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DSU-BOX

DSU dome converter TTY / RS422, housing version

User manual

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1 Safety

- Before starting-up operation, maintaining, transporting, or storing this product, read the safety advices for this product, as well as the entire instruction
- Pay attention to the warning notices in the succeeding chapters
- Keep this document for later use or for handing it over together with the product
- In addition, regard the local safety standards or laws for planning, installation, operation, and proper disposal of the product

1.1 Symbol Meaning

⚠	Dangerous situation
ℹ	Useful information

1.2 Meaning of Precautionary Statements

The seriousness of a hazard is expressed by the chosen signal word.
Following signal words will be used in case of an appropriate hazard:

Signal word	Meaning
Danger	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
Warning	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
Caution	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

1.3 Authorized Persons

Warning

Danger of life for persons without necessary qualification

- Only skilled personnel are allowed to work on the device!
- Disregarding this can cause death, serious injury, or considerable property damage.

This document does exclusively address the following target audience:

– installer
– maintainer

Qualification	Function
Has expert knowledge in the field of electric installations and knows electrical hazards of any kind.	Set-up the product Maintain the product Dismantle the product

Comply with the appropriate safety regulations for low voltage systems, especially general safety and installation regulations.

1.4 Device-specific Advices

– Proper and safe functioning of the device depends on appropriate transport, storage, installation, and on accurate operation and maintenance.

– Use only the power supply recommended by the manufacturer.

Warning

Danger of life by electric shock

The interior of the power supply contains energized conductors.

- Do not open the power supply!
- Disregarding this can cause death, serious injury, or considerable property damage.

– Comply with the environmental conditions specified by the manufacturer

- Modifications of the device are only allowed as far as they are mentioned in this document or explicitly allowed by the manufacturer
- Use only spare parts and accessories approved by the manufacturer
- The device may only be operated when dry and undamaged
- High temperature variations can cause accumulation of moisture inside the device (e.g. after transport). Power-on the device only after the temperature of the device is adapted to room ambient temperature
- Only use wall plug adapters or wall power supplies complying with local permissions or regulations

Electrostatic Discharge

Electrostatic discharge can damage or destroy components

- Do not touch parts at risk (e.g. contacts of plugs)
- Before touching a device, discharge your body electrostatically (e.g. by touching a grounded metallic object)

2 Introduction

DSU module transfers video matrix' Siemens SCU protocol of TTY interface to one dome protocol, which is provided at output port, RS485 (TX only) or RS422 (full duplex, reverse channel will not be used), respectively.

According to firmware version, DSU is able to control dome cameras of several manufactures by using their specific communication protocol, one protocol per each firmware version. This manual is indented for DSU, hardware version 08 and following firmware-versions:

- CCDA14x5 or SpeedDome Ultra („NRA“)
- SivisMiniDome („NCS“)
- Pelco D protocol, several types („NPE“)
- JVC-Dome, Protocol JCBP-S („NJV“)

Using DSU connected to a Simatrix SYS, 648 or 164 requires video matrix firmware version from date: **14.06.2006**. Actual firmware version can be indicated by clicking „options“ button at parametrization software (firmware: 14.06.2006) or by taking a look at label of EPROM (located at video matrix mainboard). **VM…_0606_X14** is means to 14.06.2006. Alternatively, checksum (which is indiacted during video matrix startup), can be used for determing firmware version. Mentioned firmware equals to checksum **$1C04** (SIMATRIX SYS), **$8C12** (SIMATRIX 648) or **$89F2** (SIMATRIX 164), respectively.

Aluminium housing version of DCU dome converter, front view

2.1 Number of Domes

DSU module is able to control up to 32 domes on same bus, according to RS485 specification. It is possible to control up to 16 different domes at same time.

If more than 32 domes should be controlled physically, or domes should be controlled in a star-shaped manner, a RS485/RS422 multiplexer would be required, f.e. type RS485MX16, which provides 16 RS485 outputs or 16 RS422 full duplex ports, respectively.

3 Setting-up for Operation

3.1 Environmental Conditions

- Comply with the environmental conditions specified by the manufacturer
  - operating temperature: + 5°C to 45°C
  - relative humidity: 30 to 85 %, non-condensing
- Protect the device from moisture and fluids
- Do not expose the device to direct thermal radiation (e.g. heating devices)
- Do not operate the device in very dusty environments
- Do not operate the device in the neighbourhood of a strong source of electromagnetic waves
- Do not expose the device to mechanical shocks
- If DSU controls domes, which are located outside the building, where video matrix is installed, a lightning protection (coarse protection) is required at control lines
- Control lines, which are installed at rough electrical in parallel to ac power lines conditions have to be equipped with a surge-protection (f.e. Phoenix), before connecting to DSU
- DSU complies to requirements for surge according to EN 61000-4-5, class 2 and requirements for burst according to EN 61000-4-4, test level 2.

3.2 Installation

Connect DSU module “TTY input” to unused “Terminal” connector of SIMATRIX video matrix, by using a 1:1 direct connection cable (male/female, maximum length: 5m).

DSU will be supplied with power from video matrix via this cable. Do not connect an additional external power supply to DSU!

If distance between DSU and video matrix is greater than 5m, power has to be supplied by an external power supply 12V/200mA (not part of the delivery, available on request). Only Pin 3 and 4 of “TTY input” must be used in this case, not pin 6 and 7 (cable length: up to 1200m).

Connecting an external power supply to DSU

– Disconnect all plugs from DSU

– Unscrew two upper screws on each side of housing to remove top cover of DSU (i.e. four screws in total)

– Remove top cover of DSU

– Cable of power supply should be passed through feed-through hole, dismantled and connected to two-pole power supply terminal block (use a screwdriver to release clamp lever)

– Prior closing and screwing housing, perform a short test for function. Status LED must blink green

  Remark: LED will be unilluminated, if polarity is wrong

3.3 Configuration

Some DSU configuration by internal DIP switches is dependent on firmware version. Firmware version is printed on label inside DSU (three letters). Following tables will describe DIP switch function according to firmware version:

NCS – SivisMiniDome		
Switch	*Switch setting „off“*	*Switch setting „on“*
S1	–	Video matrix baudrate 2400 Baud
S2	–	Video matrix baudrate 4800 Baud
S3	–	Video matrix baudrate 9600 Baud
S4	Dome baudrate 9600 Baud	Dome baudrate 19200 Baud
S5	Dome parity „None“ (8N1)	Dome parity „Even“ (8E1)
S6	–	*Switch must be set to „on“*
S7	Terminal filter active	Terminal filter inactive
S8	*reserved*	*reserved*

NRA – SpeedDome Ultra, CCDA14x5		
Switch	*Switch setting „off“*	*Switch setting „on“*
S1	–	Video matrix baudrate 2400 Baud
S2	–	Video matrix baudrate 4800 Baud
S3	–	Video matrix baudrate 9600 Baud
S4	Dome baudrate 9600 Baud	Dome baudrate 19200 Baud
S5	Menu control via pos commands: Pos 60..72 according to table of chapter 5	Menu control via pos commands: Pos commands would be sended transparently (refer to dome manual)
S6	–	*Switch must be set to „on“*
S7	Terminal filter active	Terminal filter inactive
S8	Varispeed characteristic matched to SpeedDome Ultra, RAS816	Varispeed characteristic matched to CCDA1425, CCDA1435

NPE – *Protocol Pelco-D, several dome types*		
Switch	*Switch setting „off“*	*Switch setting „on“*
S1	–	Video matrix baudrate 2400 Baud
S2	–	Video matrix baudrate 4800 Baud
S3	–	Video matrix baudrate 9600 Baud
S4	Dome baudrate 9600 Baud	Dome baudrate 19200 Baud
S5	Varispeed characteristic: linear	Varispeed characteristic: optimiert for SpeedDome 2
S6	–	*Switch must be set to „on“*
S7	Terminal filter active	Terminal filter inactive
S8	*Reserved*	*reserved*

NJV – JVC-Dome, Protocol JCBP-S		
Switch	*Switch setting „off“*	*Switch setting „on“*
S1	–	Video matrix baudrate 2400 Baud
S2	–	Video matrix baudrate 4800 Baud
S3	–	Video matrix baudrate 9600 Baud
S4	Dome baudrate 9600 Baud	Dome baudrate 19200 Baud
S5	Dome parity „None“ (8N1)	Dome parity „Even“ (8E1)
S6	–	*Switch must be set to „on“*
S7	Terminal filter active	Terminal filter inactive
S8	*reserved*	*reserved*

Remarks:

- Video matrix baudrate setting of DSU must match to terminal baudrate of video matrix
- Terminal filter must be set to „on“, if DSU is operated at Simatrix 164, 168 or 648.

4 Camera specific functions of DSU

Dome functions for which no standard key of control unit is assigned, can be accessed via position preset commands, instead. Used position presets are not further available, i.e. only position presets 1…60 and 73…99 are available (if supported by dome).

Table of special functions:

Control unit key	SivisMiniDome	SpeedDome Ultra VI or CCDA14x5	Pelco Domes	JVC-Dome (Protocol JCBP-S)
Position 61	Activate camera-menu	Activate camera-menu	Activate camera-menu	Activate camera-menu
Position 62	Deactivate camera-menu	Deactivate camera-menu	Deactivate camera-menu	Deactivate camera-menu
Position 63	Autofocus	Autofocus	Autofocus	Autofocus
Position 64	Startposition (home position)	Startposition (home position)	Startposition (home position)	Startposition (home position)
Position 65	Colour	Colour/black-white	–	IR cut filter on (day)
Position 66	black/white	–	–	IR cut filter off (night)
Position 67	Patrol start	Patrol start	Patrol start	–
Position 68	Patrol stop	Patrol stop	Patrol stop	–
Position 69	Patrol learn	Patrol learn	Patrol learn	–
Position 70	Reset dome	Reset dome	Stop scan	–
Position 71	–	Patrol test	–	–
Position 72	–	Patrol save	–	–

Table of menu functios (partially only available if camera menu was activated):

Control unit key	SivisMiniDome	SpeedDome Ultra VI or CCDA14x5	Pelco Domes	JVC-Domes *(Protocol JCBP-S)*
Joystick or Arrow keys	Move cursor in menu	Move cursor in menu	Move cursor in menu	Move cursor in menu
Zoom Tele	Enter	–	–	–
Zoom Wide	Back	–	–	–
Focus Near	Sub menu	Sub menu	–	–
K500 / OSD	Activate camera-menu	Activate camera-menu	Activate camera-menu	Activate/Deactivate camera-menu
K500 / SET	Menu enter	Menu enter	Menu enter	Menu enter
K500 / up	Menu up	Menu up	Menu up	Menu up
K500 / down	Menu down	Menu down	Menu down	Menu down
K500 / color	Colour	Colour	Colour	Colour
K500 / B/W	Black/white	Black/white	Black/white	Black/white
Init	Reset	Reset	–	–

5 Pin assignment of DSU

DSU BOX provides two 9-pole D-Sub connectors, a TTY input and RS422 output.

RS422 output connector and connection status LED are located at front side of DSU.

Power supple cable feed-through (12V/200mA) and TTY input connector are located on back side of DSU.

Pinning „TTY input“, 9-pole D-Sub, male connector:

Pin	Port
1	
2	
3	+RX
4	–RX
5	
6	GND
7	+12V
8	
9	

Pinning „RS422 output“, 9-pole D-Sub, female connector:

Pin	Port
1	RS422 TX+
2	
3	RS422 TX–
4	
5	
6	
7	
8	
9	

6 Maintenance

6.1 Cleaning

- For cleaning use only a clean dry cloth
- Do not use liquid cleaning agents or spray

7 Transport and Storage

- Keep the original device packaging for later transports
- Do not expose the device to mechanical shocks

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