be connected to the D-/TxD of the remote module
D+	Data+ for RS485, must be connected to the D+/RxD of the remote module

Additional connections at the fixture:

SG not used
SYN not used
0V for 24 AC
+V for 24 AC
VG video ground
VID video signal

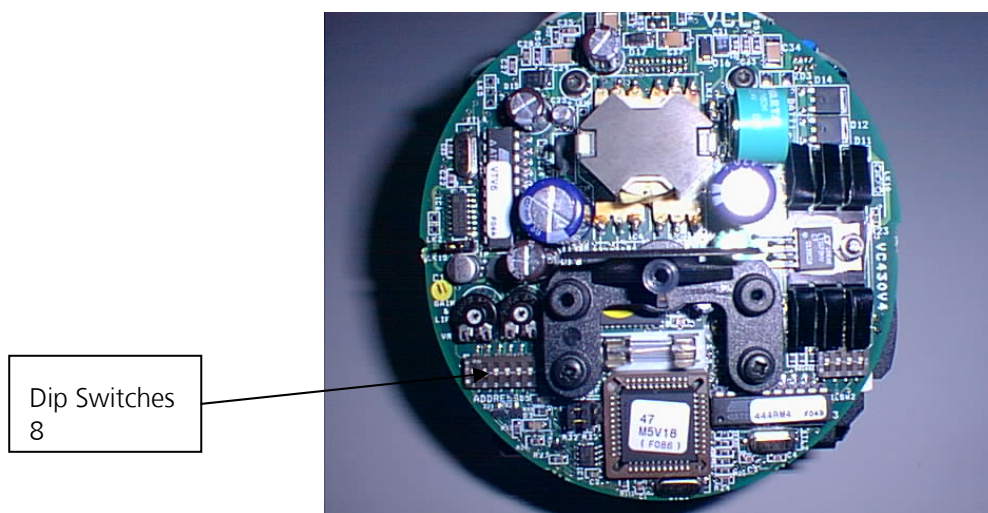


VCL Dome – Mounting Plate with connections

102 Configuration

102.1 Addressing Several Cameras

Up to 10 cameras can be directly connected to the transmitter system. The settings are made at the base of the dome with DIP switches (see figure). To ensure that the commands from the Remote Adapter only address one dome, each Dome must be assigned a unique address (from 1 to 10) using the DIP switch DILSW1. When selecting one of the 10 cameras via the Windows receiver software, the appropriate Dome is addressed by the Remote Adapter via the addresses.



Base of the VCL Dome

The DILSW1 is an eight-fold switch. The first seven switches are used for the addressing. Switch 8 is for the zoom setting.

102.2 Settings of switches DILSW1

Dome address (1-10) as the following table:

Camera / SW1	1	2	3	4	5	6	7	8
1	on	on	on	on	on	on	on	
2	off	on	on	on	on	on	on	
3	on	off	on	on	on	on	on	
4	off	off	on	on	on	on	on	
5	on	on	off	on	on	on	on	
6	off	on	off	on	on	on	on	
7	on	off	off	on	on	on	on	
8	off	off	off	on	on	on	on	
9	on	on	on	off	on	on	on	
10	off	on	on	off	on	on	on	

103 Command

103.1 F Command (fixed positions, home function and patrol)

The F command is used for setting and calling up fixed positions and for controlling the home function.

103.1.1 General Construction of the F Command

CT1 = "description text for command"

CMD1 = *00010AAF0003XYY!xy

AA = camera address (01 to 10)

X = sub-function

0 = call up fixed position

1 = set fixed position

2 = set home time in minutes

3 = set fixed position as home function

4 = set tour as home function

5 = switch off home function

6 = call up fixed position via patrol

7 = set positioning time for patrol; time is valid for all presets of all cameras

YY = 01 to 7F, hexadecimal specification in capital letters, fixed position number, tour number, patrol time or hometime in minutes.

Examples

Set and call up fixed positions, camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F000310A!xy

103.1.2 Home Function

To use the home function, the home time must first be called up using subfunction 2 and then subfunction 3 or 4 must be called up. The home time is the time after which subfunction 3 or 4 is activated as soon as its command is sent more to the dome.

Examples

Home functions, camera 1

CT1 = SetHTime 2

CMD1 = *0001001F0003202!xy (2 minutes home time)

CT2 = HomePos1

CMD2 = *0001001F0003301!xy (fixed position 1 as home function)

CT3 = HomeTour1

CMD3 = *0001001F0003401!xy (tour 1 as home function)

CT4 = DisableHome

CMD4 = *0001001F0003500!xy (switch off home function)

103.1.3 Patrol

Patrol is used for calling up fixed positions. The positioning time can thereby be set. To use the patrol function the positioning time must first be called up once using subfunction 7 and then subfunction 6.

Examples

Patrol functions, camera 1:

CT1 = SetPatTime

CMD1 = *0001001F000374F!xy(positioning time = 4F, value range: 00 bis 7F)

CT2 = PatPreset 45

CMD2 = *0001001F000362D!xy (call up patrol preset)

103.2 Z Command (Privacy Zones)

Using "Privacy Zones", particular viewing areas can be blanked out in white. The viewing area is in this case the area that would show the corresponding fixed position. A p zone is thereby always linked to a fixed position. Fixed positions from 100 (64H) bis 127 (7FH) can be used for p zones.

103.2.1 General Construction of the Z Command

CT1 = "description text for command"

CMD1 = *00010AAZ0003XYY!xy

AA = camera address (01 bis 10)

X = subfunction

0 = fixed position is visible

1 = fixed position is blanked out in white -> "Privacy Zone"

YY = 64 to 7F, hexadecimal specification of the fixed position number in capital letters

Examples

Z command, camera 1

CT1 = P Zone 100

CMD1 = *0001001Z0003164!xy (visible area of fixed position 100 is "Privacy Zone")

CT2 = Clr PZ 100

CMD2 = *0001001F0003064!xy (area of fixed position 100 is the same as the visible area)

Note

100 decimal = 64H hexadecimal (refer to conversion table)

103.3 G Command (Iris)

The iris can be controlled using the G command.

103.3.1 General Construction of the G Command

CT1 = "description text for command"

CMD1 = *00010AAG00030YY!xy

AA = camera address (01 to 10)

YY = (01 to 04)

00 = stop iris

01 = open iris

02 = close iris
 03 = automatic iris control
 04 = manual iris control

Examples

G command, camera 1

CT1 = iris open

CMD1 = *0001001G0003001!xy (Iris open)

103.4 S Command (Pan/Tilt speed)

The pan/tilt speed can be set separately using the S command. The speed is global for all connected cameras.

103.4.1 General Construction of the S Command

CT1 = "description text for command"

CMD1 = *00010AAS0003XYY!xy

AA = camera address (01 to 10)

X = subfunction

0 = set pan speed

1 = set tilt speed

YY = 01 to 7F, hexadecimal specification of the speed in capital letters; larger values correspond to higher speeds

Examples

S command, all cameras

CT1 = PanSpdLow

CMD1 = *0001001S000300C!xy (low pan speed)

CT2 = TiltSpdHigh

CMD2 = *0001001S000315F!xy (high tilt speed)

103.5 V Command (Tours)

There are two types of tour:

- Sequence of fixed positions: A sequence of several fixed positions, whereby the call-up time and the dwell time can be set individually for each fixed position. Tour numbers 1 to 4 have been set for this type of tour.
- Learn Path Feature: Any sequence of control commands (pan/tilt/zoom/focus/preset etc.) that can last a maximum of 6 minutes. Up to 10 commands can be stored by the dome every 6 minutes, thereby resulting in a max. number of commands of $10 \times 60 \times 6 = 3600$. Tour numbers 5 to 8 have been set for this type of tour.

Tours can be programmed and played back using the V command.

103.5.1 General Construction of the V Command

CT1 = "description text for command"

CMD1 = *00010AAV0003XYY!xy

AA = camera address (01 to 10)

- 0 = start tour programming
- 1 = end tour programming. For the "Learn Path feature, programming is automatically terminated after 6 minutes.
- 2 = play back tour
- 3 = program tour data (preset, speed, dwell time), not to be used for the "Learn Path Feature"
- 4 = set dwell time (00H bis 07FH) for fixed positions

YY = Tour number for subfunctions 0 and 2, preset number for subfunction 3, or dwell time for subfunction 4.

Examples

V command, camera 1

"Learn Path Feature":

Operating sequence:

1. Command 1: "Learn Path", path/tour number in the range 05 to 08
2. Pan/Tilt/Zoom/Focus/Preset command, maximum 6 minutes
3. Command 2: "Stop Learn", no tour number is required for this command
4. Command 3: "Play Tour", playback of the tour is cancelled by the pan/tilt/zoom/focus/preset command

CT1 = Learn Path 5

CMD1 = *0001001V0003005!xy (learn tour 5)

CT2 = Stop Learn

CMD2 = *0001001V0003100!xy (cancel learn procedure)

CT3 = Play Tour 5

CMD3 = *0001001V0003205!xy (playback tour 5)

"Sequence of fixed positions"

Operating sequence:

1. Command 1: "Tour Start", tour number in the range 01 to 04
2. Commands 4,5,6: up to 128 commands for presets
3. Command 2: "Stop Tour", no tour number is required for this command
4. Command 3: "Play Tour", playback of the tour is cancelled by pan/tilt/zoom/focus/preset commands
5. Alternatively, command 7 and/or 8 can be called up before every command (4,5,6 etc.) to assign a unique dwell time and positioning time to every fixed position. The dwell time is preset to 01 (approx. 1.5 seconds) and the positioning time to 20H.
Note: for the positioning time, an F command is used (see CMD8) that also simultaneously sets the positioning time for the patrol function.

CT1 = Tour 1 Start
 CMD1 = *0001001V0003001!xy (start tour 1)

CT2 = Stop Learn
 CMD2 = *0001001V0003100!xy (cancel learn procedure)

CT3 = Play Tour 1
 CMD3 = *0001001V0003201!xy (play back tour 1)

CT4 = TourData P1
 CMD4 = *0001001V0003301!xy (preset 1 in tour)

CT5 = TourData P2
 CMD5 = *0001001V0003302!xy (preset 2 in tour)

CT6 = TourData P3
 CMD6 = *0001001V0003303!xy (preset 3 in tour)

CT7 = Dwell Time 1
 CMD7 = *0001001V0003401!xy (dwell time for preset, smaller values
 = shorter dwell time)

CT8 = SetPatTime
 CMD8 = *0001001F000374F!xy (positioning time = 4F, value range: 00 to 7F)

103.6 D Command (Diverse Functions)

Using the D command, you can address various individual functions of the VCL dome (functions marked by "*" can be called up but they are not tested).

Only the most important functions are included in the example R01 files as the list would otherwise be too cluttered. Among other things, the table is provided so that this can incorporate required functions itself into the R01 files.

Both letters "YY" in the D command indicate the function in question.

Letters "AA" indicate the camera address (01-10).

General

Construction of the G Command

CT1=Function

CMD1=*00010AAD00030YY!xy

Function Number YY	Comment
40	*Aux on
60	*Aux off
41	Auto Focus on, should not be active for more than 24 hours at one time!
61	Auto Focus off
48	*Toggle mono/colour
68	*Automatic mono/colour
53	*Alarm mode on
73	*Alarm mode off

54	Turn 180 degrees
6B	Reset
5B	*Wash on
7B	*Wash off
5C	*Wipe on
7C	*Wipe off
5D	*Lamps on
7D	*Lamps off

Table 1: D Commands

Example

You want dome 3 to rotate 180° ("flip"). According to Table 1, D command no. 1 should be used:

CT1=Flip 180 °description text

CMD1=*0001001D0003061!xy command

103.6.1 Reset Functions

The dome can also be reset using the D command. There are two different reset functions:

Power on Reset

Behaves as if the dome has just been switched on. All settings remain unchanged.

Clear all Reset

All stored settings are reset to the factory settings.

Examples

Dome 3:

CT1=PowerOnReset

CMD1=*0001003D000306B!xy

CT1=ClrAllReset

CMD1=*0001003D000316B!xy

104 Vicon Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and in the selection of cameras connected to a video matrix. Additional fixed positions can be called up by the Remote Adapter in some pan-and-tilt systems. These features are called up using the Windows receiver software from Version 1.69.

This version of the Remote Adapter, the Vicon, supports the Dome Surveyor99 Series and Surveyor2000 and compatible modules. The Remote Adapter controls the domes at 9600 baud via RS485. This is Version 1.00 of the Remote Adapter.

104.1 Functions

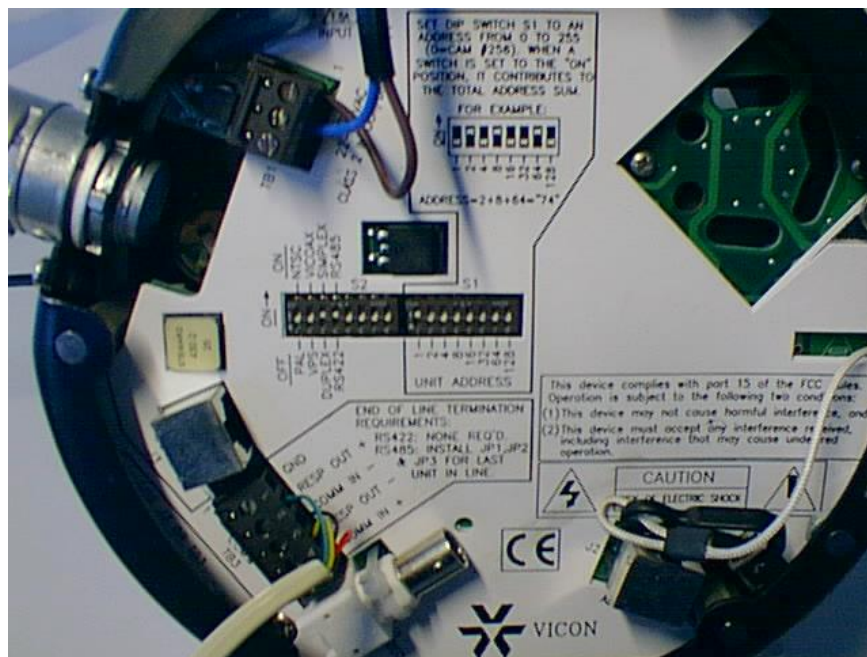
The following features are supported by the Remote Adapter:

- up to 10 domes can be connected
- pan, tilt, zoom, focus (pan and tilt speeds can be set separately)
- iris control (open, close, stop)
- 79 fixed positions can be set and called up
- autopan
- menu control; almost all camera settings can hereby be set (camera and preset names, tour sequences, home position, set factory settings)
- on ending or cancelling the connection to the transmitter, the last activated dome is stopped.

105 Connections

The connections are located at the base of the dome and are to be assigned as follows:

Dome Connection	Remote Adapter
TB3 connection (COMM IN +)	must be connected to D+/TxD of the Remote adapter
TB3 connection (COMM IN -)	must be connected to D-/RxD of the Remote Adapter
TB1 connection (pin 1) / 24 VAC	power supply
TB1 connection (pin 2) / 24 VAC	power supply

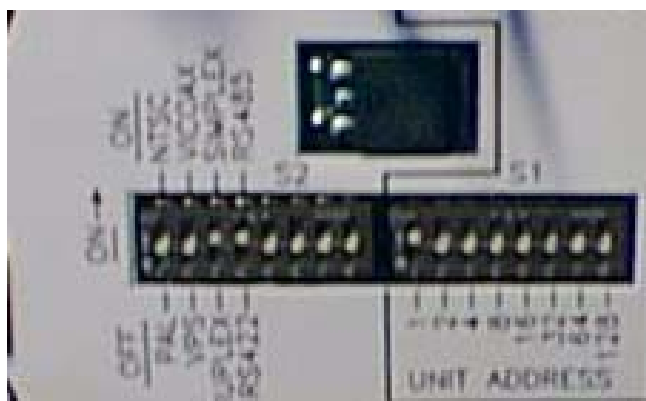


Vicom Dome Connection Board

106 Configuring the Dome

Every connected dome must be assigned its own address. The address can be set using DIP switch S1 located at the base of the dome (see picture).

The dome address should always agree with the number of the camera input of the transmitter to allow the example RO1 file (delivered with the device) to be used directly and without any changes having to be made to it. This means that a dome connected to camera input 1 must receive the address 1 and a dome at camera input 2 must receive the address 2, etc.



DIP switch S1 for address; here, address 1

DIP switch S2 must be set as follows:

PAL	(DIP 1/8 off)
VPS	(DIP 2/8 off)
SIMPLEX	(DIP 3/8 on)
RS485	(DIP 4/8 on)

The remaining
DIP switch S2 (5/8 to 8/8) off.

107 Commands

107.1 S Command (Pan-/Tilt speed)

The pan-/tilt speed is set separately using the S command. The speed applies globally for all connected domes.

General construction of the S command:

CT1 = "description text for the command"

CMD1 = *00010AA S0003XYY!xy

AA = camera address (01 to 10, any, because global)

X = sub-function

X = 0 (set the pan speed)

X = 1 (set the tilt speed)

YY = 01 to 99, sets the speed directly in hexadecimal form (capital letters)

01 (slow) <-----> FF (fast)

Example: S command, all domes

Set pan speed to 12

CT1=PanSpd 12

CMD1=*0001001S0003012!xy

Set tilt speed to B5

CT2=TiltSpd B5

CMD2=*0001001S00031B5!xy

107.2 G Command (Iris)

The iris can be controlled using the G command. The G command is constructed as follows:

CT1 = „description text for command“

CMD1 = *00010AA G00030YY!xy

AA = camera address (01 to 10)

YY = (00 to 03)

00 = stop iris

01 = open iris

02 = close iris

03 = automatic iris control (A / I button).

Note: Autoiris does not function on the Surveyor99/2000

Example for G command, camera 1

CT1 = Iris open

CMD1 = *0001001G0003001!xy (Iris open)

107.3 D Command (diverse functions)

The auxiliary functions (AUX) „autopan“ and „lens speed“ can be controlled using the D command.

CT1=Function

CMD1=*00010AAD0003YYY!xy

AA = camera address (01 to 10)

The three letters "YYY" indicate the function in question.

Function Number YYY	Description
000	Autopan on/off (toggle), corresponds to the "A / P" button on the control console
001	Corresponds to the "Lens Speed" button on the control console
201	Enable AUX 1
202	Enable AUX 2
203	Enable AUX 3
204	Enable AUX 4
205	Enable AUX 5
206	Enable AUX 6

107.4 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „Description text for command“

CMD1 = *00010AAF0003XYY!xy

AA = Camera address (01 to 10)

X = Sub-function

0 = call up fixed position

1 = set fixed position

YY = 01 to 79, indicates the fixed position number

Examples for setting and calling up fixed positions at camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F0003110!xy

Note: fixed position numbers (from 80 onwards) have been reserved for tours, auto-tours and other functions (refer to dome manual).

107.5 Menu Control

Almost all camera settings, tours, factory settings, camera labels, etc. can be set using the menu control.

The menu is activated by setting the fixed position to 94 (refer to dome manual). The command for calling up the menu is already contained in the R01 example files.

To ensure that the text of the menu control can be easily read, the picture quality should be changed as required using the thumb (shown below) after calling up the pan/tilt panel and the "LENSPEED" function should then be called up (black background on/off).

To correctly operate the menu, extra buttons are required in addition to the arrow keys on the pan- and tilt panel. These extra buttons are located on the preset keypad (see diagram):

"A / I"

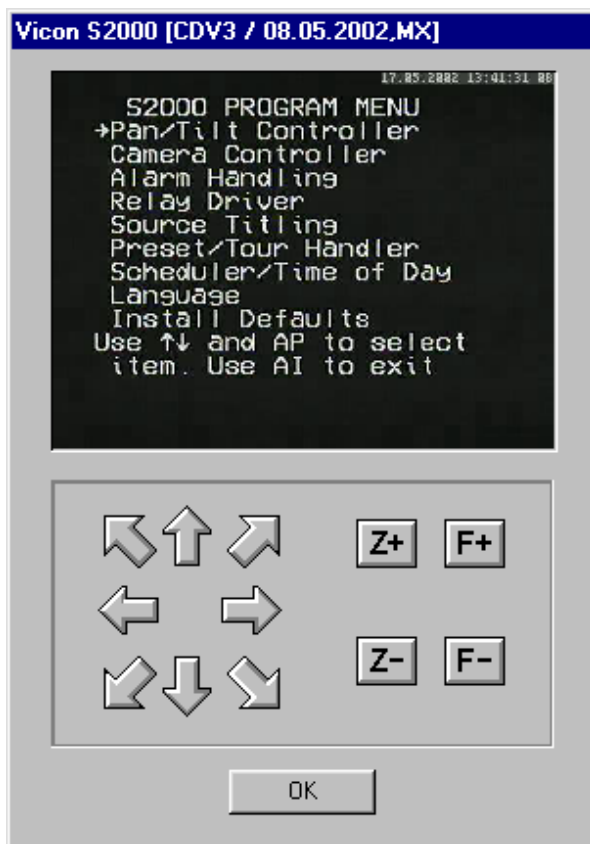
"A / P"

"AUX 1"

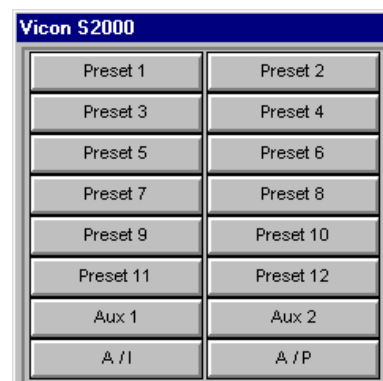
"AUX 2"



Thumb for picture quality



Menu control using the pan- and tilt panel



Preset keypad

108 Video Tec Product Description

The Remote Adapter (RA) is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbars). The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video crossbar. For some pan-and-tilt devices, additional fixed positions can also be called up using the RA. These functions are called up by the Windows Receiver software from Version 1.69.

In this version of the Remote Adapter (1.00), DTRXDC VideoTec Receivers (e.g. DTRX3) are supported. The system controls pan and tilt heads with lens motors.

108.1 Functions

The following functions are supported by the Remote Adapter:

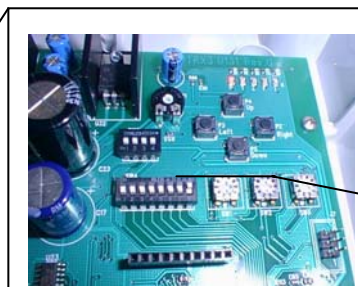
- Pan, tilt, zoom, focus (pan and/or tilt speeds can be set in 8 steps)
- Iris control (open, close, auto, stop)
- Set/call up 14 fixed positions
- 99 camera numbers
- Wiper on/off
- Water pump on/off
- Autopan
- 4 special functions (relay) on/off

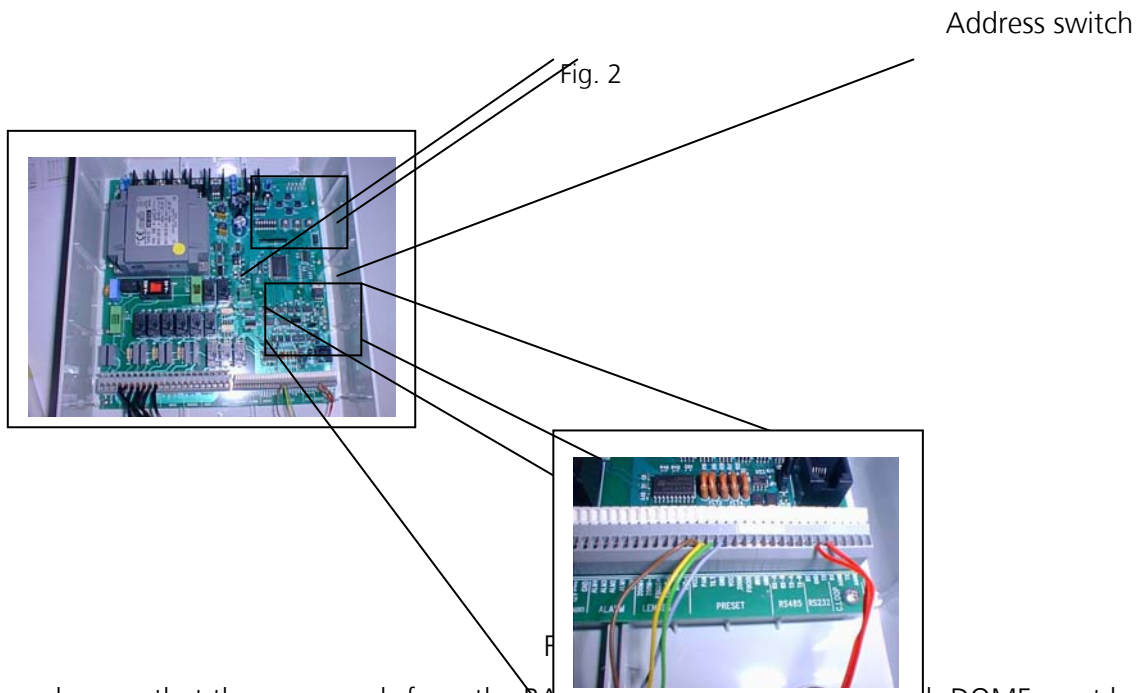
109 Connections and Configuration

The connection between the Remote Adapter and the Video Tec can be established via an RS232 or RS485 connection

An example for an RS232 connection (9600 baud) between the RA and Video (refer to Fig. 3):

Video Tec	Remote Adapter
Rx of the RS232	TxD
Rx of the RS232	RxD





To make sure that the commands from the RA only address one DOME, each DOME must be assigned a different address. The receiver address must be set using address switches SW1, SW2 and SW3 (Fig. 2). We recommend that you use addresses with the camera numbers of the receiver software (1-4 or 1-10) so that the preconfigured (default) files can be used immediately.

Details on connecting the pan/tilt heads are contained in the VideoTec manuals.

110 Commands

110.1 S Command (Pan-/Tilt speed)

The pan-/tilt speed is set using the S command. The speed applies globally for all connected domes.

General construction of the S command:

CT1 = "description text for the command"

CMD1 = *00010AAS0003XYY!xy

AA = Camera address (01 to 99 (decimal values))

X = Sub-function

X = 0 (set the pan speed)

X = 1 (set the tilt speed)

YY = 01 to 07, indicates the speed (hexadecimal values)

01 (slow) <-----> 07 (fast)

Examples: S-command, all domes and/or pan-and-tilt heads

Set pan speed to 12

CT1=PanSpd 12

CMD1=*0001001S000300C!xy

Set tilt speed to 5

CT2=TiltSpd 5

CMD2=*0001001S0003105!xy

110.2 G Command (Iris)

The iris can be controlled using the G command. Construction of the G command:

CT1 = "description text for the command"

CMD1 = *00010AAG0003XYY!xy

AA = Camera address (01 to 99 (only hexadecimal values))

YY = irrelevant

X = (1 to 3)

Function number X	Description
1	(open iris)
2	Stop Iris
3	Close iris

4	Autoiris
---	----------

Example for G command, camera 1

CT1 = Iris open

CMD1 = *0001001G0003100!xy (open iris)

110.3 D Command (various functions)

CT1=function

CMD1=*00010AAD0003XYY!xy

AA = camera address (01 to 99 (hexadecimal values))

X = irrelevant

The two letters "YY" indicate the function in question.

Function Number YY	Description
01	AUX 1
02	AUX 2
03	AUX 3
04	AUX 4
05	Wiper ON
06	Washer ON
07	AutoFocus ON
08	No Function
09	Autopan
0A	AutoPan OFF
0B	Stop (OFF Function)
0C	Receiver Reset
0D	Patrol Start
0E	Patrol Stop

110.4 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = „Description text for command“

CMD1 = *00010AAF0003XYY!xy

AA = Camera address (01 to 99 (hexadecimal value))

Function number X	Description
-------------------	-------------

0	call up fixed position
1	set fixed position

YY = 01 to 14 (only decimal values), indicates the fixed position number

Examples for setting and calling up fixed positions at camera 1:

CT1 = Preset 1

CMD1 = *0001001F0003001!xy

CT2 = SetPreset 10

CMD2 = *0001001F0003110!xy

111 Videotronic Protocol Description

The Remote Adapter is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video crossbar). The adapter is used for the remote control of pan-and-tilt devices, relay boxes and the selection of cameras connected to a video crossbar. All functions of the Remote Adapter are called up using the WindowsReceiver Software from version 1.69 and higher.

This version of the Remote Adapter supports the Bustronic-System from Videotronic. The Remote Adapter does not control terminals such as domes or pan-and-tilt heads directly, but via RS232/RS485 converters available from Videotronic (see picture).

111.1 Functions

The following functions are supported by the Remote Adapter:

- up to 10 Bustronic devices (e.g. Dome, pan-and-tilt heads) can be controlled
- 99 fixed positions for each camera (setting / calling)
- home position
- panorama (several fixed positions can be called up one after the other)
- all keys on the BGALL control panel can be triggered via the Remote Adapter

112 Connecting the Remote Adapters to the RS232/RS485 Converter

The following 2-wire connection must be made between the Videotronic converter and the Remote Adapter:

Remote Adapter	RS232 Sub-D plug at the converter
GND	Pin 5
TxD	Pin 3

Additionally, Pins 7 and 8 of the RS232 plug must be bridged at the converter.

113 Configuring the Bustronic System

113.1 Converter KON -485/232

The converter must be set to Protocol 0 using the internal rotary switch. The internal DIP switches must all be set to "off" to ensure that the converter works with address 0. The operating system version of the converter should be V 3.2 or higher.

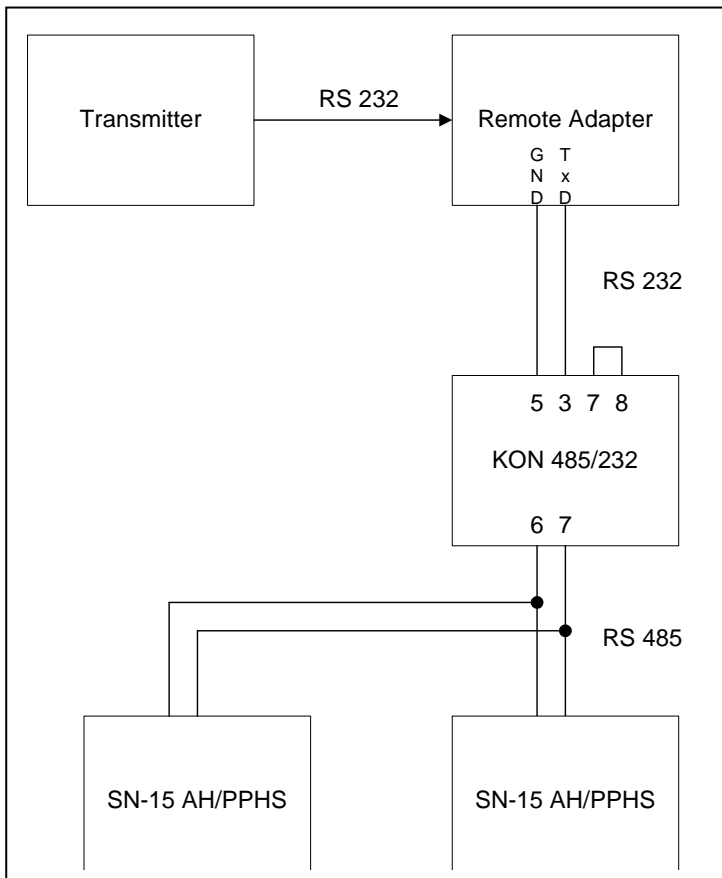


113.2 Pan-and-Tilt Heads, Dome

When possible, the addresses of the pan-and-tilt heads or of the dome should be set in such a way that they agree with the camera number of the transmitter system. This has the advantage that the control files (R01-files, included in delivery) for the Windows receiver software can then be used without having

to change them. Please also read the manual for the pan-and-tilt head or for the dome to determine how to change the address of the device and how to attach it to the KON - 485/232.

A complete survey of all components can be viewed in the following diagram:



114 Commands

114.1 Entries in the R01 File

[CAM1]	Entries for Camera 1
MODE=5	<p>Available functions</p> <p>0 no functions</p> <p>1 only pan-and-tilt panel</p> <p>2 functions can be called up in the upper window (here: fixed positions)</p> <p>4 functions in the upper and lower windows can be called up – here fixed positions and vector scans</p> <p>5 pan-and-tilt panel and functions in both windows can be called up</p>
ADDRESS=0001001	The last two numbers indicate the camera number (decimal); the other numbers should not be used

The following commands can also be used:

114.1.1 Calling Up/Setting the F Command for Fixed Positions

Using the F command, fixed positions can be set and called up. 99 fixed positions are available for each camera.

The F command is constructed as follows:

CMD1=*00010xxF0003cyy!xy

xx = device address 00 to FF (hexadecimal, capital letters)

c = 0 (call up fixed position) c = 1 (set fixed position)

yy = fixed position 00 to 99 (decimal)

Example for F command (call up fixed position 2 at Bustronic device address 01):

CT1=Preset 2

CMD1=*0001001F0003**002**!xy

Example for F command (set fixed position 8 using Bustronic device address 1E):

CT1=Set Pre. 8

CMD1=*000101EF0003**108**!xy

The fixed position must be indicated in decimal form and the device address as a hex code.

114.1.2 D Command for General Functions

In principle, using the D command allows you to call up all key combinations of the BGALL control panel. The most important SHIFT commands are already listed in the R01 files delivered with the software.

The D command is constructed as follows:

CMD1=*00010**xx**F00030**yy**!xy

xx = device address 00 to FF (hexadecimal, capital letters)

yy = ASCII characters (hexadecimal, capital letters)

Example: (SHIFT G –key combination at Bustronic device address 01)

CT1=SHIFT + G

CMD1=*0001001D00030**67**!xy

67hex = 103dez, 103 is in the ASCII character set „g“. A survey of valid commands is contained in the manual of the Bustronic system.

115 VISTA Protocol Description

The SmartDome Control Module is a protocol converter that is connected between the transmitter and the camera control unit (DOME control or video matrix).

The adapter is used for remotely controlling pan-and-tilt devices, relay boxes and for selecting cameras connected to a video matrix.

The connection and the configuration of the VISTA Power Dome Series (hereafter simply referred to as the Power Dome) is documented in the following text.

Additional fixed positions can be called up by the SmartDome Control Module in some pan-and-tilt systems.

These functions are called up by the Windows Receiver software from Version 1.69.



Vista Power Dome

115.1 Functions

The SmartDome Control Module Version 1.00 supports the following (and other) functions (additional information regarding the individual functions is contained in the manual of the Power Dome in question)

- 64 cameras can be controlled
- pan / tilt / zoom / focus,
- pan and tilt speeds in 256 steps,
- auto pan (on/off),
- auto focus
- freeze (on/off),
- iris control (open, close, auto, stop)
- 255 fixed positions can be set and called up,
- 4 tours can be set and called up (list of fixed positions is worked through),
- up to 3 learn tours can be set and called up (1 x 3 or 3 x 1 min),
- 16 alarms can be controlled (activate, acknowledge, clear, status response),
- menu (call up and control camera menu),
- manual 180° panning,
- switch between bw and colour,
- other functions as listed in the respective manual.

116 Configuration

Note:

In the text, names and labels of the device are in double-inverted commas, e.g. "Rx". To ensure that the commands from the SmartDome Control Module control the addressed Power Dome in a targeted manner, each must be assigned an individual address.

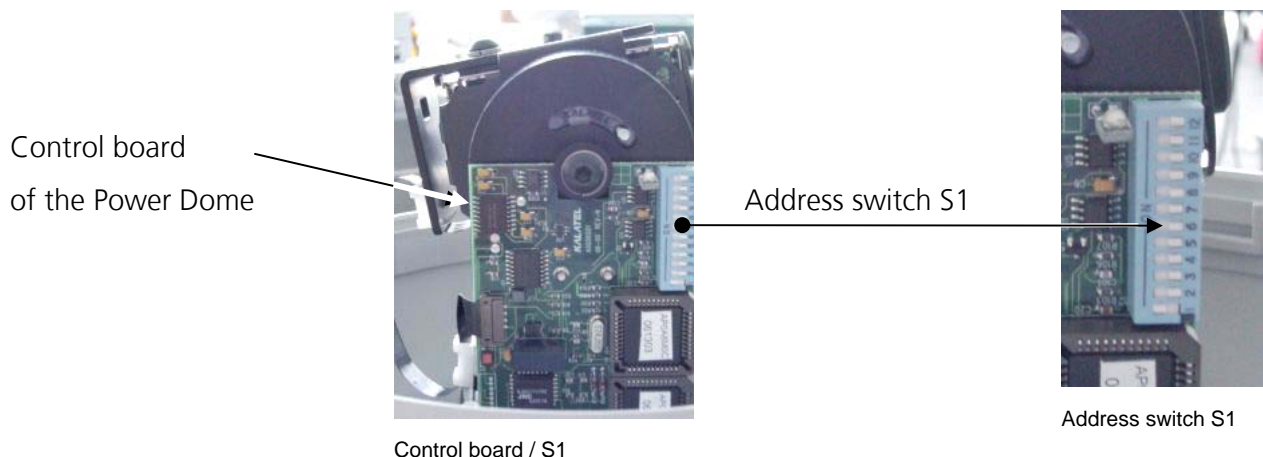
116.1 Setting the Address at the Power Dome

The housing of the Power Dome is comprised of two parts – the assembly housing and the dome cover. To access address switch S1, rotate the dome cover carefully to the left (anticlockwise) and lift the dome from the assembly housing. Please observe the assembly instructions in the VISTA installation manual.

To avoid scratching the dome, always use a soft cloth during assembly work: place the cloth underneath the dome or as required.

The receiver address is set using address switch S1. Address switch S1 is binary encoded. We recommend that you use addresses with the camera numbers of the windows software (1-4 or 1-10) so that the preconfigured (default) files can be used immediately.

The position of address switch S1 is listed in the following diagrams:



Examples for Setting the Addresses

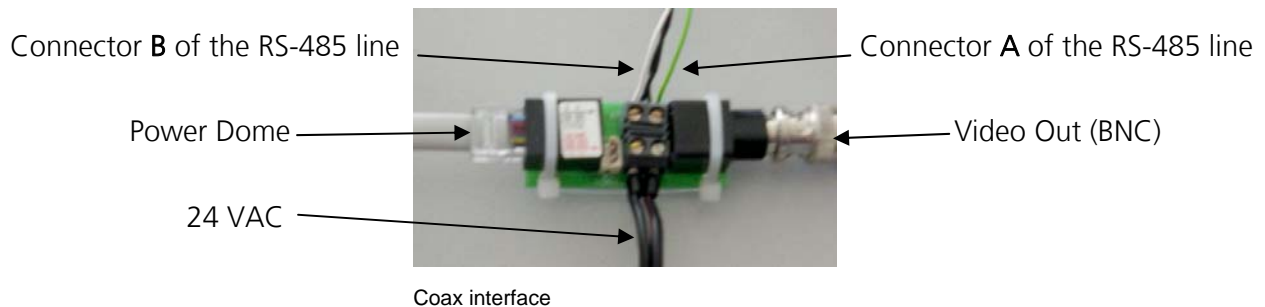
Address	DIP Switch ON	Address	DIP Switch ON
1	1	8	4
2	2	9	1 + 4
3	1 + 2	10	2 + 4
4	3	16	5
5	1 + 3	32	6

6	2 + 3	63	1 + 2 + 3 + 4 + 5 + 6
7	1 + 2 + 3	64	7

116.2 Establish RS-485 Connection between the SmartDome Control Module and the Power Dome

The RS-485 connection must be established to communicate between the SmartDome Control Module and the Power Dome.

- Connect “D -” of the SmartDome Control Module to connection “B” of the Power Dome.
- Connect “D+” of the SmartDome Control Module to connection “A” of the Power Dome.
- Make sure that the transparent interface of the picture transmitter is set to 9600 baud / 8N1 (via transmitter settings/serial channel/baud, mode of the installed Windows software).



116.3 Loading the Control Files (R01)

After the required Windows software for video viewing has been installed on the PC, you can then copy the files for control and command support (R01 files) of the Power Dome into the corresponding directory. These files are included in the scope of delivery.

The binary file *vista.bin* is copied into the directory of the Windows software in the subdirectory...RM\BIN.

Depending on the command support, you can copy all R01 files or just the R01 file *VISTA_All.024* or *VISTA_User.024* into the ...RM\RM01 directory of the Windows software.

VISTA_All.024: all command functions are located here, independent of the actually used function.

VISTA_User.024: selected commands for the respective user are located here.

116.4 Establishing the Power Supply for the Power Dome

A suitable mains adapter for the Power Dome is included in the scope of delivery. Please also observe the safety instructions contained in the installation manual of the Power Dome. Only operate the camera using the stipulated AC current of 24 V (24 VAC). Connect the AC current in accordance to the diagram shown above (“Coax Interface”).

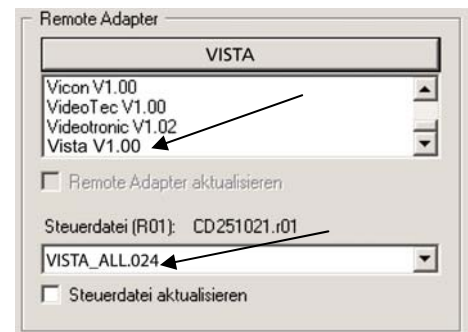
116.5 Setting Up the Control File (R01) for the SmartDome Control Module

A connection to your Control Module can be called up in the "Serial Channel" submenu of the "Transmitter Settings" Menu field. The external serial interface must be set to 9600 baud, mode 8N1.

- Select the "Search for Connected RA" menu item. On successful connection to the SmartDome Control Module, the available protocol implementations are displayed in the "Remote Adapter" field.

If the message "Timeout, is the RA available at the transmitter end?" appears then please check the following points:

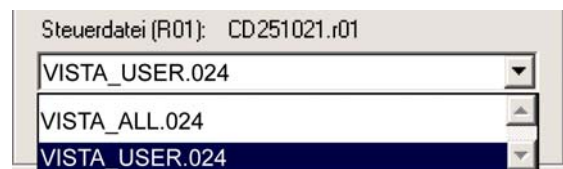
- is the V.24 cable correctly connected?
- is the supply voltage connected to the SmartDome Control Module?
- is the serial channel correctly set (9600 baud, 8N1)?



VISTA V1.00 with one R01 file

Installing your R01 file:

- To install, select the appropriate VISTA control file from the list and activate the control file marked "Update Control File".
- After making the selection, click on the **OK** button and terminate the connection to actuate the altered settings for the SmartDome Control Module.



Selecting the R01 files

Please observe that the settings are only updated after the connection has been terminated or can only take effect after a new connection has been established!

117 Commands

The Command lines whose parameters are described in the following are located in the R01 files. Additional explanations of the commands are located in the device manual of the SmartDome Control Module.

117.1 S Command (Pan and Tilt Speeds)

The pan and tilt speed is set using the S command. The speed applies globally for all systems connected to the RA.

General construction of the S command:

CT1 = "description text for the function"

CMD1 = *00010AAS0003XYY!xy

AA = camera address (01 to 40 (hexadecimal))

Error correction, when the value range is exceeded. 01.

X = Sub-function

YY = defines the parameter of the function (hexadecimal).

Function Number X	Description	Parameter YY (hexadecimal)	Error correction, when the value range is exceeded (hexadecimal).
0	Set the pan speed	00 – FF	-
1	Set the tilt speed	00 – FF	-

00 hexadecimal (slow) <-----> **FF** hexadecimal (fast)

Examples: S command, all domes

Set Cam1 pan speed to C8 (hexadecimal):

CT1=Hor Spd 200

CMD1=*0001001S00030C8!xy

Set Cam1 tilt speed to 64 (hexadecimal):

CT2=Ver Spd 100

CMD2=*0001001S0003164!xy

117.2 B Command (general functions without parameters)

CT1=" description text for the function"

CMD1=*00010**AA**B0003**XY**!xy

AA = camera address (01 to 40 (hexadecimal))

X = indicates the function in question (0 to 7 (decimal)).

YY = Irrelevant here (don't care).

Function number X	Description	Function number X	Description
0	Manual 180° Flip	4	Auto Pan On
1	Colour/Mono Toggle	5	Auto Pan Off
2	Auto Iris Toggle	6	Freeze On
3	Auto Focus Toggle	7	Freeze Off

117.3 D Command (menu functions)

CT1= " description text for the function "

CMD1=*00010AAD0003XYY!xy

AA = camera address (01 to 40 (hexadecimal))

X = indicates the function in question (decimal).

YY = irrelevant here (don't care).

Function number X	Description	Function number X	Description
0	Activate Menu	5	Menu Cursor Right
1	Menu Enter Key	6	Menu Cursor Up
2	Menu Escape Key – No Shift	7	Menu Cursor Down
3	Menu Escape Key – Shift	8	Simple Commands
4	Menu Cursor Left	9	Shifted

117.4 H Command (tour functions)

CT1= "description text for the function"

CMD1=*00010AAH0003XYY!xy

AA = camera address (01 to 40 (hexadecimal))

X = indicates the function in question (decimal).

YY = tour number (1 to 4 (decimal)).

Function Number X	Description	Parameter YY	Error correction, when the value range is exceeded (hexadecimal).
0	Tour Recall	01 - 04	01
1	Tour Program	01 - 04	01

Examples: H Command

Call up camera 45 (2D hexadecimal), tour 03

CT10=Tour Recall 3

CMD10= *000102DH0003003!xy

Program camera 12 (2C hexadecimal), tour 04

CT11= Tour Prog. 4

CMD11= *000100CH0003104!xy

117.5 E Command (learn functions)

CT1= "description text for the function"

CMD1=*00010AAE0003XYY!xy

AA = camera address (01 to 40 (hexadecimal))

X = indicates the function in question (decimal).

YY = Learn number (1 to 4 (decimal)).

Function Number X	Description	Parameter YY	Error correction, when the value range is exceeded (hexadecimal).
0	Learn Recall	01 – 03	01
1	Learn Program 3x1Minutes (Recall 1-3)	01 – 03	00
	Learn Program 1x3 Minutes (Recall 1)	00	00

117.6 Z Command (alarm functions)

CT1= "description text for the function"

CMD1=*00010AAZ0003XYY!xy

AA = camera address (01 to 40 (hexadecimal))

X = indicates the function in question (decimal).

YY = indicates the alarm (bit) number (1 to 16 (decimal)).

Function Number X	Description	Parameter YY	Error correction, when the value range is exceeded (hexadecimal).
0	Alarm Activated	01 – 16	01
1	Alarm Acknowledge	01 – 16	01
2	Alarm Clear	01 – 16	01
3	Alarm Status Response	01 – 16	01

Examples: Z Command

Camera 17 (11 hexadecimal), Alarm Acknowledge No. 14:

CT21= AlarmAckno14

CMD21= *0001011Z0003114!xy

Camera 60 (3C hexadecimal), Alarm Status Response No. 03:

CT22= AlarmStatR03

CMD22= *000103CZ0003303!xy

117.7 G Command (iris functions)

CT1= "description text for the function"

CMD1=*00010AAG0003XYY!xy

AA = camera address (01 to 40 (hexadecimal))

X = indicates the function in question (decimal).

YY = Irrelevant here (don't care).

Function number X	Description
1	Iris Open START
2	Iris Close START
3	Iris Open/Close STOP

117.8 F Command (calling up/setting fixed positions)

The F command is used for setting and calling up fixed positions and is constructed as follows:

CT1 = "description text for the function"

CMD1 = *00010AAF0003XYY!xy

AA = camera address (01 to 40 (hexadecimal))

X = indicates the function in question (decimal).

YY = 01 to FF (hexadecimal), indicates the fixed position number

Function Number X	Description	Parameter YY	Error correction, when the value range is exceeded (hexadecimal).
0	call up fixed position	01 – FF	01
1	set fixed position	01 – FF	01

1. Examples for setting and calling up fixed positions at camera 1:

Set fixed position 1:

CT1 = SetPreset 1

CMD1 = *0001001F0003101!xy

Call up fixed position 7:

CT2 = Preset 7

CMD2 = *0001001F0003007!xy

117.9 L Command (baud rate)

The baud rate applies globally for all systems connected to the RA.

CT1= "description text for the function"

CMD1=*00010**AA**L0003**XY**!xy

AA = camera address (01 to 40 (hexadecimal))

X = indicates the function in question (decimal).

NOTE: The baud rate is not stored and after switching back on the RA is set to:

9600 Baud.

YY = Irrelevant here (don't care).

Function number X	Description
1	9600 Baud
2	4800 Baud
3	2400 Baud

118 Miscellaneous

Parallel operation of a Vista keyboard (a Vista NPX/KBD/J3De (/S) keyboard was used during implementation and during tests) and the SmartDome Control Module via RS485 on one power dome is possible with limitations. As long as only the keyboard or only the SmartDome Control Module transmits commands to the Power Dome, these commands are executed. If both transmit commands simultaneously then we cannot predict whether commands will be executed and if so, which commands.

A Keyboard Network Interface (BAXKMI) is used in connection the keyboard to the Power Dome. It is connected as follows:

- Connect "Tx" of the BAXKMI to connection "B" of the Power Dome.
- Connect "Rx" of the BAXKMI to connection "A" of the Power Dome.

