

SIEMENS



VIS3I-328

Visilynx 3 Integrated System Unit

Installation Manual

Building Technologies

Fire Safety & Security Products

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1 Safety

1.1 Target group

The instructions in this document are designed only for the following target group:

Target readers	Qualification	Activity	Condition of the product
Installer	Technical training for building or electrical installations.	Assembles/installs the product, individual components of the product or replacement parts.	Components of the product are not yet assembled/installed or need to be replaced.

1.2 General safety precautions

- Read the general safety precautions before installing the device.
- Follow all warnings and instructions marked on the device.
- Keep this document for reference.
- Always pass this document on together with the product.
- It is recommended that all preparatory work (e.g. fitting of accessories) be carried out in a workshop prior to final installation.

Liability claim

- Do not connect the device if it is damaged or any parts are missing.
- Do not make any changes or modifications to the device unless they are expressly mentioned in this manual and have been approved by the manufacturer.
- Use only spare parts and accessories that have been approved by the manufacturer.

Danger of electrical shock due to incorrect connection

- Use the device only in conjunction with a power supply cable that has been approved in your country and complies with the national standards.

1.3 Meaning of the signal words

The severity of a hazard is indicated by the following written warning notices.

Signal word	Type of hazard
CAUTION	There is a risk of minor to medium injuries or damage to property
IMPORTANT	Malfunctioning may result

1.4 Meaning of the hazard symbols

The nature of the hazard is indicated by icons.



Warning of a hazard

2 Standards and guidelines

The product meets the requirements of the following EU Directives. The EU declaration of conformity is available from:

Siemens Building Technologies
Fire & Security Products GmbH & Co. oHG
76181 Karlsruhe
Germany

EU Directive 2004/108/EC on electromagnetic compatibility

Conformity with the European Directive 2004/108/EC is demonstrated by compliance with the following standards:

Emitted interference:	EN 61000-6-3 EN 55022 Class B
Resistance to interference:	EN 50130-4

EU Directive 2006/95/EC “Low-Voltage Directive”

Compliance with the European Directive 2006/95/EC has been proven by testing according to the following standard:

Safety:	EN 60950-1
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3 Technical data

3.1 Specifications

	Single VIS3I-328	Expanded VIS3I-328 Pair
Video Connections		
Input connectors	32 BNC	64 BNC
Input level	0.7 – 1.5 Vpp	
Input impedance	75 Ohm	
Loop-through connectors	32 BNC	64 BNC
Output connectors	8 BNC	16 BNC
Output impedance	75 Ohm	
Video Performance (nominal)		
Frequency response (-3 dB point)	> 5 MHz	
Chrominance delay	< 15 nsec	< 18 nsec
Chrominance gain	> 97 %	> 91 %
K-rating (2T pulse/bar)	< 2.2 %	< 4.0 %
Signal to noise (567 weighted)	> 70 dB	> 70 dB
Signal to noise (567 unweighted)	> 60 dB	> 60 dB
Crosstalk (at 4.43 MHz, input to input)	-36 dB	-27 dB
Video Matrix		
Single unit	32 i/p × 8 o/p	64 i/p × 16 o/p
Text Insertion		
Text columns per output channel	38 chars.	
Text rows per output channel	14 chars.	
Telemetry Channels		
C-type channels	32	64
C-type carrier frequency	11.3 MHz	
D-type channels	32	64
D-type fixed termination per channel	120 Ohm	
Serial Ports		
RS-232 control ports	1	2
Dual standard RS-422/232 control ports	3	6
RS-422/485 keyboard ports	1	
Keyboards powered from keyboard port	1	
Serial port fixed RS422/RS485 termination	120 Ohm	
Other Connections		
Alarm inputs via alarm connector panel	128 channels	256 channels
Relay outputs	4 SPDT	8 SPDT
Relay contacts max voltage	12 V DC	
Relay contacts max current	1 A DC	

	Single VIS3I-328	Expanded VIS3I-328 Pair
Internal Option Cards		
V3-QUAD: quad card with independent BNC o/p	0 – 2	0 – 4
Power Input		
Voltage	110 – 230 V AC	
Frequency	50/60 Hz	
Power consumption	2 A	4 A
Physical – Unit		
Height in rack units	3 U	6 U
Extra height of mounting feet	7 mm	14 mm
Extra width of rack mount brackets	50 mm	
Weight	8.8 kg	17.6 kg
Physical – Package		
Dimensions (W × H × D)	560 × 275 × 550 mm	–
Total weight	12.7 kg	–
Storage Conditions		
Temperature	-10 to +70 °C	
Operating Conditions		
Temperature	0 – 40 °C	
Humidity (non-condensing)	10 – 90 %	

3.2 Mechanical dimensions

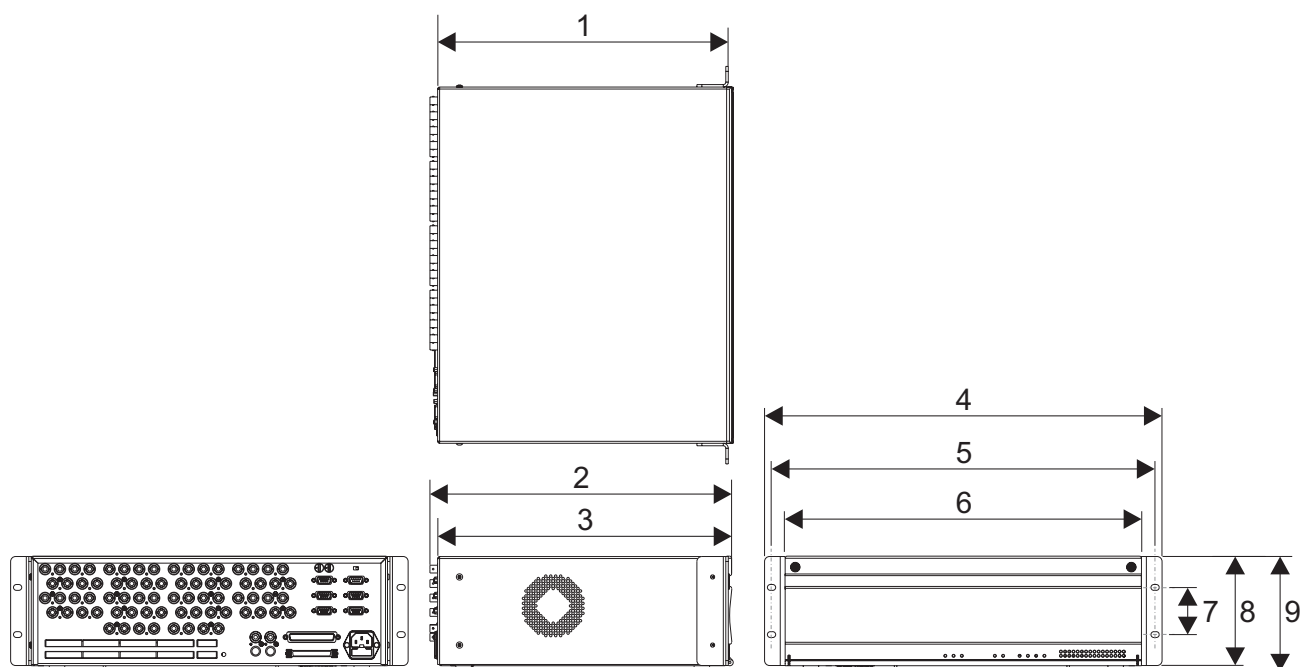


Fig. 1 Mechanical dimensions

1	352 mm	6	432 mm
2	365 mm	7	57 mm
3	356 mm	8	132 mm (264 mm for expanded VIS3I-328 Pair)
4	481 mm	9	140 mm
5	465 mm		

4 Details for ordering

Type	Order No.	Designation	Weight
VIS3I-328	S54567-C750-A1	VIS3I-328 System Unit	8.80 kg
VIS3I-PSU	S54567-B758	VIS3I-PSU with output connector lead attached	0.38 kg
VIS3-QUAD	S54567-B753-A1	VIS3 Colour Quad Card	0.30 kg
VIS3-ALARMBOX	S54567-F759	Visilynx 3 Alarm Panel	1.00 kg
V3-K	S54561-C790	V3 Keyboard	4.00 kg
VIS3-ALMCAB	S54567-K757	Visilynx 3 Alarm Cable	0.30 kg
VIS3-CONF	S54567-K754	Visilynx 3 Configuration Cable	0.20 kg
VIS3I-EXP	S54567-K755	Visilynx 3i Expansion Cable	0.30 kg
VIS3-KEYCAB	S54567-K756	Visilynx 3 Keyboard Cable	0.20 kg
VIS3-PCCONCAB	S54567-K752	Visilynx 3 PCCON Cable	0.20 kg

5 Scope of delivery

- 1 x VIS3I-328 System Unit
- 2 x Rack Mount Brackets
- 1 x Mains Lead, UK (Located in packaging)
- 1 x Mains Lead, European (Located in packaging)
- 1 x Data Cable for PC Configuration (Located in packaging)
- 1 x Installation Instruction
- 1 x CD for VisiPC Software & Installation Manual
- 8 x Screw Terminal Plug for Telemetry, 12 Way (Located in bag)
- 2 x Screw Terminal Plug for relays, 6 Way (Located in bag)



NOTE

The complete assembly should be mounted and tested in the workshop prior to use on-site.

Accessories

- Flat blade screwdriver, 2.5 mm blade width.
- Phillips No. 1 screwdriver.
- 2.5 mm A/F (across flats) Allen key.

6 Description of equipment

The Visilynx 3i (VIS3I-328) is a 32 loop-through input by 8-output full cross-point video matrix node contained in a 19" wide by 3U high enclosure.

You can connect two identical units together using an expansion cable to double the size of the video matrix to 64 loop-through input by 16-output full cross-point switcher. In this configuration, you set one of the two units to be the Master and this can connect to a Visilynx control network, and you set the other to be the Slave unit.

You can connect up to 127 nodes together to form a distributed video switching network. The video connections between nodes are made by trunk connections.

In a networked system, a keyboard at one node may view and control cameras, VCR/DVRs and multiplexers at any other node. It may also respond to alarms from other nodes. The number of video inputs from remote nodes that can be viewed at any one time is governed by the number of available trunk connections between the nodes.

You can expand any VIS3I-328, by fitting up to two optional Visilynx 3 quad cards (Type VIS3-QUAD). In a single VIS3I-328 with 8 monitor outputs, each quad card makes available the equivalent of an additional 4 monitor outputs.

The main user interface device of the VIS3I-328 system is the Visilynx 3 keyboard. A single keyboard may be powered by a single VIS3I-328, and a further 15 keyboards with local power supplies may be addressed. You must not connect a keyboard to both power sources at once.

Each VIS3I-328 is designed to be used free standing (as supplied) or fitted into a standard 19" rack cabinet.

The VIS3I-328 is supplied with configuration and test software called VisiPC, which you should install onto a suitable PC. This forms the heart of the system's configuration and test capability.

This manual is designed to cover basic operation. To be able to understand and use advanced features such as networking it is recommended to attend a product training course.

General

The VIS3I-328 is made up of these mechanical and electrical subsystems:

- Enclosure (see chapter 6.1 Enclosure)
- Printed Circuit Boards (see chapter 6.2 Printed circuit boards (PCBs)).
- Power Supply Module (see chapter 6.3 Power supply module VIS3I-PSU)
- Cooling fan (see chapter 6.4 Cooling fan)
- Front panel indicators (see chapter 6.5 Front panel indicators)
- Rear panel connections and controls (see chapter 6.6 Rear panel connections and controls)
- Firmware and software (see chapter 6.7 Firmware and software)
- Quad cards (see chapter 6.8 Quad card VIS3-QUAD)

6.1 Enclosure



Fig. 2 VIS3I-328 enclosure

The VIS3I-328 enclosure comprises four main parts:

- Base assembly
- Cover
- Front panel
- Rack mount brackets (optional)

The base assembly is fabricated from 1.2 mm zintec sheet with a natural finish. It provides fasteners for mounting the cooling fan and the control card. Cut-outs are provided on the rear panel for the mounting the input/output connectors (see chapter 6.6 Rear panel connections and controls). Details of the connectors are screen printed on the rear panel. Two additional cut outs are provided in the sides of the base assembly to provide a path for the cooling air. Four black Polyastomer feet are fitted in the base of the assembly.

The cover is fabricated from 1.2 mm Zintec Sheet and finished with polyester powdercoat. The cover is fastened to the base using a slide-in capture bracket and eight M4 screws. Vent holes are provided in the sides and the cover incorporates an earth stud.

The hinged front panel has two cross-head captive screws which are provided for fastening the panel to the base assembly. Holes are included in the panel for viewing the indicators (see chapter 6.5 Front panel indicators).

The rack mount brackets are manufactured from 3.0 mm aluminium sheet with a brushed finish and are optionally fitted to the base assembly for mounting the unit into a 19" rack enclosure.

6.2 Printed circuit boards (PCBs)

The VIS3I-328 contains four printed circuit boards (PCBs) to provide control, configuration, access to the input/output connectors and interfacing to the two option cards. The PCBs are:

1	Control PCB
2	BNC Connector PCB
3	D Connector PCB
4	Slot Expansion PCB

The PCBs are fixed within the unit enclosure and are therefore not considered to be user serviceable parts. Fig. 3 shows the location of the PCBs within the unit.

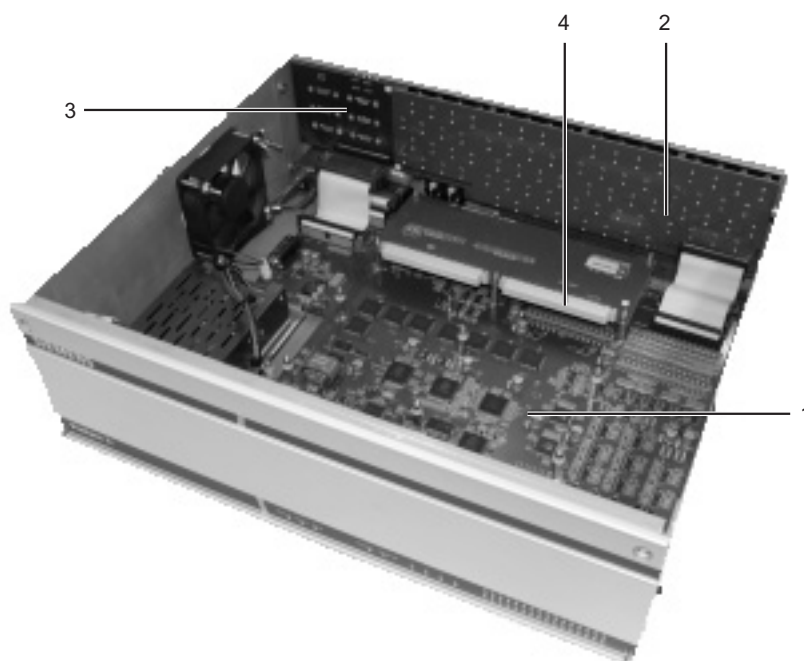


Fig. 3 Printed circuit boards

6.3 Power supply module VIS3I-PSU

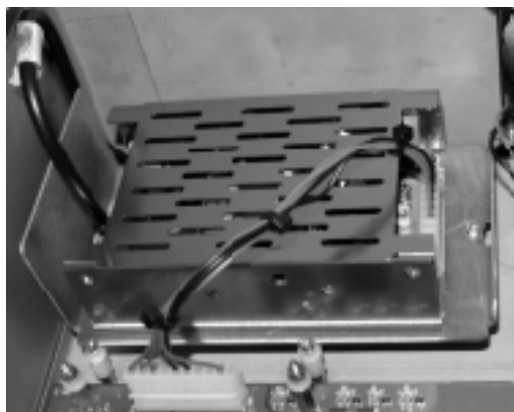


Fig. 4 Power supply module (VIS3I-PSU)

Purpose

A proprietary universal AC mains input, bipolar DC output switch mode power supply fixed on a mounting tray (shown above) for ease of replacement (see chapter 4 Details for ordering).



NOTE

For information on the replacement and the specifications of the power supply module please refer to the installation instruction for VIS3I-PSU.

Specification

Input	100 – 240 V AC, 47 – 63 Hz
Output	+5.2 V DC / 8.5 A -5.2 V DC / 4 A
Line regulation	± 0.5 %
Ripple and noise	± 1.0 % max
Dimensions (L x W x H)	127.0 × 81.3 × 38.1 mm

6.4 Cooling fan

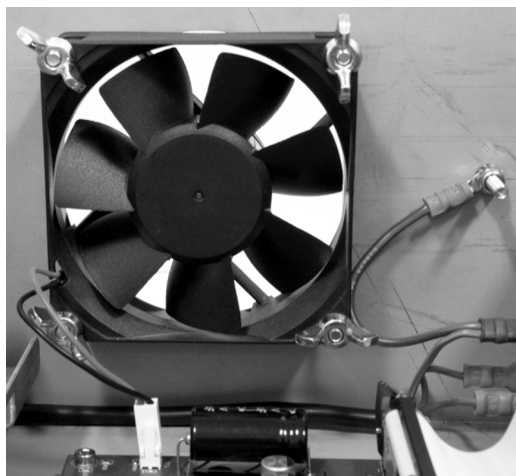


Fig. 5 Cooling fan

Purpose

A fixed speed DC fan that forces air through the enclosure intake vent, across the PCBs and power supply, and out of the exhaust vent.

Specification

Input	12 V DC
Dimensions (L x W x H)	80 x 80 x 25 mm

6.5 Front panel indicators

The VIS3I-328 unit has 40 single colour LED indicators on the front panel.

The LEDs are located in 4 distinct groups:

Indicator Group	Number of LED
Mode	3
Network	1
Relays	4
Video Loss	32



Fig. 6 Front panel indicators

Indicator Group	Name	Description	Colour	On	Flashing	Off
MODE	Master	Master Mode	Blue	Unit is Master	Two Masters are connected	Unit is Slave
	Status	General Status	Red	Hardware failure or configuration error	Slow Flash: self-test failure Fast Flash: waiting for another VisiPC software component	All software components are loaded and self-tests have passed. Main controller software is running
	Slave	Slave Mode	Blue	Unit is Slave	No Master is connected	Unit is Master
NETWORK	VisiWire		Green		Blinks when valid data is received. Blinks at 1Hz in VIS3I-328 Bridge mode.	
RELAYS	1 - 4		Yellow	Relay active		Relay inactive
VIDEO LOSS	1 - 32	Video Loss Channel 1-32	Yellow	No video syncs on channel	Syncs ok, but picture level is low	Video signal ok on channel

6.6 Rear panel connections and controls

You make all external connections to the VIS3I-328 via the rear panel. The connections are divided into these distinct groups:

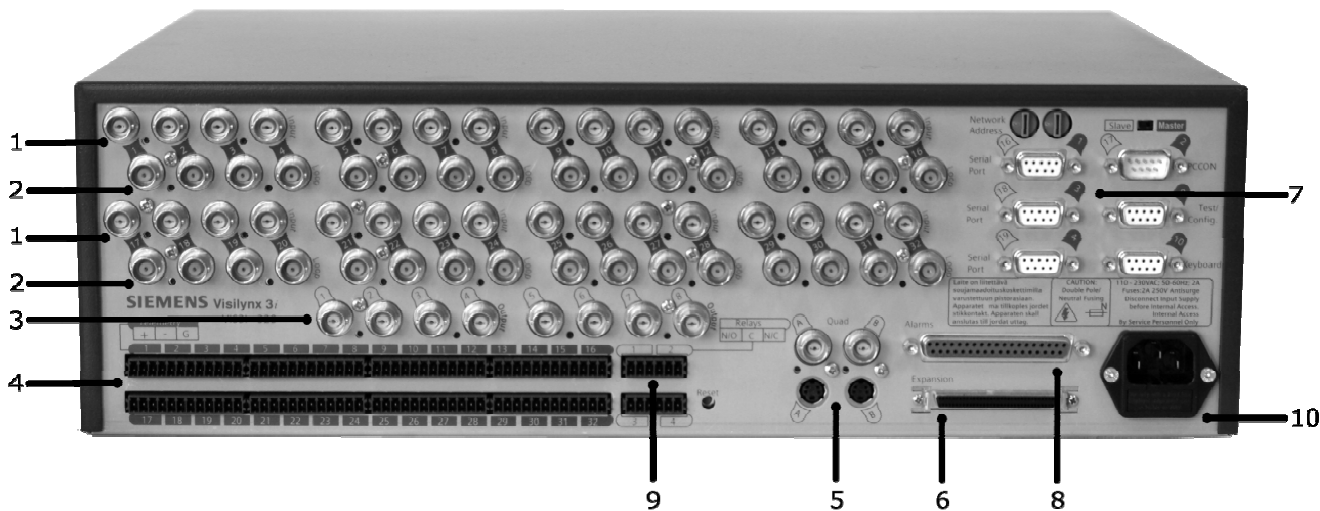


Fig. 7 Rear panel connectors and controls

1	Video Inputs
2	Video loop-throughs
3	Video Outputs
4	D-type Telemetry
5	Quad Outputs
6	Video & Control Expansion
7	Serial Ports
8	Alarm Inputs
9	Relay Outputs
10	Mains Input

Name	Description	Type	Conductor Number	Conductor Function	Serial Port
Input 1–32	Video Control Input Channel 1 – 32	BNC Female	Inner	Signal	
			Outer	Ground	
Loop 1–32	Video Loop-Through Channel 1 – 32	BNC Female	Inner	Signal	
			Outer	Ground	
Serial 1	General purpose serial port (RS-232/422, reconfigurable)	9-way D-Type Female	1	NC	1 (16)
			2	TX (RS-232)	
			3	RX (RS-232)	
			4	TX- (RS-422)	
			5	RX- (RS-422)	
			6	GND	
			7	GND	
			8	TX+ (RS-422)	
			9	RX+ (RS-422)	
			Shield	GND	
Serial 3	General purpose serial port (RS-232/422, reconfigurable)	9-way D-Type Female	1 – 9	As Serial 1	3 (18)
Serial 4	General purpose serial port (RS-232/422, reconfigurable)	9-way D-type Female	1 – 9	As Serial 1	4 (19)

Name	Description	Type	Conductor Number	Conductor Function	Serial Port
PCCON	Remote Control (RS-232, reconfigurable)	9-way D-Type Male	1	DCD	2 (17)
			2	RX	
			3	TX	
			4	DTR	
			5	GND	
			6	DSR	
			7	RTS	
			8	CTS	
			9	RI	
			Shield	GND	
Test/Config	Test and Configuration Port (RS-232, reconfigurable)	9-way D-Type Female	1	NC	9
			2	TX	
			3	RX	
			4	NC	
			5	GND	
			6	NC	
			7	NC	
			8	NC	
			9	NC	
			Shield	GND	
Keyboard	Keyboard Control Port (RS-422/485)	9-way D-Type Female	1	+12 V	10
			2	+12 V	
			3	NC	
			4	TX-	
			5	RX-, DATA_485-	
			6	GND	
			7	GND	
			8	TX+	
			9	RX+, DATA_485+	
			Shield	GND	
Output 1–8	Video Output Channel 1 – 8	BNC female	Inner	Signal	
			Outer	Ground	
Telemetry 1 – 32	D-Type Telemetry	Sets of 3 screw terminals	Left	DATA+	
			Centre	DATA-	
			Right	GND	
Relay 1 – 4	Relay Output 1 – 4	2 × 12 plug-in screw terminal	Left	NO	
			Centre	COM	
			Right	NC	
Quad A-B	Quad Composite Video Out A-B Only used by option card, if fitted	BNC Female	Inner	Signal	
			Outer	Ground	
Quad A-B	Quad S-Video Out A-B Only used by option card, if fitted	4-pin MiniDIN Female	1	GND	
			2	GND	
			3	Y	
			4	C	

Name	Description	Type	Conductor Number	Conductor Function	Serial Port
Alarms	Alarms In from Alarm Panel	37-way D-Type Female	1	Alm_return0	
			2	Alm_return1	
			3	Alm_return2	
			4	Alm_return3	
			5	Alm_return4	
			6	Alm_return5	
			7	Alm_return6	
			8	Alm_return7	
			9	Alm_return8	
			10	Alm_return9	
			11	Alm_return10	
			12	Alm_return11	
			13	Alm_return12	
			14	Alm_return13	
			15	Alm_return14	
			16	Alm_return15	
			17	NC	
			18	NC	
			19	NC	
			20	Alm_scan0	
			21	Alm_scan1	
			22	Alm_scan2	
			23	Alm_scan3	
			24	Alm_scan4	
			25	Alm_scan5	
			26	Alm_scan6	
			27	Alm_scan7	
			28	NC	
			29	GND	
			30	GND	
			31	GND	
			32	GND	
			33	GND	
			34	GND	
			35	GND	
			36	GND	
			37	GND	
			Shield	GND	
	Mains Power In	3 -way IEC inlet Female	Live	Live	
			Earth	Earth	
			Neutral	Neutral	

Tab. 1 Rear panel connectors



NOTE

Serial port identification for a Slave expansion Unit is identified in parentheses (...).

Name	Description	Type	Positions
Slave/Master	Master/Slave Switch	Slide switch	Left position is Slave
			Right position is Master
Reset	Processor reset	Momentary push	Push and release to reset the processor
Network Address	Address of node on network	Rotary hex	Left switch is hex address Sixteen's
			Right switch is hex address Units

Tab. 2 Rear panel controls

6.7 Firmware and software

Tab. 3 shows firmware and software compatibility between VIS3I-328 and Visilynx 3 Modular. More up-to-date details are available in the latest Visilynx 3 Software Release Notes.

Part Number	Description	How Loaded	Version	Compatibility
SW218	Keyboard software	EPROM	5, 6 or later (See below)	VIS3I-328 and V3 Modular
SW220	Main Controller software	VisiPC	2.05 or later	VIS3I-328 and V3 Modular
SW221	Flash Boot Loader software	VisiPC	2.04 or later	VIS3I-328 and V3 Modular
SW224	VisiPC software	Installed on PC	2.01.0006 or later	VIS3I-328 and V3 Modular
SW249	VIS3I-328 FPGA Firmware	VisiPC	1.0 or later	VIS3I-328 Only
SW250	VIS3I-328 European display font data	VisiPC	1.0 or later	VIS3I-328 Only
SW251	VIS3I-328 European and Asian display font data	VisiPC	2.0 or later	VIS3I-328 Only

Tab. 3 Firmware and software

Keyboard compatibility

VIS3I-328 is compatible with earlier Visilynx 3 keyboards that show SW218-5 on their LCD when switched on. However, VIS3I-328 systems using these keyboards should not enable camera bi-directional telemetry alarms 1190 to 1701 for keyboard access. These alarms cannot then be handled by PCCON either, but VisiPC will show their true states.



IMPORTANT

These earlier keyboards cannot correctly determine whether they are supposed to respond to these higher alarm numbers, and may show these alarms on their alarm menus when they are not supposed to, or vice versa.

To disable these alarms for keyboard access:

1. Start VisiPC in the **Visilynx3 Configurator** sub-program as described in the VisiPC Software Manual.
2. Select the **Alarm Settings** menu screen.
3. For each **Alarm**, ID 1190 onwards, ensure that None is selected in the **Type** drop down menu.
4. Save the configuration and transfer the file to VIS3I-328.



NOTE

To be able to handle camera bi-directional telemetry alarms 1190 onwards at keyboards and when using PCCON, make sure you are using keyboards that show SW218-6 or higher on their LCD when switched on. Response options other than None can then be selected in the **Type** drop down menu at the **Visilynx3 Configurator** sub-program **Alarm Settings** menu screen for these **Alarm** IDs.

6.8 Quad card VIS3-QUAD



CAUTION

Only service personnel should open the VIS3I-328, after first disconnecting the mains power supply.

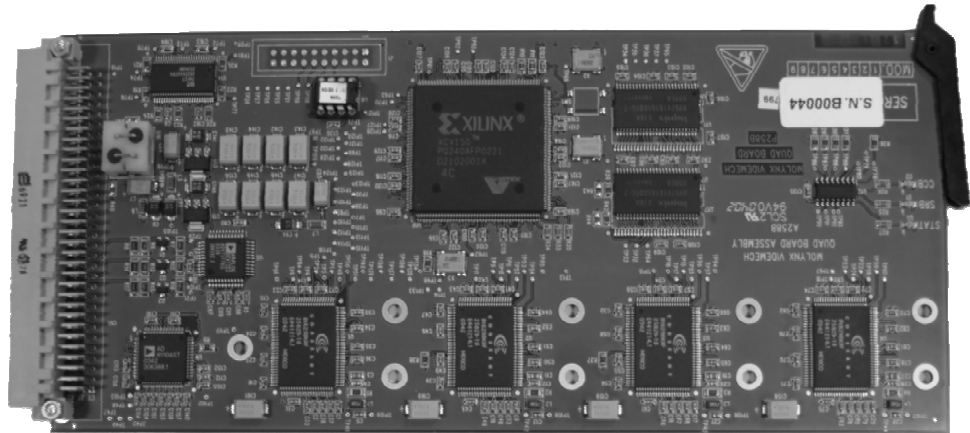


Fig. 8 Quad card (VIS3-QUAD)

Purpose

Displays four pictures on a single video output in real time, with each segment controllable as a separate monitor number (see chapter 4 Details for ordering).

Installation in unit

- One or two cards may be fitted.
- If only one card is fitted, it may occupy either of the internal option card slots.
- The output connectors on the rear panel are in the same position when viewed from above as the cards they serve.
- See chapter 7 Installation.

Specification

- Accepts PAL color or CCIR monochrome cameras
- 24 bit color digital video
- 50 fields/sec display with 768×625 pixel resolution (PAL)
- 1 multi-segment output that displays the four inputs in quad format in a specified order, or any one input as full-screen
- Each segment can be independently frozen
- 16 – 4 multiplexer on the inputs allows the quad to pick up any four of the available monitor outputs
- Separate composite and S-Video outputs, available on the rear panel
- Time base correction of video inputs ensures high quality pictures without the need for external camera synchronization
- Each picture segment is frozen when the input source is switched, in both full screen and quad mode, to prevent picture roll
- All the video inputs have AGC to preserve clear images independent of differences in input levels
- Color text insertion on the monitor output, with texts supplied by the control card
- Dedicated self-test failure alarm per card.

7 Installation

7.1 Installing option cards

You can add one or two quad cards to each VIS3I-328. Each quad card allows any four of the video inputs to that node to be displayed in quad format on a dedicated quad monitor video output.

To reveal the two internal option card slots and their card guide posts, undo the two captive screws and drop down the hinged front panel.



CAUTION

Only service personnel should open the VIS3I-328 unit, after first disconnecting the mains power supply.



Fig. 9 Fitting one quad card

You can install a single quad card (VIS3-QUAD) in either card slot, as follows:

1. A quad card in the slot furthest from the power supply is connected to quad output A on the rear panel, and is controlled as monitor outputs 13–16. Note that on a single unexpanded unit, these are extra to the eight monitor outputs available on the rear panel.
2. A quad card in the slot nearest the power supply is connected to quad output B on the rear panel, and is controlled as monitor outputs 13–16. Note that on a single unexpanded unit, these are extra to the eight monitor outputs available on the rear panel.

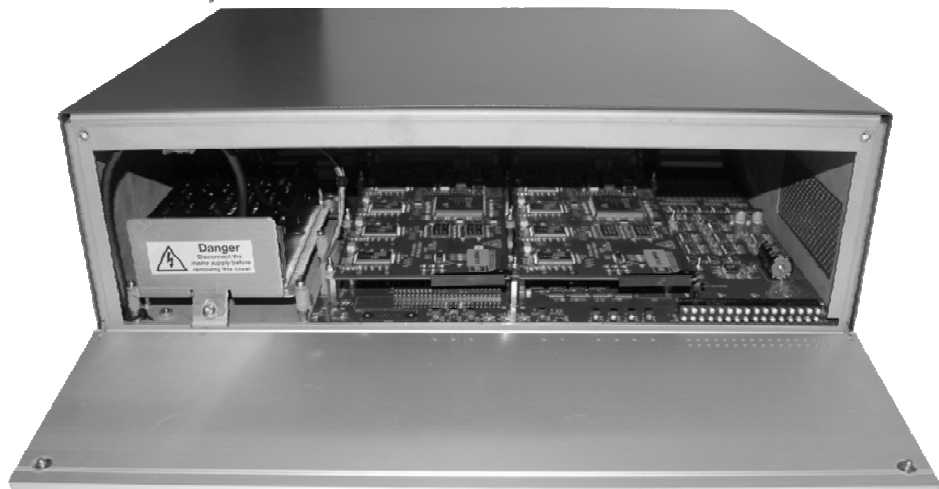


Fig. 10 Fitting two quad cards

You can install two quad cards (VIS3-QUAD) as follows:

1. The quad card in the slot furthest from the power supply is connected to quad output A on the rear panel, and is controlled as monitor outputs 9–12. Note that on a single unexpanded unit, these are extra to the eight monitor outputs available on the rear panel.
2. The quad card in the slot nearest the power supply is connected to quad output B on the rear panel, and is controlled as monitor outputs 13–16. Note that on a single unexpanded unit, these are extra to the eight monitor outputs available on the rear panel.

7.2 Connecting two VIS3I-328 units for expansion

You can connect two VIS3I-328 units together using a single expansion cable to enlarge the video matrix node to 64 loop-through inputs by 16 outputs. When you connect two units in this fashion, you need to set one unit to be the master unit in the node and connect it to the Visilynx control network.

1. Place the units one above the other in a rack cabinet or on a tabletop.
2. Connect the rear panel expansion connectors using an expansion cable (Type VIS3I-EXP).
3. Set the Master-Slave switch on one unit to Master.
4. Set the Master-Slave switch on the other unit to Slave.
5. Power up both units together: the Master indicator should light steadily on the Master unit front panel, and the Slave indicator should light steadily on the Slave unit.
6. From then on, the expanded node is treated as a single large unit, i.e. all the configuration data is sent to the Master unit.

8 Commissioning

Following installation, each VIS3I-328 should be commissioned by performing the following tasks, in the sequence shown:

1. Inspect all items (see chapter 8.1).
2. Connect a PC running VisiPC software (see chapter 8.2).
3. Set VisiPC default product to integrated (see chapter 8.3).
4. Connect and power up the VIS3I-328(s) (see chapter 8.4).
5. Confirm software versions – upgrade as necessary (see chapter 8.5).
6. Set clock time and perform VisiPC self-test (see chapter 8.6).
7. Load new configuration, as necessary (see chapter 8.7).
8. Load Asian display font data, if necessary (see chapter 8.8).

Commissioning Tasks 3 to 8 are conducted using the VisiPC Test and Configuration software, which should be installed on a suitable PC. A full description of the VisiPC software is contained in the User Manual.

8.1 Inspect all items

1. Visually inspect all the units, especially all input and output connections.
2. Check the contents of the shipping package against the packing note.

8.2 Connect a PC running VisiPC software

The VIS3I-328 incorporates an RS232 Test/Config connector port on the rear panel which allows connection, via a 9-way to 9-way interface lead (Type VIS3-CONF), to a PC for system configuration and testing using the VisiPC software.



NOTE

If the serial COM Port on the PC is a 25-way connection, then you need to purchase a suitable 9-way to 25-way 'D' type pre-wired interface lead.

Tab. 4 and Tab. 5 are for reference and give details of the pin-outs used for RS232 transmission.



NOTE

The 25-way to 9-way option is wired differently to the 9-way to 9-way cable. If you are manufacturing this lead, then you must observe these pin-outs.

PC COM Port 9-Way 'D' Female	VIS3I-328 Test/Config Connector 9-Way 'D' Male
2	2
3	3
5	5

Tab. 4 Cable wiring for 9-way PC COM port (Part Number VIS3-CONF)

PC COM Port 25-Way 'D' Female	VIS3I-328 Test/Config Connector 9-Way 'D' Male
2	3
3	2
7	5

Tab. 5 Cable wiring for 25-way PC COM port

A Baud rate of 38400 is required for communication between the PC and the Test/Config Connector port on the VIS3I-328. You select the communication Baud rate using the VisiPC software, as detailed in the User Manual.

8.3 Set VisiPC default product to integrated

1. Run the VisiPC software.
2. If VisiPC starts as the **Visilynx 3 Tester and Simulator**, select the **Visilynx3 Configurator** sub-program at the **Switch** drop-down menu, as detailed in the VisiPC Software User Manual.
3. From the **Options** drop down menu highlight **Default Product** and select **Integrated**.



NOTE

This ensures that factory set default data applicable to VIS3I-328 is always loaded when the New option is selected at the **File** drop-down menu.

8.4 Connect and power up the VIS3I-328s

1. If you want to connect two VIS3I-328s as a single expanded matrix node, you need to connect an expansion cable (Type VIS3I-EXP) between the expansion connectors on each rear panel. You should set the Master – Slave switch on the rear panel of each unit, as required.
2. Connect each VIS3I-328 to the AC mains supply (see chapter 3.1 Specifications for the allowed mains voltage range).
3. Switch on the mains power supply to the VIS3I-328. For an expanded matrix node, switch on both VIS3I-328s simultaneously. If this is not possible, switch on the Slave VIS3I-328 first.

8.5 Confirm software versions

1. Run the VisiPC software.
2. If VisiPC starts as the **Visilynx 3 Tester and Simulator**, select the **Visilynx3 Configurator** sub-program at the **Switch** drop-down menu, as detailed in the VisiPC Software User Manual.
3. On the menu bar, select **Transfer** and then the **Versions...** option. This brings up the **Software Version** pop-up box.
4. Select each software Version Type, in turn, from the drop down menu and press the Send button. The software version is then displayed in the **Version** field. (Note: Only the local node, as Node L, can currently be queried.)
5. You can record the versions in the table below, for reference:

Version Type	Version Reported
Visilynx FPGA firmware	
Visilynx main software	
Visilynx flash boot loader	
Visilynx configuration	
Visilynx font	

6. You can perform any required software upgrades, by selecting the **Transfer** menu command and then the **Software...** option, as detailed in the VisiPC Software User Manual.



IMPORTANT

Any Configuration held in the VIS3I-328 is erased when you transfer the main control software. You will therefore need to transfer the configuration back to the VIS3I-328, once you have loaded the revised software.

8.6 Set clock time and perform VisiPC self-test

8.6.1 Set clock time

On a new unit, we recommend that you set the internal clock on the VIS3I-328 to the current PC time. You can do this on the **VisiPC (Visilynx 3 Configurator)** sub-program. From the **Transfer** drop-down menu, select **Date/Time**.

Ensure that **Current Time** is ticked and select **Send**.

8.6.2 VisiPC tester and simulator

You use the features of the VisiPC **Visilynx 3 Tester & Simulator** sub-program to test the functions of the VIS3I-328.

Start up tests

When you start the unit, the VIS3I-328 controller software does the following, without being instructed by VisiPC:

- Tests the stored program, data and key electronics.
- Auto-detects the Slave expansion unit and any installed option cards.
- Stores auto-detection and self-test results in the self-test log.
- Generates any self-test alarms.

Running self-tests

More comprehensive self-tests are available using VisiPC. You run these by selecting the VisiPC **Self-Test** Tab and then selecting the **Test Type** and **Test Level** from the **Run Tests** button.

You can run these VisiPC self-tests as commissioning tests:

Preparation	Test Type	Test Level
Remove all video and serial data cables	All Tests	All Internal Tests

Self-test results

The results logged from all tests since the last power-up are retrieved using the Self-test Results button.

Each Self-test record consists of a maximum of 5 lines of text, including the Pass/Fail status of the test and the date and time it was done. (If the latter are wrong, you may need to set the internal clock time as described at the start of this section.)

Results are categorised as follows:

- Pass The item tested is working correctly and is compatible with the current software.
- Warning The item tested is working but may be operating outside limits.
- Fail The item tested is not working properly.

If any tests fail severely then a Self-test Alarm (if configured) is generated. You can copy the results to the PC clipboard and paste them into an editor or spreadsheet by clicking on the **Results** window and pressing Ctrl+C.

The result log ends with a Results Summary, listing total passes, warnings and failures.

Self-test failures

Any failures recorded, as a result of the conduct of self-test, should be investigated as described in chapter 10.2 Corrective maintenance.

8.7 Load new configuration as necessary

Each installation requires its own unique configuration for it to operate correctly with the cameras and monitors in use. You edit and load this configuration using the **VisiPC (Visilynx 3 Configurator)** sub-program.

Each VIS3I-328 is supplied with a factory default configuration pre-loaded during manufacture. You restore this default configuration using the **VisiPC (Visilynx 3 Configurator)** sub-program and selecting **New** on the **File** menu, and then transferring it to the VIS3I-328. You can also use this configuration file as a basis for editing a new configuration tailored to the installation.

Some of the pre-loaded configuration settings are shown in Tab. 6.

Parameter	Settings	Notes
Camera Inputs	64	
Monitor Outputs	16	
Comms Channels	21	1 – 4 and 9 – 10 on master rear panel, 16-19 on slave rear panel (other channels not used)
Internal Quads	4	To enable internal option cards
Telemetry Cards	4	64 D-type channels (C-type disabled by default)
Video Loss Alarms	64	Alarm numbers 1 – 64
External Alarm Inputs	256	Alarm numbers 513 – 768
Serial Port 1	Communication Channel 1 set to Network Control Input	9600 Baud, 8 data bits, no parity, 1 stop bit
PCCON Serial Port 2	Communication Channel 2 set to PCCON2/3 Remote Control	9600 Baud, 8 data bits, even parity, 1 stop bit
Serial Port 3	Communication Channel 3 set to Data Log	9600 Baud, 8 data bits, no parity, 1 stop bit
Serial Port 4	Communication Channel 4 set to Debug	9600 Baud, 8 data bits, no parity, 1 stop bit
Test / Config Serial Port 9	Communication Channel 9 set to V3 Remote Control	38400 Baud, 8 data bits, no parity, 1 stop bit
Keyboard Serial Port 10	Communication Channel 10 set to Keyboard Input	9600 Baud, 8 data bits, even parity, 1 stop bit

Tab. 6 Factory default matrix configuration

For further instructions on loading and editing configuration files, refer to the VisiPC Operations Manual.

8.8 Load Asian display font data

If you are using the VIS3I-328 units in an Asian country, you may need to install the combined European and Asian display font data using VisiPC, as only the European display font data is installed during manufacture.



IMPORTANT

Do not attempt to load the Asian font if the PC running VisiPC software is loaded with the Chinese version of the Windows operating system. Due to incompatibilities outside Siemens' control, this may fail. Instead, use a PC loaded with European or American Windows.

To transfer the Asian font to a VIS3I-328 unit:

1. Run the VisiPC software with the PC COM port connected to the Test/Config port.
2. Select the **VisiPC (Visilynx 3 Configurator)** sub-program, as detailed in the VisiPC Software User Manual.
3. On the menu bar select **Transfer**, then the **Software** option and then **Ok**.
4. Select the SW251-2.x.hex file from the CD and press the **Open** button.



NOTE

This takes several minutes to transfer to the unit.

9 System integration

9.1 Connecting VK-3 keyboards

You can connect a total of sixteen keyboards to the keyboard serial port of a VIS3I-328, using a single RS-485 cable 'daisy-chained' between multiple keyboards.

For a single keyboard, keyboard power is drawn from the VIS3I-328. For more than one keyboard, you need to use a local 12 V DC power supply for each keyboard.



CAUTION

Do not connect a keyboard to a dc power supply as well as wiring to the 12 V keyboard connector supply, or damage may occur.

RS-485 cable wiring is as follows.



NOTE

The cable screen is grounded at the VIS3I-328 connector shell, and is only linked to the next cable screen at each keyboard connector.

VIS3I-328 Keyboard Port	Cable	Keyboard 1 RS-422/485 ports	Cable	Keyboard 2 to 16 RS-422/485 ports
Shell	Screen	Not connected	Screen	Not connected
Pin 1 (+12 V)	Twisted pair	Pin 1 (+12 V)		Not connected
Pin 6 (0 V)		Pin 6 (0 V)		Not connected
Pin 2 (+12 V)	Twisted pair	Pin 2 (+12 V)		Not connected
Pin 7 (0 V)		Pin 7 (0 V)		Not connected
Pin 5 (data -)	Twisted pair	Pin 5 (data -)	Twisted pair	Pin 5 (data -)
Pin 9 (data +)		Pin 9 (data +)		Pin 9 (data +)

Tab. 7 RS-485 keyboard cable wiring

In cases where you need to connect a keyboard via a fibre link, or through some other device where the short (less than 3 ms) line turnaround requirement of the Molynx protocol is a problem, you can connect a single keyboard using an RS-422 cable as follows. (The +12 V and 0 V connections are not required if the keyboard has its own DC power supply.)

VIS3I-328 Keyboard Port	Cable	Keyboard 1 RS-422/485 port
Shell	Screen	Not connected
Pin 1 (+12 V)	Twisted pair	Pin 1 (+12 V)
Pin 6 (0 V)		Pin 6 (0 V)
Pin 2 (+12 V)	Twisted pair	Pin 2 (+12 V)
Pin 7 (0 V)		Pin 7 (0 V)
Pin 4 (data T-)	Twisted pair	Pin 5 (data R-)
Pin 8 (data T+)		Pin 9 (data R+)
Pin 5 (data R-)	Twisted pair	Pin 4 (data T-)
Pin 9 (data R+)		Pin 8 (data T+)

Tab. 8 RS-422 keyboard cable wiring

For more details of keyboard cabling, refer to the Keyboard User Manual.

9.2 Connecting CKA Keyboards

You can connect a single CKA keyboard to any supporting serial port of a VIS3I-328 using an RS-232 cable. Using VisiPC set the serial port function to **Keyboard input** using the **CKA keyboard master** protocol. The connection details for the available serial ports are detailed in Tab. 9 and Tab. 10.

VIS3I-328 RS-232 Port Pin	CKA Port COM1A Pin
2	2
3	3
5	5

Tab. 9 RS-232 CKA keyboard cable wiring for ports 1,3 & 4

VIS3I-328 RS-232 Port Pin	CKA Port COM1A Pin
3	2
2	3
5	5

Tab. 10 RS-232 CKA keyboard cable wiring for port 2

The CKA4820 keyboard port configuration switches must be set as detailed in Tab. 11 and Tab. 12. The menu parameters requiring setting are as per Tab. 13.

1	2	3	4	5	6	7	8
	OFF		OFF			OFF	
ON		ON		ON	ON		ON

Tab. 11 SW301 DIP Switch settings

1	2	3	4	5	6	7	8
OFF		OFF	OFF		OFF	OFF	OFF
	ON			ON			

Tab. 12 SW401 DIP Switch settings

Menu	Parameter	Required Value
Base Parameter menu	Device address	Set as required (001 = keyboard 1)
	Baud rate I1	9600
	Parity I1	Even
Interface Adjustment menu	Op. Mode COM1	SIMATRIX TTY
	Joystick mode	Set as required

Tab. 13 CKA4820 parameters

The CKA4820 LED will light a solid green once successfully logged on to the VIS3I-328

Tab. 14 shows the CKA4820 keys assigned to the VIS3I-328 functions

Key Presses	Action
Matrix Operation	
n Mon	Select Monitor n
n Cam	Select Camera n
n Start	Start Video Sequence n
n Stop	Stop Video Sequence n
PTZ Operation	
Joystick	Pan, Tilt, Zoom
Focus Near	Focus Near
Focus Far	Focus Far
Zoom In	Zoom In
Zoom Out	Zoom Out
F2	Auto Focus on/off
F3 or Pos	Recall Home Preset position
F4	Start Preset Tour
F5	Wiper on/off
F6 Press	Wash on
F6 Release	Wash off
F7	Lens Slow on/off
F8	Aux 1 on/off
n Mem	Store Preset n
n Pos	Recall Preset n
OSD Operation	
F1	OSD on/off
Joystick	OSD navigation
F9	Select OSD navigation / PTZ operation
F10	OSD Set/Enter

Tab. 14 CKA4820 key assignment

9.3 Connecting alarm inputs

You can connect a total of 128 alarm inputs to a VIS3I-328, making a total of 256 alarms inputs for each expanded node.

You can connect Volt-free contacts from external alarm sources directly to the alarm connector on the rear panel of the unit (see Fig. 7).

Pin connections for the alarm connector are shown in Tab. 15. A typical example of alarm connections is:

PIN 1 to PIN 20	Alarm contact 1	Similar for alarm contacts 4 – 16
PIN 2 to PIN 20	Alarm contact 2	
PIN 3 to PIN 20	Alarm contact 3	
PIN 1 to PIN 21	Alarm contact 17	Similar for alarm contacts 20 – 32
PIN 2 to PIN 21	Alarm contact 18	
PIN 3 to PIN 21	Alarm contact 19	
PIN 1 to PIN 22	Alarm contact 33	Similar for alarm contacts 36 – 48
PIN 2 to PIN 22	Alarm contact 34	
PIN 3 to PIN 22	Alarm contact 35	
PIN 1 to PIN 27	Alarm contact 113	Similar for alarm contacts 116 – 128
PIN 2 to PIN 27	Alarm contact 114	
PIN 3 to PIN 27	Alarm contact 115	

Tab. 15 Typical alarm connections direct to alarm connector

For numerous alarms a separate optional alarm panel (Type VIS3-ALARMBOX) is available for ease of installation. The alarm panel fits into a standard 19" rack cabinet. A 37-way to 37-way cable (Type VIS3-ALMCAB) connects the alarm panel to the unit alarm connector.

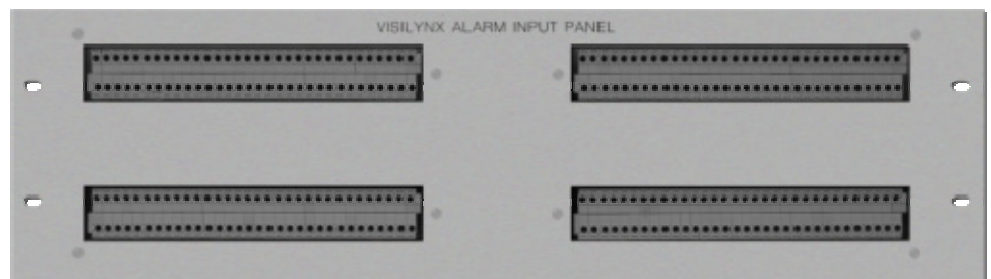


Fig. 11 Alarm panel

All individual alarm input connections are made via pairs of terminals (one above the other) on the alarm panel, using a pair of volt-free wires for each alarm. You configure each input using VisiPC as a normally open (N/O) or a normally closed (N/C) contact. The 128 alarm inputs are provided in 8 separate banks.

Bank 1	Bank 2	Bank 3	Bank 4
1–16	17–32	33–48	49–64
Common	Common	Common	Common
Bank 5	Bank 6	Bank 7	Bank 8
65–80	81–96	97–112	113–128
Common	Common	Common	Common

Tab. 16 Alarm panel – terminal identification

**IMPORTANT**

If several alarm-input pairs are required to share the same common connection, you should not connect the separate banks of alarms together. Use separate common connections for each bank. For example, a single common connection for alarm input pairs 1–16 is allowed using any common terminal in that bank, but using the same common connection for pairs 13–18 is not allowed, as Bank 1 would short circuit with Bank 2, thus causing multiple false alarm indications.

9.4 Connecting a VCR/DVR and multiplexer

All 32 camera video inputs can be recorded on:

- two time-lapse video cassette recorders (VCRs) via two 16-channel multiplexers (MPXs), or
- on two digital video recorders (DVRs) that include built-in 16-channel multiplexing, or
- on a combination of VCRs and DVRs.

You do this by connecting the video loop-through outputs to the multiplexer video inputs. An example interconnection block diagram is shown in Fig. 12.

If you need to control the MPXs and VCR/DVRs from the Visilynx keyboard or PCCON remote control input, then you have to connect the VIS3I-328 serial control ports on the rear panel to these devices using RS-232 cables, which must observe the pinouts shown in Tab. 17.

**NOTE**

Ports 1, 3 and 4 are dual-standard RS-232 and RS-422 ports, while Port 2 is RS-232 only. This accounts for the difference shown in Conductor Function. See Tab. 1 for full connector pinouts.

VIS3I-328			VCR/DVR/MPX
Serial Port	Conductor Number	Conductor Function	Device Serial Port Conductor
1 (female D)	2	Transmit Data	MPX1 pin 3
	3	Receive Data	MPX1 pin 2
	6	Ground	MPX1 pin 7
2 (female D)	2	Receive Data	VCR/DVR1 pin 3
	3	Transmit Data	VCR/DVR1 pin 2
	5	Ground	VCR/DVR1 pin 7
3 (female D)	2	Transmit Data	VCR/DVR2 pin 3
	3	Receive Data	VCR/DVR2 pin 2
	6	Ground	VCR/DVR2 pin 7

Tab. 17 Example VCR/DVR and MPX RS-232 serial control cable wiring

You need a new User Configuration file, based on the default configuration file, using the VisiPC Configurator software. The required changes are shown in Tab. 18.

Screen	Parameter	Value
Global System Settings	Multiplexers	1
	VCR/DVRs	2
Communications Settings, Channel 1	Function	Multiplexer control output
	MPX	1
Communications Settings, Channel 2	Function	VCR/DVR control output
	VCR	1

Screen	Parameter	Value
Communications Settings, Channel 3	Function	VCR/DVR control output
	VCR	2
Multiplexer Settings, Multiplexer 1	Timeout	5
VCR/DVR Settings, VCR/DVR 1	Timeout	5
VCR/DVR Settings, VCR/DVR 2	Timeout	5

Tab. 18 Example changes to default configuration for VCR/DVR and MPX

Connecting multiplexer or DVR video outputs to VIS3I-328 video inputs

If required, you can connect the multi-screen or spot outputs from the multiplexer or DVR to the VIS3I-328 video control input channels (i.e. camera inputs), for switching to any video output channel (i.e. monitor output).

If you do this, then any text in the multiplexer or DVR video image may overlap with text injected on the monitor output.

To prevent this, tick the **Blank All Monitor Text** box on the VisiPC (Visilyn3 Configurator) **Camera Settings** screen for each camera used as a multiplexer or DVR return input. This blanks all the VIS3I-328 text on any monitor to which these cameras are connected.

Also, you should disable any C-type telemetry for camera inputs connected to multiplexers or DVRs, as the telemetry can interfere with multiplexer or DVR video output.

To disable C-type telemetry, set the **C-Type** value to **Off** at the VisiPC (Visilyn3 Configurator) **Telemetry Cameras** screen, for each port corresponding to the required cameras (e.g. Telemetry card 1's ports 1–16 serve cameras 1–16, Telemetry card 2's ports 17–32 serve cameras 17–32, etc).

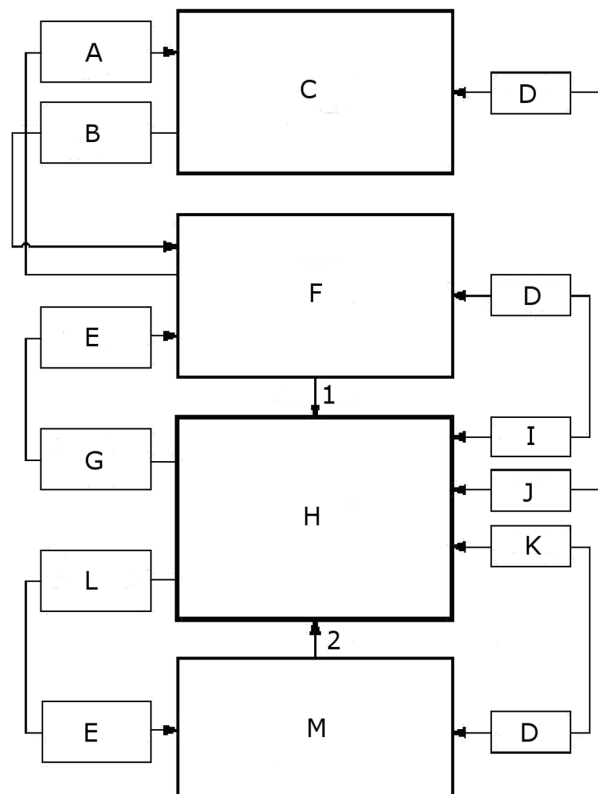


Fig. 12 Example VCR/DVR and multiplexer connection

A	VCR/DVR RECORD INPUT
B	VCR/DVR PLAY OUTPUT
C	VCR/DVR #1
D	RS232C PORT
E	VIDEO INPUTS 1-16
F	MPX #1
G	CAMERA LOOPTHROUGH OUTPUTS 1-16
H	VIS3I-328
I	SERIAL CHANNEL 1
J	SERIAL CHANNEL 2
K	SERIAL CHANNEL 3
L	CAMERA LOOPTHROUGH OUTPUTS 17-32
M	VCR/DVR #2
1	MULTISCREEN OUT
2	MON A OUTPUT



NOTE

DVRs generally do not require multiplexers as VCRs do, so you can connect them directly to the VIS3I-328 loop through outputs, as shown. You can also connect multiplexer or DVR monitor outputs back to the VIS3I-328 camera inputs for routing to monitors, also as shown.

9.5 Connecting a quad card output to a video input

The rear panel output of one or both quad cards can be connected to a video control input channel (i.e. camera input), for switching to any video output channel (i.e. monitor output).

The VIS3I-328 has a special keyboard menu for easy control of quad cards connected in this manner. To enable this feature, go to the VisiPC (Visilynx3 Configurator) **Quad Card Settings** screen for each quad card connected to a camera input, and set the **Return Camera** field to the number of the camera input used.

You should also disable any C-type telemetry for camera inputs connected to quad cards, as the telemetry can interfere with quad card video output.

To disable C-type telemetry, following the same procedure described on chapter 0 Connecting multiplexer or DVR video outputs to VIS3I-328 video inputs.

9.6 Distributed video switching using a VisiWire or PCCON network

You can connect up to 127 nodes, made up of a mixture of VIS3I-328 units, together to form a distributed video switching matrix using the VisiWire or PCCON network system. You make the video connections between the nodes using coaxial cables, or other third-party video transmission systems.

A keyboard at one node may view and control devices at any other node, specifically cameras, VCR/DVRs and multiplexers. It may also respond to alarms from other nodes (VisiWire only).

When networking nodes it is recommended that any video sequences are performed on the local node as opposed to sending multiple requests over the network as network congestion could occur.

9.6.1 Setting the node address

Each node on the network must have a unique address between 1 and 127. Setting other addresses takes the node offline or sets special modes.

You set the address of a single-unit node using the two rotary hexadecimal switches on the rear panel. The left rotary switch sets Sixteens and the right switch sets Units.

You set the address of a dual-unit expanded node using the Master unit address switches.

To convert between decimal used in VisiPC and hexadecimal for the switches, use Tab. 19:

Decimal	Hex	Decimal	Hex	Decimal	Hex	Decimal	Hex	Decimal	Hex
1	01	27	1B	53	35	79	4F	105	69
2	02	28	1C	54	36	80	50	106	6A
3	03	29	1D	55	37	81	51	107	6B
4	04	30	1E	56	38	82	52	108	6C
5	05	31	1F	57	39	83	53	109	6D
6	06	32	20	58	3A	84	54	110	6E
7	07	33	21	59	3B	85	55	111	6F
8	08	34	22	60	3C	86	56	112	70
9	09	35	23	61	3D	87	57	113	71
10	0A	36	24	62	3E	88	58	114	72
11	0B	37	25	63	3F	89	59	115	73
12	0C	38	26	64	40	90	5A	116	74
13	0D	39	27	65	41	91	5B	117	75
14	0E	40	28	66	42	92	5C	118	76
15	0F	41	29	67	43	93	5D	119	77
16	10	42	2A	68	44	94	5E	120	78
17	11	43	2B	69	45	95	5F	121	79
18	12	44	2C	70	46	96	60	122	7A
19	13	45	2D	71	47	97	61	123	7B
20	14	46	2E	72	48	98	62	124	7C
21	15	47	2F	73	49	99	63	125	7D
22	16	48	30	74	4A	100	64	126	7E
23	17	49	31	75	4B	101	65	127	7F
24	18	50	32	76	4C	102	66		
25	19	51	33	77	4D	103	67		
26	1A	52	34	78	4E	104	68		

Tab. 19 Converting between decimal and hexadecimal addresses

9.6.2 Determining how VIS3I-328 unit nodes can be networked

You connect networked nodes in two types of layout, which you set in configuration using VisiPC at each node. You must set all nodes to one of these node layout types:

A Star layout has one or more remote camera nodes connected to one central control node that is fitted with keyboards and monitors.

A Multi-hop layout can be more complex and allows multiple nodes to be daisy-chained. More than one node may be a control node fitted with keyboards and monitors. Video may pass through one or more 'hop nodes' between camera and 'monitor nodes'.

The number of available serial ports determines the number of other nodes that can be connected to a VIS3I-328 node, because one port is required for each node connection.

Type of node	Serial data ports not available for networking	Total ports available on single VIS3I-328	Total ports available on dual VIS3I-328
Camera node	Any Test/Config port and a Slave unit Keyboard port.	5	9
Hop node	As above.	5	9
Control node	As above. Also, at least one port must be configured as a keyboard or PCCON control port.	4	8

Tab. 20 Serial ports available for networking



NOTE

If you use the RS-232 PCCON serial port for networking, you may need an external RS-232 to RS-422 converter to drive a long serial line.

9.6.3 Connecting VIS3I-328 unit nodes using trunk connections

An example system interconnection block diagram of three nodes is shown in Fig. 13. In this simple example, two of the VIS3I-328 units connect to remote cameras and the third unit connects to a local Visilynx 3 keyboard and a monitor.



NOTE

The number of video inputs from remote nodes that can be simultaneously viewed on monitors at the local node is governed by the number of trunk connections between the nodes.

A special network data interface cable is required to connect each remote node to the local node. The cable has two male 9-pin D-type connectors and you should wire it as shown in Tab. 21.



NOTE

Any of serial port connectors Serial 1, Serial 3 and Serial 4 may be configured for this.

Data transfer is full-duplex, normally at 9600 baud.

Local Node Unit – Serial 1 or Serial 3 Connector	Pin	Connected to	Pin	Remote Node Units – Serial 1 Connector
	4	(twisted pair)	5	
	8		9	
	5	(twisted pair)	4	
	9		8	

Tab. 21 Example network data cable wiring

For ease of installation, trunk video and network data cabling always go together.

In order to use each VIS3I-328 unit in a network, you need to set up its configuration file using the VisiPC Configurator software. As an example, the changes that are required to the VisiPC Configurator software screens for each of the three units shown in Fig. 13 are shown in Tab. 23, Tab. 24 and Tab. 24. Each unit configuration should be saved in a separate new file. Full details of VisiPC operation are detailed in its User Manual.

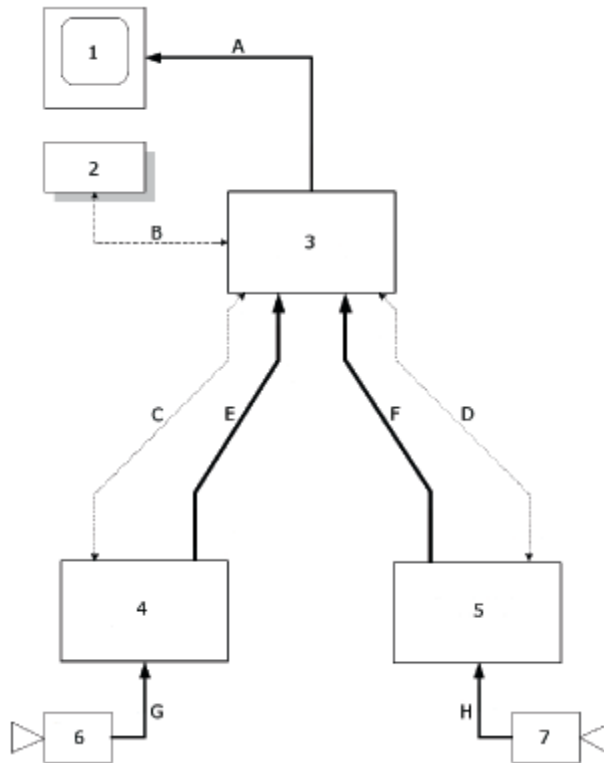


Fig. 13 Example 3-node VIS3I-328 interconnection block diagram

	Connection	From	To
A	Monitor	Local Node (3) Monitor Output 1	CCTV Monitor (1)
B	Keyboard RS485 Data	Local Node (3) Serial Port 10	Visilynx 3 Keyboard (2)
C	RS232 Network Data	Local Node (3) Serial Port 1	Remote Node 1 (4) Serial Port 1
D	RS232 Network Data	Local Node (3) Serial Port 3	Remote Node 2 (5) Serial Port 1
E	Video Trunk 1	Remote Node 1 (4) Monitor Output 8	Local Node (3) Camera input 31
F	Video Trunk 2	Remote Node 2 (5) Monitor Output 8	Local Node (3) Camera input 32
G	Remote Camera	CCTV Camera (6)	Remote Node 1 (4) Camera Input 1
H	Remote Camera	CCTV Camera (7)	Remote Node 2 (5) Camera Input 1

Screen	Parameter	Value
Global System Settings	Nodes	3
	Node Trunks	2
Communication Settings, Channel 1	Function	Network control input
	Protocol	VisiWire
Communication Settings, Channel 3	Function	Network control input
	Protocol	VisiWire
Node Settings	Name	N1
	Remote Prefix ¹	2
Node Trunk Settings, Node trunk 1	Neighbour Node End, Node	2
	Neighbour Node End, Trunk	1
	Local Node End, Direction	Input
	Local Node End, Camera	31
Node Trunk Settings, Node trunk 2	Neighbour Node End, Node	3
	Neighbour Node End, Trunk	1
	Local Node End, Direction	Input
	Local Node End, Camera	32

Tab. 22 Example changes to default configuration for Local Node (3) unit

Screen	Parameter	Value
Global System Settings	Nodes	3
	Node trunks	2
Communication Settings, Channel 1	Function	Network control input
	Protocol	VisiWire
Node Settings	Name	N2
	Remote Prefix	2
Node Trunk Settings, Node trunk 1	Neighbour Node End, Node	1
	Neighbour Node End, Trunk	1
	Local Node End, Direction	Output
	Local Node End, Monitor	8

Tab. 23 Example changes to default configuration for Remote Node 1 (4) unit

NOTE



¹ The Remote Prefix is a count that sets the number of letters from the remote node's name that are displayed on monitors in front of the camera name when that node's cameras are switched. For example, if a camera called ROAD from node EAST is switched, a Remote Prefix of 4 will display EAST:ROAD (limited to 16 characters total).

Screen	Parameter	Value
Global System Settings	Nodes	3
	Node trunks	2

Screen	Parameter	Value
Communication Settings, Channel 1	Function	Network control input
	Protocol	VisiWire
Node Settings	Name	N3
	Remote Prefix	2
Node Trunk Settings, Node trunk 1	Neighbour Node End, Node	1
	Neighbour Node End, Trunk	2
	Local Node End, Direction	Output
	Local Node End, Monitor	8

Tab. 24 Example changes to default configuration for Remote Node 2 (5) unit

9.6.4 Configuring network alarms

The steps required to configure a remote node to broadcast its alarms over the network are listed in Tab. 26.

Screen	Parameter	Value
Global System Settings	Nodes	Total nodes on network (no node must have its address switch set to higher than this value)
Alarm Settings, to enable each alarm to be broadcast to other nodes	Exists	Ticked
	Type	Camera
	Camera	0
	Netcast	Ticked
Alarm Keyboard Access Settings, to enable each alarm to be broadcast to other nodes	Any keyboard (does not require a corresponding keyboard to be connected)	Ticked
Keyboard Settings, for the local node keyboard with this number to be given access to the alarm(s)	Alarm Monitors	At least one alarm monitor must be non-blank (does not require a corresponding monitor to be connected)

Tab. 25 Configuring network alarms on a remote VIS31-328 node

The steps required to configure a local node's keyboard(s) to accept alarms from other nodes over the network are listed in Tab. 26.

Screen	Parameter	Value
Global System Settings	Nodes	Total nodes on network (no node must have its address switch set to higher than this value)
Keyboard Settings, for the keyboard(s) that responds to the remote alarms	Alarm Monitors	At least one alarm monitor must be non-blank (does not require a corresponding monitor to be connected)
Keyboard Alarm Access Settings, for the keyboard(s) that responds to the remote alarms	Alarm number(s) to be handled	Ticked
Keyboard Alarm Node Access Settings, for the keyboard(s) that responds to the remote alarms	Node(s) that originate the remote alarms	Ticked

Tab. 26 Configuring network alarms on a local VIS31-328 node

9.6.5 Connecting VIS3I-328 to Visilynx 2 nodes using PCCON

From software version 2.24, VIS3I-328 units can control a Visilynx 2 matrix as if it were a Visilynx 3 node, using the PCCON protocol, but with limited functionality as follows:

Function	Level of Support
Keyboard node login	Supported, but the Visilynx 2 node name is always Switcher
Camera switching	Supported, but Visilynx 2 camera names are fixed as Camera 1, Camera 2 etc.
Camera control	Supported, obeying user access rights configured at Visilynx 2
VCR and MPX control	Supported
Alarm handling	<i>Not supported – alarms cannot be passed between Visilynx 2 and 3</i>
Multi-hop networking	<i>Not supported – Visilynx 2 cannot be a hop node</i>

Tab. 27 Network functions supported by a Visilynx 2 node

You cannot set the network node address of a Visilynx 2 node by address switches, but instead it is determined by the number of the serial port at the VIS3I-328 configured to control it. Also, the Visilynx 2 node has no network configuration, so the monitors used as trunk outputs are determined by the neighbour node trunk numbers configured at VIS3I-328.

Screen	Parameter	Value
Global System Settings	Nodes	2
	Node Trunks	2
Alarm Settings	Alarm Type	'None' for all trunk inputs
Communication Settings, Channel 2 (for example)	Function	Network Control Input
	Protocol	PCCON2/3 Remote Control. <i>The use of channel 2 sets the address of the Visilynx 2 node to 2. Other PCCON network channels can be used for this also. Line settings are 9600, 8, e, 1.</i>
Communication Settings, Channel 11 to 13	Function	VCR or MPX Control Output
	Protocol	As required. A channel must be configured at VIS3I-328 for every Visilynx 2 VCR or MPX, even though the local channel will not be used. <i>Internal VIS3I-328 channels 11 to 13 can be used for this.</i>
Node Trunk Settings, Node trunk 1	Neighbour Node End, Node	2
	Neighbour Node End, Trunk	<i>15. This determines that monitor 15 is the trunk output at Visilynx 2.</i>
	Local Node End, Direction	Input
	Local Node End, Camera	31

Screen	Parameter	Value
Node Trunk Settings, Node trunk 2	Neighbour Node End, Node	2
	Neighbour Node End, Trunk	16. <i>This determines that monitor 16 is the trunk output at Visilynx 2.</i>
	Local Node End, Direction	Input
	Local Node End, Camera	32

Tab. 28 Example changes to default VIS3I-328 configuration to control Visilynx 2 node

Setting	Parameter	Value
309 PCCON Card	Software version	SW182-5 or later for Visilynx 2 SW235 for Visilynx 2+
	Switch SW1	Set to keyboard number minus 1
Global V2 Configuration	Total keyboards	As low as possible, to include only the keyboard number set on the 309 card. <i>Setting the default 32 keyboards causes network communications to fail, due to excessive 309 card user login/logout times.</i>
Keyboard V2 Configuration	PIN support	Must be <i>enabled</i> for the 309 card keyboard
	User Timeout	Must be <i>zero</i> for the 309 card keyboard

Tab. 29 Visilynx 2 configuration and settings for use as a VIS3I-328 node

V2 Connector	Pin	Pin	VIS3I-328 Connector
309 PCCON Card Top Connector (male 9-pin D)	2	3	PCCON Connector, Port 2 (male 9-pin D)
	3	2	
	5	5	
309 PCCON Card Top Connector (male 9-pin D)	2	2	Serial Connector, Port 1, 3 or 4 (female 9-pin D)
	3	3	
	5	6	

Tab. 30 Connecting the PCCON link between Visilynx 2 and VIS3I-328

9.6.6 Controlling 256 cameras x 64 monitors (banked switching; not full cross point)

Even an expanded VIS3I-328 node is limited to 16 monitors. By using an extra VIS3I-328 switched to bridge mode A it is possible to control a multi-node matrix with up to 256 cameras and 64 monitors. The 'monitor nodes' can be single (32x8) units or expanded (64x16) units but not a combination of both. A special network address mode is used to select bridge mode A while no network address is required for the 'monitor nodes'. See Tab. 31.

Bridge Unit Network Address	'Monitor Node' Cams x Mons	'Monitor Node' Network Address	VIS3I-328 Needed	Total Cams x Mons
A0	32 x 16	00	5	128 x 64
A1	64 x 16	00	9	256 x 64

Tab. 31 Bridge mode A network address settings

Control of the remote nodes is via PCCON networking. Bridge node serial ports 1 to 4 each connect to a Remote Control Input (PCCON) port, the default being port 2, on a monitor node. Refer to Tab. 1 for the serial port pin-outs.

The VISIWIRE LED on the front panel will blink once a second to indicate it is in bridge mode and is seeing a monitor node. If the LED is off check the connections to the 'monitor nodes' and the Comm. Channel settings in the configuration(s).

The camera and monitor numbers allocated to a 'monitor node' are determined by which bridge node serial port they are connected to. The 'monitor nodes' always have 16 monitors allocated to them to allow for the fitting of quad output cards. See Tab. 32 for details of the addressing and Fig. 14 for the layout of bridge mode A.

The VIS3I-328 bridge unit is not used for video switching, only for controlling the 'monitor nodes'. All video and VCR/MPX connections are made at the 'monitor nodes'. Only cameras on the same node as their monitors can be switched to those monitors. The cameras in bank A can only be switched to the monitors in bank F; bank B only switched to bank G for example.

Monitor nodes are capable of controlling cameras both over the coax and via RS422/RS485.



NOTE

Alarm handling and multi-hop networking are not supported in bridge mode A

Bridge Node Serial Port	'Monitor Node' Cameras		'Monitor Node' Monitors
	A0 Bridge	A1 Bridge	
1	1 to 32	1 to 64	1 to 16
2	17 to 64	65 to 128	17 to 32
3	65 to 96	129 to 192	33 to 48
4	97 to 128	193 to 256	49 to 64

Tab. 32 Bridge mode A addressing

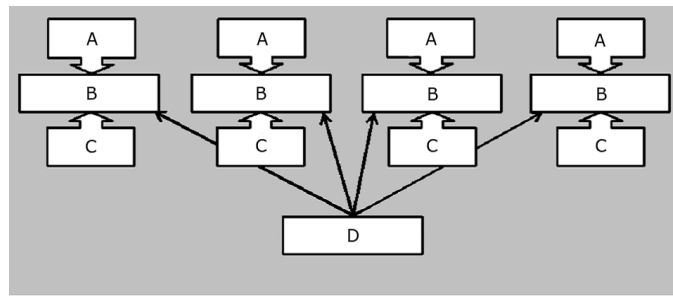


Fig. 14 Bridge mode A layout

A	Camera Connections
B	VIS3I-328 Monitor Node
C	Monitor Connections
D	VIS3I Bridge Unit

The system configuration for the bridge node will need to encompass the total number of cameras, monitors and VCR/MPX on all the 'monitor nodes'. The camera text needs to be configured at each monitor node. Keyboard access to monitors, user access to camera view/control and monitor access must be configured at the bridge node.

An input trunk must be configured at the bridge node for each remote monitor to be controlled. Each input trunk must have a camera number specified even though nothing is physically connected to the bridge camera inputs. Alarms for the chosen trunk inputs must have their type set to either trunk or none.

Tab. 33 shows example configuration changes for bridge mode A controlling four expanded VIS3I-328 remote nodes.

Screen	Parameter	Value
System	Nodes	5 (Bridge node is always node 5)
	Node Trunks	4 (1 per Monitor node)
	Cameras	256 (Total of cameras on all nodes)
	Monitors	64 (Total of monitors on all nodes)
Alarm 1 - 64	Alarms on keyboards & PCCON: Type	Trunk or None (required to permit trunk inputs below)
Node Trunk 1 to 16	Neighbour Node End: Node	1
	Neighbour Node End: Trunk	1 to 16
	Local Node End: Direction	Input
	Local Node End: Camera	1 to 16
Node Trunk 17 to 32	Neighbour Node End: Node	2
	Neighbour Node End: Trunk	17 to 32
	Local Node End: Direction	Input
	Local Node End: Camera	17 to 32
Node Trunk 33 to 48	Neighbour Node End: Node	3
	Neighbour Node End: Trunk	33 to 48
	Local Node End: Direction	Input
	Local Node End: Camera	33 to 48
Node Trunk 49 to 64	Neighbour Node End: Node	4
	Neighbour Node End: Trunk	49 to 64
	Local Node End: Direction	Input
	Local Node End: Camera	49 to 64
Comm. Channel 1 - 4	Function	Network control input
	Protocol	PCCON2/3 remote control

Tab. 33 Bridge mode A configuration settings

9.6.7 Controlling 64 cameras x 64 monitors (full cross point)

A second bridge mode, bridge mode B, provides full cross point switching. Up to a maximum of 64 cameras are available with the restriction that coaxial telemetry (C Type) is only available when cameras are switched to monitors 1 to 16. The camera inputs are connected from one 'monitor node' to the next via loop-through cables, giving all monitors access to all cameras. The filtering on the loop-through connections limits the availability of C Type telemetry and also some camera signal degradation may occur as it passes down the chain of loop-through circuits. Camera control over RS422/RS485 is fully supported.



NOTE

Alarm handling and multi-hop networking are not supported in bridge mode B

The special network address mode used to select bridge mode B is detailed in Tab. 34.

Bridge Unit Network Address	'Monitor Node' Cams x Mons	'Monitor Node' Network Address	VIS3I-328 Needed	Total Cams x Mons
B0	32 x 16	00	5	32 x 64
B1	64 x 16	00	9	64 x 64

Tab. 34 Bridge mode B network address settings

The PCCON networking connections are as bridge mode A and again the bridge node serial port used determines the monitor numbers allocated to the monitor node, as per Tab. 35.

Bridge Node Serial Port	'Monitor Node' Cameras	'Monitor Node' Monitors
1	1 to 64	1 to 16
2	1 to 64	17 to 32
3	1 to 64	33 to 48
4	1 to 64	49 to 64

Tab. 35 Bridge mode B addressing

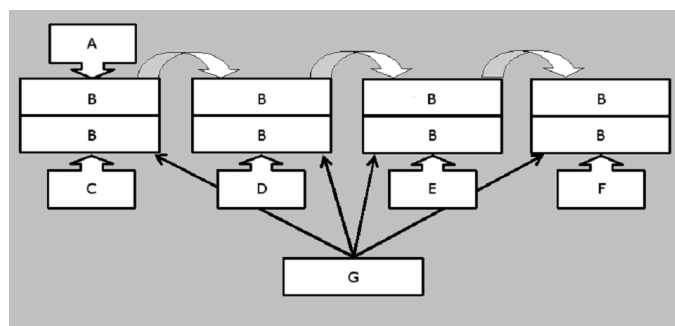


Fig. 15 Bridge mode B layout; 64 x 64 full cross point

A	Cameras 1 to 64
B	VIS3I-328 Monitor Node
C	Monitors 1-16
D	Monitors 17-32
E	Monitors 33-48
F	Monitors 49-64
G	VIS3I-328 Bridge Unit

The same system configuration considerations as for chapter 9.6.6 Controlling 256 cameras x 64 monitors (banked switching; not full cross point) (bridge mode A) apply.

The same sample configuration as in Tab. 33 can be used for bridge mode B with just the one change of:

Screen	Parameter	Value
System	Cameras	64

9.7 Controlling via the Video Management Software IVM

It is possible to have a VIS3I-328 controlled from IVM (V3.4.5 or higher) using any suitable RS232 serial port. Tab. 1 details the serial port connections. Using VisiPC set the serial port function to **Remote control input** using the **IVM remote control (no Bus ID)** or **IVM remote (Bus ID=Keyboard)** protocol as required. Set the port parameters accordingly.

9.8 Clock Synchronisation

It is possible to have the VIS3I-328 system time synchronised via any suitable RS232 or RS485 serial port. Tab. 1 details the serial port connections. The communication protocol is compatible with Time & Frequency Solutions Message 27, as utilised in models M210 and M211. Using VisiPC set the serial port function to **Clock reference input**. Set the port parameters accordingly.

10 Maintenance and service

The following maintenance guidelines should be observed.

10.1 Routine maintenance

Cleaning

The only routine maintenance task to be conducted on the VIS3I-328 unit is cleaning at regular intervals. The regularity of the cleaning task will depend on the environmental conditions.

- Strong abrasive detergents should not be used.
- Wiping over the cover with a soft dry cloth will normally suffice.

10.2 Corrective maintenance

10.2.1 Policy

A suggested policy to be adopted for the unscheduled maintenance of the VIS3I-328 is:

- All unscheduled maintenance tasks relate to the removal and refitting of the Line Replaceable Units (LRUs) identified in Tab. 36.
- Items considered repairable will be returned to the supplier for investigation and possible repair or replacement.

10.2.2 Line replaceable units (LRUs)

The Line Replaceable Units (LRUs) of the VIS3I-328 are the power supply module, the quad card (if fitted) and the mains supply fuse.

Equipment Description	Part Number
Power Supply Module	VIS3I-PSU
Quad Card	VIS3-QUAD
Mains supply fuse	2 A 250 V AC 5x20 Type (T), HBC

Tab. 36 VIS3I-328 – Line replaceable units

10.2.3 Fault indications

You can see faults in the VIS3I-328 in four ways:

- Alarms
- Error Message received on the Visilynx 3 keyboard
- Indicator LEDs
- The system did not function as expected.

Alarms

Alarms are generated by a variety of sources in the CCTV system. Depending on the installation, they are mostly fed to the VIS3I-328, where their actions are determined by the software configuration file. However, in larger installations, some alarms (e.g. rack frame power failure) may be wired directly to an integrated control room.

If a data log device is fitted and configured (this may be a printer with an RS232 interface connected to one of the rear panel serial ports), all alarm events can be read from the data log printout. These events include operator actions taken in response to alarms, as well as the alarms themselves.

If a printer is not available, the VisiPC software may be used to retrieve the last 2000 alarm and action events, using the **Show Log** button on the *Alarm List* tab of the Visilynx (Tester and Simulator) sub-program.

Alarms may be individually enabled for handling by the Visilynx 3 keyboards.

Keyboard error messages

A number of error messages can appear on the Visilynx 3 Keyboard. The error messages are defined in the Visilynx 3 Keyboard User Manual.

Indicator LEDs

See chapter 6.5 Front panel indicators.

System malfunction

The operator may observe that the system did not respond as expected to a command. These observations should be logged as an aid to the system fault-finding process.

10.3 System fault-finding process

Because of the number of ways you can see a fault of the VIS3I-328, we recommend that you should always follow a predetermined logical process for fault-finding.



NOTE

The VIS3I-328 must be powered down before you replace any LRU(s).

10.3.1 Initial checks

The first checks should confirm that the power supply module and the cooling fan are operating normally.

Power supply failures

A failure of the power supply module –5 V supply causes an alarm 1028, if this is enabled by the system configuration. A failure of the +5 V supply causes an inability to start (no front panel LEDs lit) or in unexpected restarts (shown in the Alarm & Action Log).

Cooling fan failures

A failure of the cooling fan causes an over-temperature alarm 1028, if the alarm is enabled (see Tab. 37). If a malfunction due to over temperature is suspected, the flow of air at the cooling vent holes should be checked.

10.3.2 Diagnostic tool

The main diagnostic tool for the VIS3I-328 system is the VisiPC software, which you should install on a PC connected to the Visilynx system. You need a test lead to interface the PC communication port to the Test/Config port (see chapter 8.2 Connect a PC running VisiPC software). The VisiPC Software is described in its User Manual.

10.3.3 Self-test alarms

The configuration files that you load into the VIS31-328, using the VisiPC software, contain descriptions of all alarms that are reported by the unit.

Each configuration file also includes an optional mapping of the physical alarms to the logical alarms. By default, the mapping is one-to-one, so logical alarms match their corresponding physical alarms. This is often adequate.

Physical alarms are the alarm numbers determined by wiring (cameras to BNC input connector cards, alarms to alarm input connector cards) and by self-test (see Tab. 37), all of which can be mapped to logical numbers if a more convenient numbering scheme is required.

The logical alarm numbers that are seen in the Alarm Lists at VisiPC, PCCON and V3 keyboards.



NOTE

Not all alarms denote failures of VIS31-328 units. Some are due to failures of cabling or controlled devices, such as VCR/DVRs and multiplexers.

Physical Alarm	Cause	Possible Faults	Notes
1025	Matrix failure	Configuration error. Control PCB (T323).	If you have added or removed Option Cards since you last loaded the configuration try reloading the configuration. Otherwise, possible PCB fault, return to supplier.
1026	Program corrupt	Control PCB (T323)	FLASH validation failure: try reloading software. Otherwise return to supplier.
1027	Data corrupt	New software just loaded. Control PCB (T323).	Ignore after loading new configuration. Restart VIS31-328 Unit to check true state. If fault persists, return to supplier.
1028	Internal power supply failure or over-temperature	Power supply or fan	Replace Power Supply Module.
1029	I/O failure:	Control PCB (T323). BNC Connector PCB (T322). D Connector PCB (T321).	Return to supplier.
1030–1061	VCR/DVR 1–32 failure	VCR/DVR	Operational, not fault. Data cable disconnected or device switched off.
1062–1093	VCR/DVR 1–32 media missing	VCR/DVR	Operational, not fault. Replace tape or disk caddy.
1094–1125	VCR/DVR 1–32 end of media reached	VCR/DVR	Operational, not fault. Can be avoided by setting VCR/DVR recording mode to Overwrite at end of media using VisiPC software.
1126–1157	MPX 1–32 failures	Multiplexer	Possibly operational. Data cable disconnected or device switched off.
1158–1189	Quad card 1–32 failure	Quad Card (T258) – if fitted	Card removed or failed since configuration last loaded.
1190	Camera 1 alarm input 1	Alarm i/p activated – not a fault	Operational
1191	Camera 1 alarm input 2	Alarm i/p activated – not a fault	Operational
1192	Camera 1 alarm input 3	Alarm i/p activated – not a fault	Operational
1193	Camera 1 alarm input 4	Alarm i/p activated – not a fault	Operational
1194	Camera 1 alarm input 5	Alarm i/p activated – not a fault	Operational
1195	Camera 1 tamper alarm	RX3 lid removed	Tamper or maintenance
1196	Camera 1 self-test alarm	Over current or over temperature	See RX3 installation manual
1197	Camera 1 offline	Telemetry or RX3 power lost	Fault or power loss
1198–1701	Camera 2–64 alarms		

Tab. 37 VisiPC self-test alarms

10.3.4 VisiPC self-tests

A full list of all the VisiPC self-tests that can be selected is contained in Tab. 38. Refer to the VisiPC Software User Manual for full details.

VisiPC Settings		Hardware Required	Precautions	Description
Test Type	Test Level			
All tests	All start-up tests	None		Repeats all start-up test
	All internal tests	None	Serial input signals should be removed or disabled during testing	Tests all internal devices
	All external tests	Loopback connectors fitted to all serial ports	See Tab. 39	Tests serial ports via loopbacks
Address decoder	<i>Unused</i>	None		
Flash	All Flash areas	None		Tests all the following areas
	FBL software	None		Test Flash Boot Loader software
	Controller software	None		Tests Controller Software
	FPGA data	None		Tests FPGA data
	User Config data	None		Tests Fixed, Variable and Default configuration data.
	<i>Note: A failure of User Config data is indicated if config data has not been loaded – this does not indicate a hardware fault.</i>			
Auto-detect hardware	Do not save results	None		Re-detects option cards
	Save results to flash	None	Required if cards have been changed and config data not reloaded	Re-detects option cards and saves results to Flash.
	<i>Tip: Saving auto-detection results to flash is a quicker way of registering changes in option card positions than re-loading configuration data, but has the same effect.</i>			
SRAM	<i>Unused</i>	None		Tests all static RAM memory
Battery-backed SRAM	<i>Unused</i>	None		Tests all battery-backed SRAM, used for holding matrix state while powered down
	<i>Note: A failure of Battery-Backed SRAM is indicated after loading new config data – this can be ignored. Press the rear panel CPU reset button and repeat the test.</i>			
Serial ports	Internal loopback	None	Serial input signals should be removed or disabled during testing	Tests all serial ports using internal loopback switching
	External loopback	Loopback connectors fitted to all serial ports	See Tab. 39	Tests all serial port connections via external loopback connectors
Real-time clock	<i>Unused</i>	None		Tests the clock device
SCB registers	<i>Unused</i>	None		Tests internal Serial Control Bus communication

VisiPC Settings		Hardware Required	Precautions	Description
Test Type	Test Level			
Cards	All cards	None		Tests all the following internal card types
	Video input switch with C telemetry	None		Tests internal loopback
	D telemetry card	None		Tests internal loopback
	VIS3I-328 video output	None		Tests card presence
	Alarm input	None		Tests card presence
	Relay output	None		Tests card presence
	Communications	None		Tests internal serial ports used for future option cards
	Quad option card	None		Test Quad card (if fitted)
Telemetry Cards	Internal loopback	None		Tests all D-type and C-type ports using internal loopback switching
	External loopback	Loopback connectors fitted to all D-type ports	See Tab. 41	Tests all D-type port connections via external loopback connectors
Video Routing	<i>Unused</i>	One or more external sources of video connected to camera inputs	Video sources must be good quality such as direct camera video	Tests video routing from connected cameras to internal monitor outputs

Tab. 38 VIS3I-328 – VisiPC self-tests

Serial port external loopback connectors

The self-test external loopback tests confirm that the serial ports are working correctly. To conduct this test you need to fit special test plug connectors to each of the serial ports. The test connectors are wired to feed back the transmitted output as a receiver input. Tab. 39 identifies the wiring requirements for each of the test plug connectors.

Loopback type	Plug	Pins linked on connector	Pins linked on connector	Number required on Master unit	Number required on Slave unit
RS-232 Male	9-pin male D	2-3		4	3
RS-232 Female	9-pin female D	2-3	4-6-1-9 ,7-8	1	1
RS-422	9-pin male D	4-5	8-9	4	3
RS-232 TTL	96-pin DIN41612	A15-C15	A16-C16	1	1

Tab. 39 Serial port loopback test connectors (1)

To fully test the serial ports that are wired for both RS-232 and RS-422, you need two separate external loopback tests that use different loopback connectors, as shown in Tab. 40.

Unit	Connector Name	Interface	Loopback type for first test	Loopback type for second test
Master or standalone	Serial Port 1	RS-232/422	RS-232 Male	RS-422
	PCCON Port 2	RS-232	RS-232 Female	
	Serial Port 3	RS-232/422	RS-232 Male	RS-422
	Serial Port 4	RS-232/422	RS-232 Male	RS-422
	Test/Config Port 9	RS-232	(None – connected to VisiPC)	
	Keyboard Port 10	RS-422/485	RS-422	
	Option card ports 12 & 13	RS-232	RS-232 TTL	
Slave	Serial Port 16	RS-232/422	RS-232 Male	RS-422
	PCCON Port 17	RS-232	RS-232 Female	
	Serial Port 18	RS-232/422	RS-232 Male	RS-422
	Serial Port 19	RS-232/422	RS-232 Male	RS-422
	Option cards ports 20 & 21	RS-232	RS-232 TTL (at either card connector)	

Tab. 40 Serial port loopback connectors (2)

D-type telemetry external loopback connectors

These self-test external loopback tests confirm that the D-type telemetry ports are working correctly. To conduct this test, you need to link the D-type ports for cameras 1–16 to the ports for cameras 17–32. You do this by linking the two removable screw terminal blocks with pairs of link wires, as shown below for the first block of four cameras. (This pattern should be repeated for the remaining three blocks.)

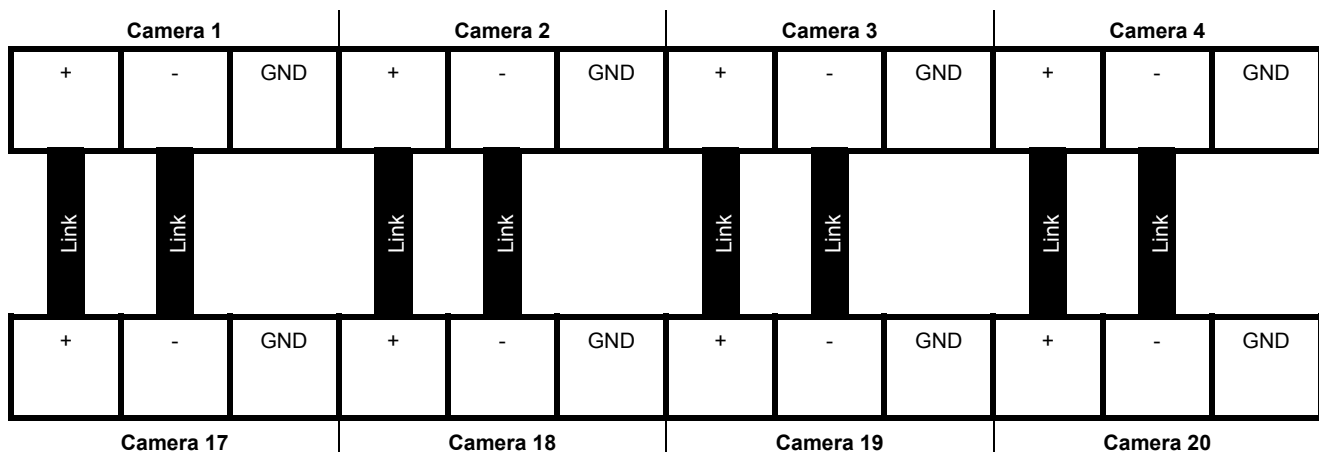


Fig. 16 Self-test – Camera D-type port linking

Video routing

VisiPC includes a powerful test to automatically check the routing of video signals from all the camera inputs to all the monitor outputs, including the expansion connection between units.

Before running this test, you should connect all available sources of clean video to the camera inputs. This test is therefore best conducted once installation is complete.

To run the test:

1. Select the VisiPC **Self-Test** Tab.
2. Select the **Test Type** to **Video Routing** from the **Run Tests** button.
3. Press the **Send** button.

**NOTE**

If no route failures are detected, the self-test log shows the total routes tested. If failures are detected, only the failures are shown.

Self-test results

A full list of all the possible self-test results is shown in Tab. 41. The actual test records provided depend on the tests that you ran after you selected the **Test Type** and the **Test Level** during the VisiPC Self-test Request.

All test record listings include a Results Summary, as the last record.

Test Description	Result Type		Result Data
Address Decoder Test Results			
PLD firmware version	Firmware versions		Latest version supported, actual version read
PLD register integrity	Register values		Value written and value read
FLASH Test Results			
FLASH boot loader FLASH CRC	None		None
Controller FLASH CRC	None		None
FPGA/Font FLASH CRC/Checksum	Firmware area Font area		Not Tested; or Checksum Passed; or CRC Passed; or Test Failed
User configuration CRC/checksum	Fixed area Variable area Factory defaults		Not Tested; or Checksum Passed; or CRC Passed; or Test Failed
Power Supply Test Results			
+12 V supply	Voltage read		Voltage
-5 V supply	Voltage read		Voltage
VBATT supply	Voltage read		Voltage
SRAM Test Results			
Static RAM size	Memory size detected		Size in kilobytes
Battery-Backed SRAM Test Results			
Command status data validation	None		None
RTC Test Results			
Timer interrupt period	Period measured		Period in ms
RTC Register integrity	Bad registers		Register count and first bad value
SCB Subsystem Test Results			
SCB Register integrity	Location of first bad register		Register offset from start of SCB
Master/slave connection	None		None
CPU Temperature Test Results			
CPU temperature	Temperature read		Degrees C
Serial Ports Test Results (up to 21 sets of internal loopback results, one per communication channel)			
Serial channel (n) sent (byte count), received (byte count) bytes (internal loopback) [Data transmission and reception]	Total bytes received		Channel number (n), Byte count sent, Bytes received.
Serial channel (n) data integrity: (byte count) bytes not matched (internal loopback) [Data integrity]	Total bytes not matching		Channel number (n), Byte count.
Serial Ports Test Results (up to 21 sets of external loopback results, one per communication channel)			
Data transmission and reception	Total bytes received		Channel number, Byte count sent, Bytes received.
Data integrity	Total bytes not matching		Channel number, Byte count.

Test Description	Result Type		Result Data
Cards Test Exceptions			
Card tests passed	Total cards tested		Total cards
Card firmware version is incompatible	Card with wrong version		Rack number (always 1), Slot, Version found
Card PCB version is incompatible	Card with wrong version		Rack number (always 1), Slot, Version found
Card LED register not responding	Card with bad register		Rack number (always 1), Slot, Type
Comms card loopback failure	Card that failed		Rack number (always 1), Slot, Channel
Telemetry card loopback failure	Card that failed		Rack number (always 1), Slot, Channel
Card test exception buffer full	None		None
Auto-Detection Test Exceptions			
Auto-detection tests passed	Total rack frames and cards detected		Rack frames (always 1), Total cards
Card type is unknown	Card with wrong type		Rack number (always 1), Slot, Type
Too many cards of one type	Card type details		Type, Number allowed, Number detected
Valid Flash hardware configuration is different from auto-detected one. Flash configuration used.	None		None
Auto-detection test exception buffer full	None		None
Video Routing Test Exceptions			
Video routing tests passed	Total routes tested		Total routes tested
No input video source detected	None		None
Sync not detected at correct output channel	Camera and correct monitor		Camera, Monitor
Sync detected at wrong output channel	Camera and wrong monitor		Camera, Monitor
No sync detected at any output channel	Camera		Camera
Video routing test exception buffer full	None		None
SRB Error Exceptions			
SRB slot status register	Register contents		Rack number (always 1), Slot, Register value
SRB error exception buffer full	None		None
Self-test Results Summary			
Summary: total passes, warnings, failures	Summary of all test results		Passes, Warnings, Failures

Tab. 41 VisiPC self-test results



NOTE

The log only shows the results of those tests that have been carried out since power-up.

11 Disposal



All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.

This crossed-out wheeled bin symbol on the product means the product is covered by the European Directive 2002/96/EC.

The correct disposal and separate collection of your old appliance will help prevent potential negative consequences for the environment and human health. It is a precondition for reuse and recycling of used electrical and electronic equipment. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

Issued by
Siemens Building Technologies
Fire & Security Products GmbH & Co. oHG
D-76181 Karlsruhe

www.buildingtechnologies.siemens.com

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Printed in the Federal Republic of Germany
on environment-friendly chlorine-free paper.

Document no. **A6V10086958**
Edition 29.10.2008