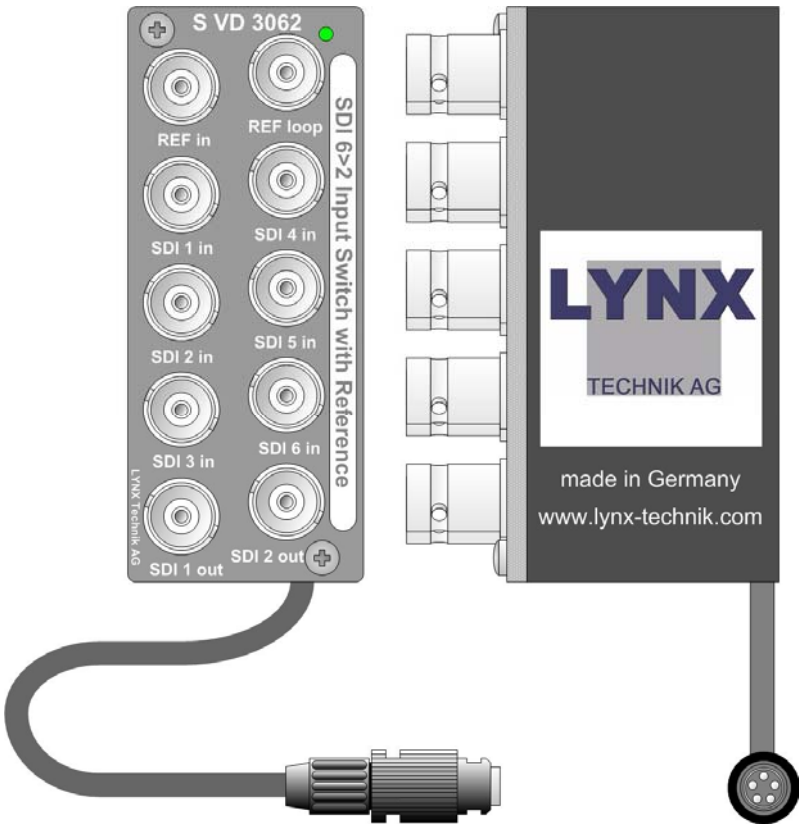
Version 1.4

Reference Manual

S VD 3062

SDI 6 > 2 Input Switch

Series 3000 MiniModules



Brunnenweg 3
64331 Weiterstadt
Germany
www.lynx-technik.com

Warranty

LYNX Technik AG warrants that the product will be free from defects in materials and workmanship for a period of two (2) years from the date of shipment. If this product proves defective during the warranty period, LYNX Technik AG at its option will either repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, customer must notify LYNX Technik of the defect before expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by LYNX Technik, with shipping charges prepaid. LYNX Technik shall pay for the return of the product to the customer if the shipment is within the country which the LYNX Technik service center is located. Customer shall be responsible for payment of all shipping charges, duties, taxes and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure, or damage caused by improper use or improper or inadequate maintenance and care. LYNX Technik shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than LYNX Technik representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; c) to repair any damage or malfunction caused by the use of non LYNX Technik supplies; or d) to service a product which has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty servicing the product.

THIS WARRANTY IS GIVEN BY LYNX TECHNIK WITH RESPECT TO THIS PRODUCT IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED. LYNX TECHNIK AND ITS VENDORS DISCLAIM ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. LYNX TECHNIK`S RESPONISIBILITY TO REPAIR AND REPLACE DEFECTIVE PRODUCTS IS THE SOLE AND EXCLUSIVE REMEDY PROVIDED TO THE CUSTOMER FOR BREACH OF THIS WARRANTY. LYNX TECHNIK AND ITS VENDORS WILL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTAL DAMAGES IRRESPECTIVE OF WHETHER LYNX TECHNIK OR THE VENDOR HAS ADVANCE NOTICE OF THE POSSIBILITY OF SUCH DAMAGES.

Regulatory information

Europe

Declaration of Conformity

We LYNX Technik AG
Sandstrasse 7
D-64404 Bickenbach
Germany

Declare under our sole responsibility that the product

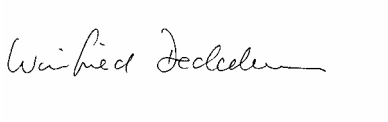
TYPE: S VD 3062

To which this declaration relates is in conformity with the following standards (Environments E1-E3):

EN 55103-1 /1996
EN 55103-2 /1996
EN 60950 /2001

Following the provisions of 89/336/EEC and 73/23/EEC directives.

Winfried Deckelmann



Weiterstadt, November 2004

Place and date of issue *Legal Signature*

USA

FCC 47 Part 15

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to the part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense

Contents

Getting Started

Packaging

The shipping carton and packaging materials provide protection for the module during transit. Please retain the shipping cartons in case subsequent shipping of the product becomes necessary.

Product Description

The S VD 3062 is a high quality digital video 6 > 2 input switch designed primarily for broadcast and professional applications.

The S VD 3062 has 6 inputs for digital video signals, which can be switched to two independent outputs. A second input can be selected for emergency switching. Outputs can be reclocked, or non-reclocked. Auto detection of standard digital video bit rates in reclocked mode (143Mbit/s, 177Mbit/s, 270Mbit/s, 360Mbit/s) and will transparently pass data from 10Mbits/s to 620Mbits/s in non-reclocked mode. A analog reference input allows clean switching for synchronous inputs.
Inputs can be switched either via the service adapter and the associated PC GUI SW (LYNX c3_local) or via an optional remote control panel R CP 3062. Up to six S VD 3062 can be controlled from one control panel.

The S VD 3062 is part of the 3000 series of MiniModules, which offer high quality, modularity and flexibility in a very small form factor ideal for applications where space is at a premium.

The modules can be used either stand alone using the optional power supply brick, or as part of a tightly integrated space saving system where up to 10 MiniModules can be mounted utilizing the optional LYNX R FR 3005 / 3010 rack housing. This includes integrated power supply and optional remote control interfaces.

Functional Diagram

Figure 1 below is the basic functional diagram for the S VD 3062 MiniModule.

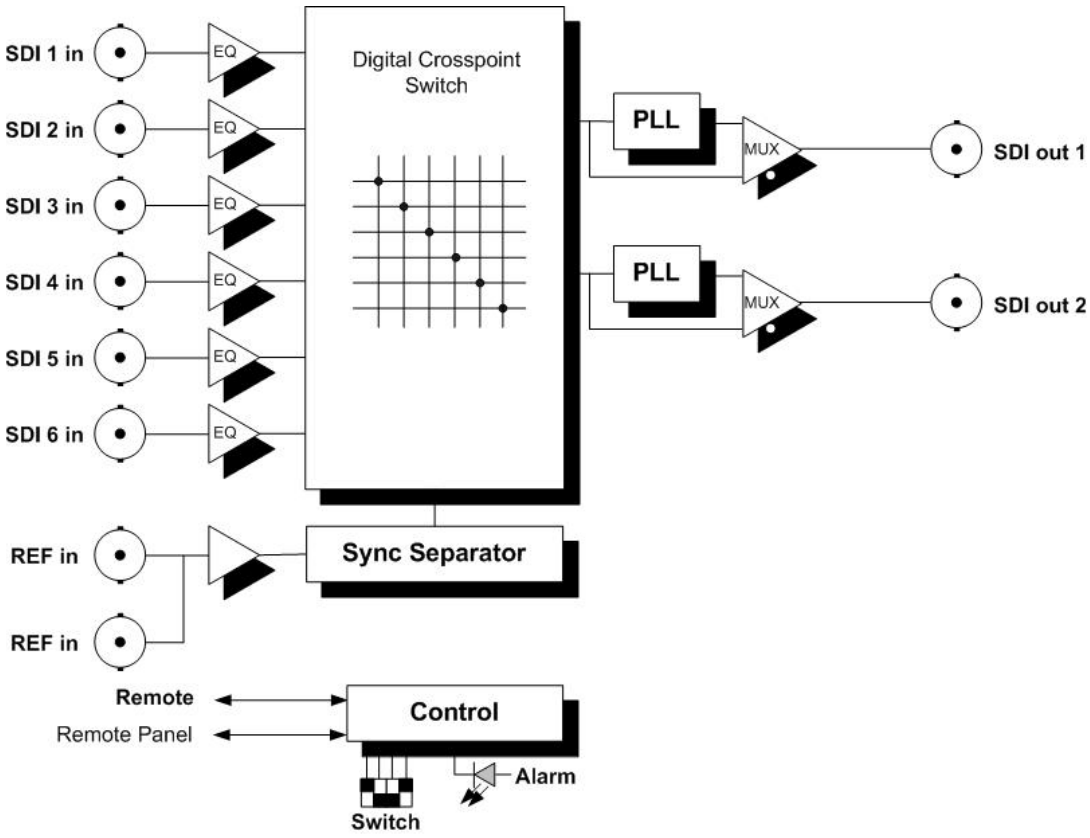


Figure 1- S VD 3062 Functional Diagram

Module Layout

Figure 2 shows the physical layout of the S VD 3062 MiniModule. Video I/O is made through standard BNC video connectors. Module configuration is set via a small dip-switch located behind a small access hole in the bottom of the module. A connector for external control panels is also provided on the module.

If the module is being used in a stand alone application then the optional power supply (R PS 3001 E, R PS 3001 U or R PS 3001-3) is required to power the module (not shown)

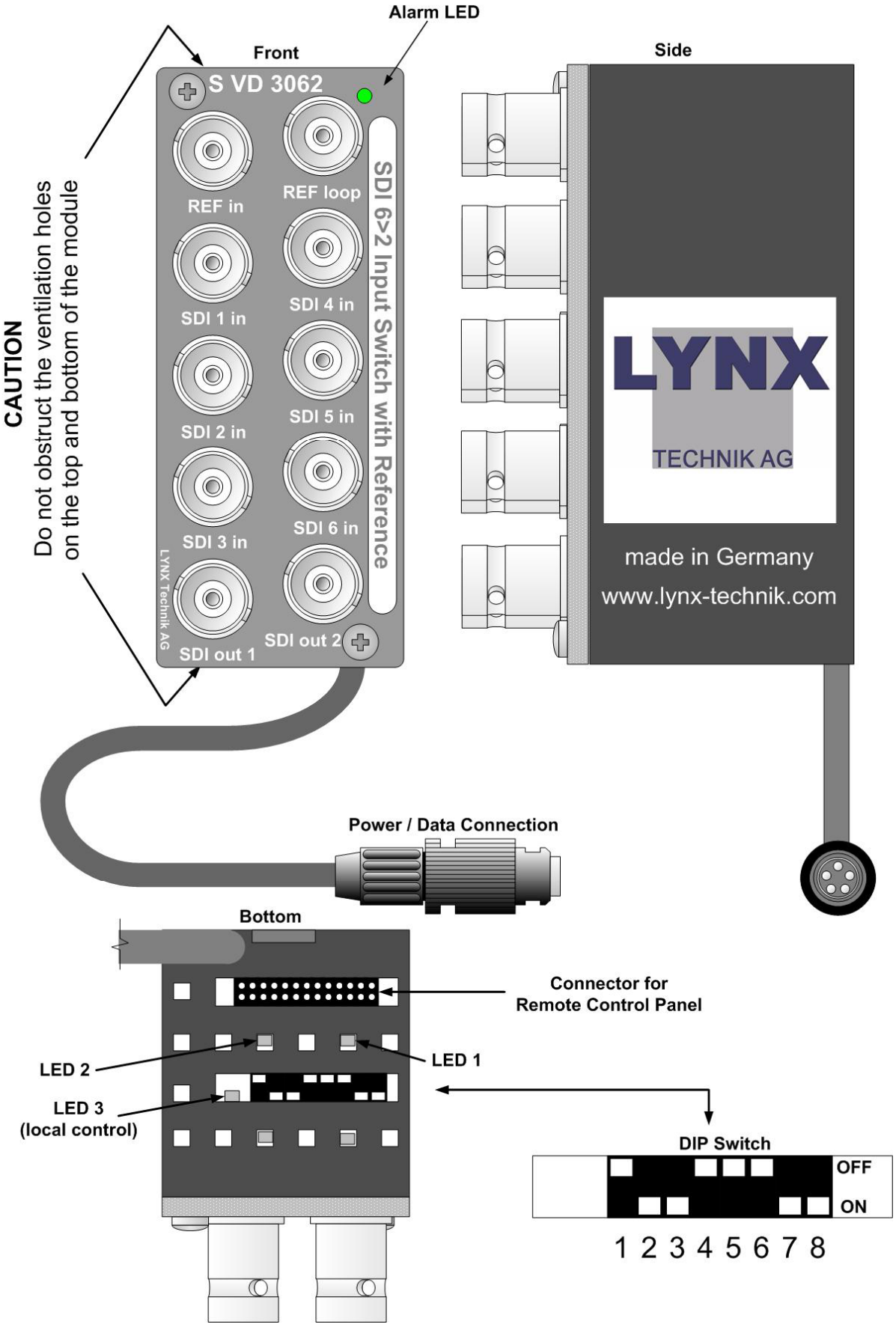


Figure 2 – Module Layout

Connections

Video Connections

The S VD 3062 MiniModule is configured with standard 75 Ohm BNC connectors. Connection is self-explanatory. We recommend the use of high quality video cable for digital video connections to reduce the risk of interference or errors due to excessive cable attenuation. Some guidelines for max cable length are shown below.

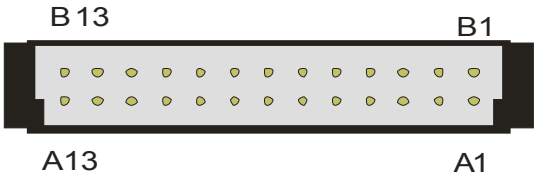
250m (820 feet) Belden 8281 (270Mbits/s)
150m (492 feet) Belden 8281 (540Mbits/s)

Note. Due to the compact design of the module it will be necessary to use a connection tool to secure the BNC video connectors to the module.

Remote Control Panel

There are different possibilities for Remote control panels. LYNX Technik AG provides one solution, the R CP 3062, which is described on page 22 and 23 (parallel panel type 3)

Connector for Remote Control Panels



PIN-ASSIGNMENT:

PIN B13-B8 = Input Select (for OUT1 or Input select for Panel Version 1)
PIN A13-A8 = Input Select (for OUT2)
PIN B7 = Output 1 select for Panel Version 1
PIN B6 = Output 2 select for Panel Version 1
PIN A7 = Panel connect (Low=Panel connect)
PIN A6 = Panel Version (high=Version 1, low=Version 2)
PIN A5-B5 = not used
PIN A4 = RS-485 TX- (used for Panel on RS422)
PIN B4 = RS-485 TX+ (used for Panel on Rs422
PIN A3 = RS-485 RX- (used for Panel on Rs422)
PIN B3 = RS-485 RX+ (used for Panel on Rs422)
PIN A2/B2 = VCC (5V/100mA)
PIN A1/B1 = GND

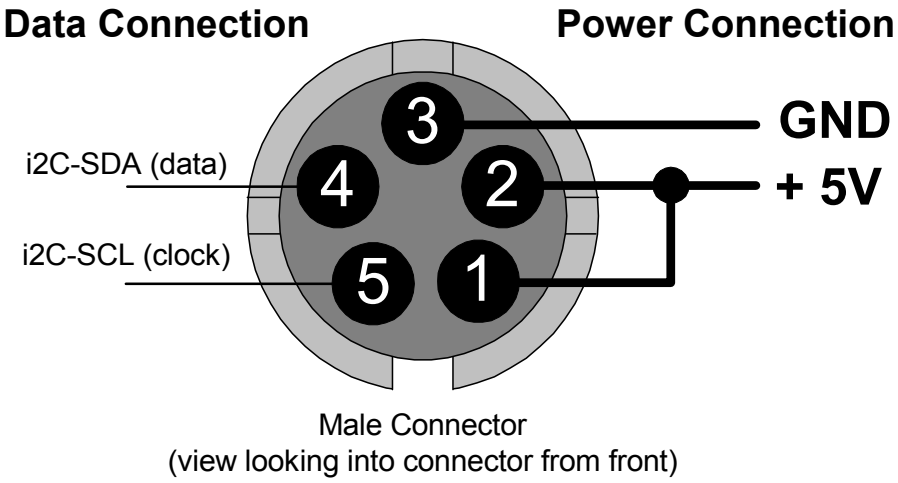
Note. For more details see page 19.

Power Connections

If using the module in a stand-alone application use the separate R PS 1 E (for Europe), R PS 1 U (USA) power brick option or the desk power supply R PS 3001-3.

DC Power Connector

The MiniModule has a captive power lead fitted to the module, with a male 5 pin locking bayonet connector. This connection provides DC power and also data connectivity to the module. Connector wiring is shown below.



Male Connector
(view looking into connector from front)

Caution

Only use the optional LYNX R PS power modules. Ensure the 5-pin power connector is locked securely in place.

Installation

Mechanical

Stand Alone Operation

The S VD 3062 MiniModule can be used in a stand alone application. There are two options for the use of the module in this way.

a) Using the R FR 3005 Rack Frame 1 option. This allows up to any 10 of the MiniModules to be secured onto a rack frame assembly for 19 inch rack mounting. This keeps the modules secured, organized and out of the way. The R PS 3001 power brick option or the R FR 3010 option is required to power each module. Please refer to the R FR 3005 Reference Manual supplied with this option for more details.

b) Single Use. The MiniModule can be powered independently with the R PS 3001 option and used in any location where this functionality is required.

Caution. Care needs to be taken when using the module in this way, as it is not physically secured. Keep the module away from the floor to avoid the risk of someone stepping or tripping on the unit, and locate the unit away from excessive sources of heat and any sources or moisture.

If using more than one MiniModule in any installation, the R FR 3005/3010 Rack frame combination is highly recommended.

Multiple Units

Most applications will require more than one MiniModule, which can include any of the available Series 3000 MiniModule product range. There are two options for mounting multiple units.

a) Using the R FR 3005 Rack Frame option. This allows up to any 10 of the MiniModules to be secured onto a rack frame assembly for 19 inch rack mounting. The R PS 3001 power brick option or the R FR 3010 option is required to power each module. Please refer to the R FR 3005 Reference Manual for more details.

b) Using the R FR 3010 Rack frame extension option. Can be combined with the R FR 3005 Rack frame option. Each module plugs into a connection bus, which provides common power for all modules. (no R PS external power supplies are needed). Remote control and status monitoring of all modules is possible with the addition of the R CT 5020 rack controller and R CT 5030 master controller options. Please refer to the respective reference manuals for these options for details of mechanical installation.

The very small size and density of the MiniModules combined with the available rack frame options allows the addition of a complex and custom signal distribution system without taking any additional front rack space. The rack frames are designed for installation in the back of 19-inch racks where there is normally plenty of available space. Ideal for mobile truck installations and facility expansions where space is at a premium.

Electrical Installation.

Stand Alone Operation

The MiniModule requires the R PS 3001 power brick option for stand-alone operation. Three versions are available: R PS 3001 E for European markets, R PS 3001 U for the US markets or the desk power supply R PS 3001-3. Please ensure you have the correct power option for your region. The connection to the module is made with a small 5-pin connector, which has a twist bayonet securing system. Please make sure the connection is solid and locked in place. A strain relief is included within the module to prevent excessive strain on the connection.

Signal connections should be made with care, please ensure connections are correct and compatible equipment is feeding / receiving the signals from the module or damage can result.

Caution. Only use the optional Lynx R PS 3001 power modules. Ensure the 5-pin power connector is locked securely in place.

Caution. Care needs to be taken when using the module in this way, if it is not physically secured. Keep the module away from the floor to avoid the risk of someone stepping or tripping on the unit, and locate the unit away from excessive sources of heat and any sources or moisture.

Multiple Units

When installing multiple MiniModule units it is recommended you use the R FR 3005 Rack Frame 1 and / or R FR 3010 Rack Frame 2 options. Please refer to the documentation supplied with these options for details on electrical installation.

Settings and Control

The S VD 3062 has an integrated micro-controller, which enables the module to be configured and controlled locally via the integral dip-switch, or from remote when using the optional R FR 3010 Rack Frame and control system.
Input switching is possible via the LYNX Control SW or an optional remote control panel, the module provides a connector for control via an optional Remote Control Panel.

Once set, all settings are automatically saved in non-volatile internal memory. The module will always recall the settings used to prior to power off.

Switch Settings

Below the switch settings for the 8-position dip-switch are defined.

Switch	Setting	Function
1	ON	Local adjustment enabled
	OFF	Local adjustment disabled
2	ON	Output 1 reclocked
	OFF	Output 1 non-reclocked
3	ON	Output 2 reclocked
	OFF	Output 2 non-reclocked
4	ON	Emergency switch active
	OFF	Emergency switch disabled
5	Adr (0)	Settimg for Remote Control Panel
6	Adr(1)	Settimg for Remote Control Panel
7	Adr(2)	Settimg for Remote Control Panel
8	Adr (3)	Settimg for Remote Control Panel

Switch Function Detail

Dip Switch 1

This switch is used to enable or disable local adjustments. Set to **ON** enables the setting of the other dip switches to configure the module. Set to **OFF** will prevent any switch settings taking effect.
If any setting is executed via the optional LYNX control system, the local control will be disabled. In this case DIP Switch one has to be toggled ON-OFF-ON to reaquire local control. LED 3 will be on (GREEN) if local control is enabled.

Note. The module has a microcontroller and flash ram. When this switch 1 is set to **ON** any configuration settings made on the module with the dip switches will automatically be written into flash ram and stored. (see Auto Store) The module will function normally with the switch left in the **ON** position but it is recommended to set it to **OFF** to prevent accidental changes to the stored module configuration if the switches are moved.

Dip Switch 2
When set to **ON** this configures output 1 as reclocked, if set to **OFF** output 1 is non-reclocked

Dip Switch 3
When set to **ON** this configures output 2 as reclocked, if set to **OFF** output 2 is non-reclocked

Dip Switch 4
This switch configures enables emergency switching. **ON** activates the emergency switch. If the selected input is lost, the modules will switch automatically to the next active input. **OFF** disables emergency switching.

Dip Switch 5-8
Used for address configuration for optional remote control panel on parallel or RS485 interface:
ADR 0: Direct Connect for Panel Version 1 and 2
ADR 1 .. ADR 6: Address of S VD 3062 for connection to Panel Version 3 or via RS 485

Factory Preset Condition

The S VD 3062 is delivered preset for the following mode of operation:

Local control	**enabled**
Outputs 1	**non-reclocked**
Outputs 2	**non-reclocked**
Emergency switch	**disabled**

If this is the mode of operation required, then no adjustments are necessary.

Connector for Remote Control Panels

The module provides a connector for optional remote control panels. There are several possibilities:

- Simple panel, driven by the module. Distance is restricted to 10m. Two versions are possible.
- Control Panel with RS422 interface for longer distances

For connection of remote control panels an adapter to a Sub D 25 female connector is provided with the module.

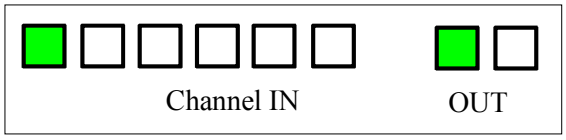
Tables below show pinout of Sub D 25 pin female connector as provided on the adapter.

Sub D 25 pin female

PIN	Function	
1-6	Config	Input select for OUT 1 or Input select for Panel Version 1
14-19	Config	Input select for OUT 2
7/8	Config	Output select if Panel Version 1 used
20	Config	Panel connect (Connect to GND)
21	Config	Version select (high = Panel Version 1, low = Panel Version 2)
9, 22	Config	not used
10	Config	RS485 TX + used for Panel on RS422
23	Config	RS485 TX -; used for Panel on RS422
11	Config	RS485 RX +-; used for Panel on RS422
24	Config	RS485 RX -; used for Panel on RS422
12,25	Power	+5V / 100mA max.
13	Power	GND

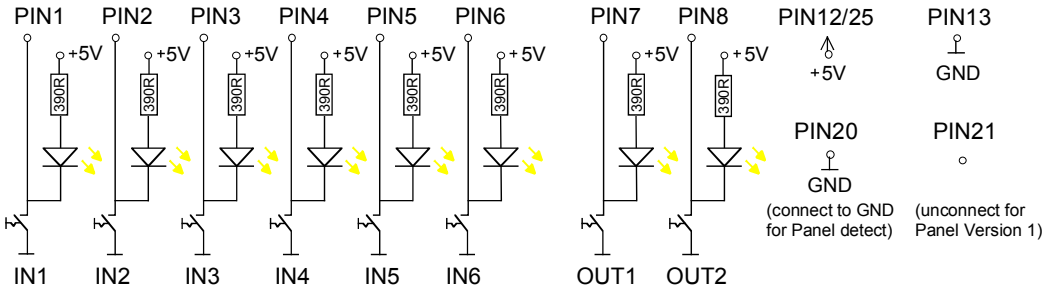
Parallel Interface

Version 1

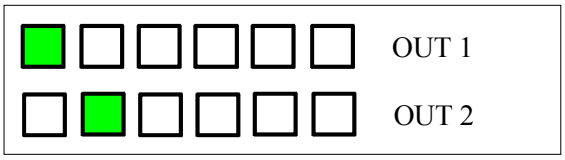


Control-Panel

Internal Hardware for a simple
Control Panel with a parallel connection

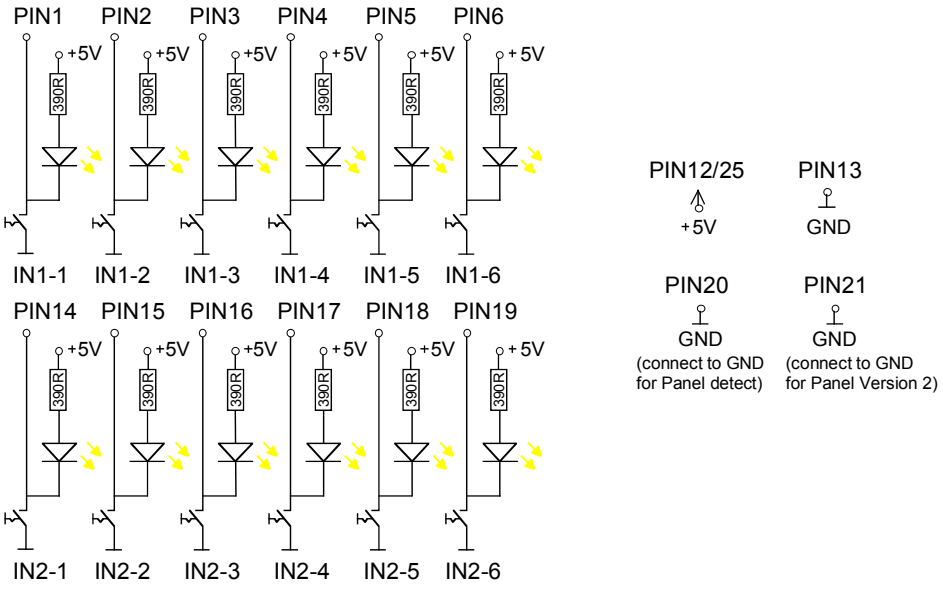


Version 2



Control-Panel

Internal Hardware for a simple
Control Panel with a parallel connection



Panel Version 1

25 pin Sub D Connector female

(this table shows relevant subset from table, page 18)

PIN	Function	
1-6	config	Input select
7/8	config	Output select
20	config	Connect to GND for Panel connect
21	config	Not connect for Panel Version 1
9/22		Not used
10		Not used
23		Not used
11		Not used
24		Not used
12 / 25	Power	+5V / 100mA max.
13	Power	GND

Panel Version 2

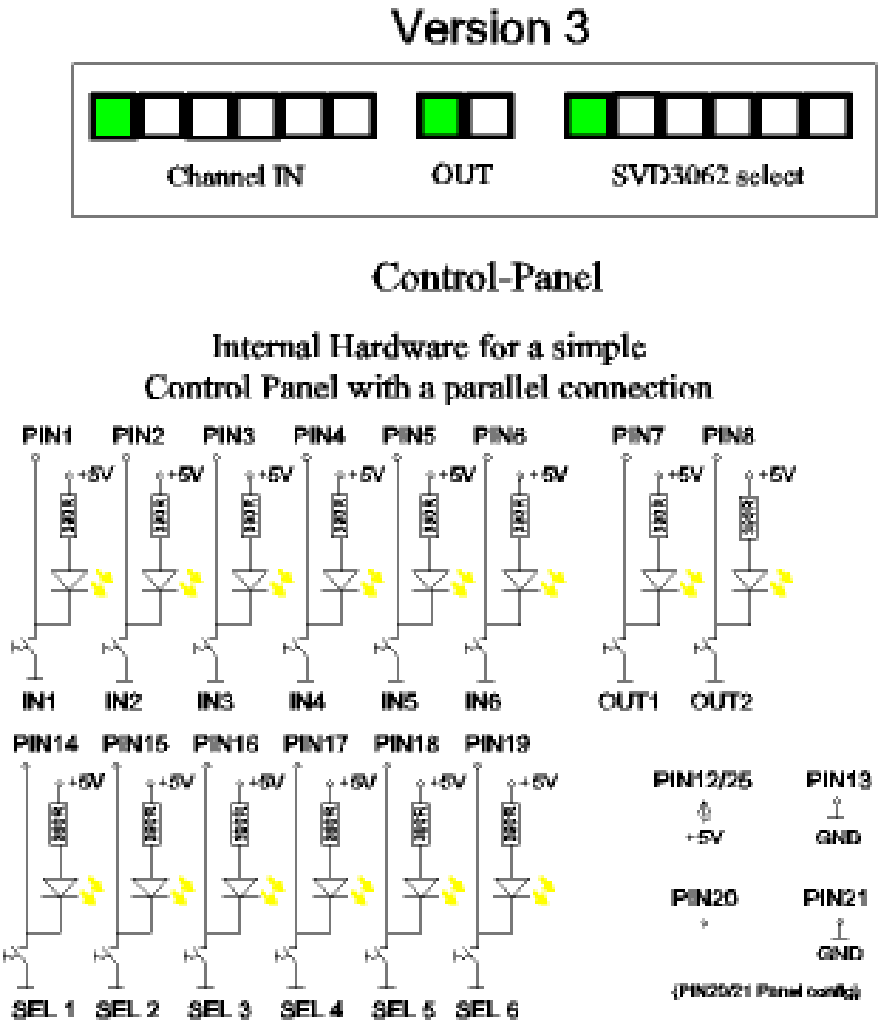
25 pin Sub D Connector female

(this table shows relevant subset from table, page 18)

PIN	Function	
1-6	config	Input select for OUT1
14-19	config	Input select for OUT2
20	config	Connect to GND for Panel connect
21	config	Connect to GND for Panel Version 2
9/22		not used
10		not used
23		not used
11		not used
24		not used
12 / 25	Power	+5V / 100mA max.
13	Power	GND

Panel Version 3

– R CP 3062
D-Sub 25-polig male

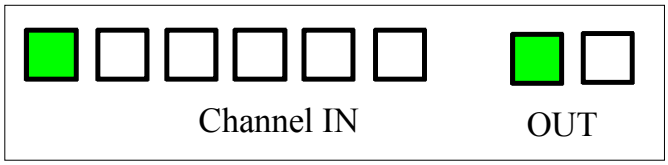


Interface-panel side
(25polig D-Sub Connector male)
Panel Version 3

PIN	function	
1-6	config	Input select
7	config	Output 1 select
8	config	Output 2 select
14-19	config	Select SVD3062 1-6
20	config	not connect
21	config	connect to GND
9/22		not used
10		not used
23		not used
11		not used
24		not used
12 / 25	Power	+5V / 100mA max.
13	Power	GND

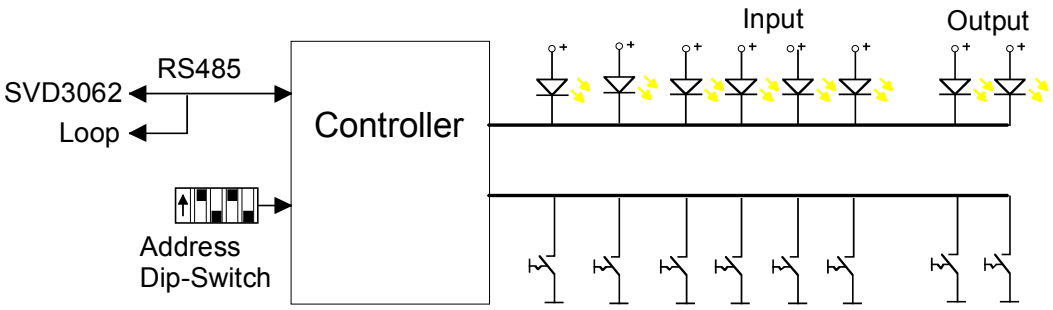
Pin 14-19: Selection of S VD 3062 per Pin, e.g.
Pin 14 = High -> S VD 3062 with Address 1 is selected, all other Pins have to be LOW

Serial Interface (RS422/485)



Control-Panel

Internal Hardware for a intelligent
Control Panel with a serial interface



25 pin Sub D Connector female

(this table shows relevant subset from table, page 18)

PIN	function	
14 - 21		not used
1 - 8		not used
9 / 22		not used
10	config	RS485 TX+
23	config	RS485 TX-
11	config	RS485 RX+
24	config	RS485 RX-
12 / 25	Power	+5V / 100mA max.
13	Power	GND

Alarm/LED Status Indicators

The S VD 3062 module has built in LED indicators, which serve as alarm and status indication for the module. Function is described below.

The Indicators are found on the bottom of the module and can be seen through the access hole provided. (Figure 2)

Channel Condition Indicators

LED1 and LED2

LED1 shows status of output 1
LED2 shows status of output 2

LED Color	Indication
Green	Input signal present
Yellow	Automatic cyclic input switching enabled
Red	Input signal lost

Local Control LED 3

LED 3 indicates if local control is enabled. If the LED 3 is ON (Green) local control is enabled, if LED 3 is OFF local control is disabled

Front Panel Alarm Indicator

There is also a single alarm LED on the front side of the module, which is designed for quick and easy indication of a problem condition in installations where visible access to the bottom of the module is not convenient.

LED Color	Indication
Green	Both selected input signals present
Yellow	Only one selected input present
Red	Input signals lost

LED **OFF** indicates power is lost, or there is a power supply fault.

Locate Function

For large systems which have many modules in various locations we have added a utility which will help visually identify a module quickly. (When used in conjunction with the optional control system and software)

Once the module has been identified on the control system it is possible to initiate the "locate" function and flash the module front LED yellow in the following continuous sequence.

3 short flashes…. Pause…. 3 short flashes …

This uses the alarm LED located on the front of the module as well as any module edge LEDs (green) that may be used in the module.

Use of the locate function will not interfere with the normal operation of the module.

For more details on this feature please check the documentation supplied with the controller software

Auto Store

If no parameters are changed for 10 seconds then the current settings will be written into flash memory automatically, this can be seen by the front LED flashing yellow, the module edge LEDs flashing green four times.

Specifications *(S VD3062)*

Digital Inputs

Signal	6 x Serial Digital Video. SMPTE 259M-C
Input Impedance	75 Ohms
Input level	0.8V p-p
Return loss	> 15dB (270MHz)
Connection	BNC

Reference input

Signal	Composite sync (black burst)
Input Impedance	High impedance, loop through
Connection	BNC

Digital Outputs

Signal	2 x Serial Digital Video. SMPTE 259M-C
Output Impedance	75 Ohms
Output Level	0.8V p-p
Return loss	> 15dB (500MHz)
Connection	BNC

Operating Modes

reclocked	6->2 for SMPTE 259M-C signals
non-reclocked	6->2 for transparent digital signals up to 622Mbits

Performance

Cable Equalization	Up to 200M using Belden 8281 (270Mbit/s)
Jitter	< 0.2 UI
Control	Local settings (dip switch).
Status Monitoring (LED)	Signal presence detection

Electrical Specifications

Operating Voltage	+ 5VDC
Power Consumption	6 VA
Connection	DC input via 5 pin locking bayonet connector
Safety	IEC 60950/ EN 60950/VDE 0805

Mechanical

Size	85.5mm x 35.3mm x 27mm + connectors
Weight	150g

Ambient

Temperature	5°C to 35°C Maintaining specifications
Humidity	Max 80% non condensing

Supplied Accessories

Documentation	S VD 3062 Reference Manual
	Remote control panel adapter

Available Options

Below is a list of available options for the S VD 3062 MiniModule. Please refer to product brochures or our web site for more detailed information.

Model	Description
R PS 3001 E	External brick power supply module for Series 3000 MiniModules. European market version. 100-240 VAC input, +5V DC output.
R PS 3001 U	External brick power supply module for Series 3000 MiniModules. USA market version. 110-240 VAC input, +5V DC output.
R PS 3001-3	External desk power supply module for Series 3000 MiniModules. 110-240 VAC input, +5V DC output.
R PS 3004	External desk power supply module for 4 x Series 3000 MiniModules. 110-240 VAC input, 4 x +5V DC output.
R FR 3004	Mounting Support for 4 MiniModules
R FR 3000	Mounting Support for single MiniModules. Set for 5 MiniModules
R FR 3005	This is a basic 19 inch rack mountable frame which can accommodate 10 MiniModules with power bricks R PS 1 or can be extended with the R FR 3010.
R FR 3010	This is a card cage with integrated central power supply, optional redundant power supply and optional controller, which can accommodate 10 MiniModules. Can be combined with R FR 3005
R PS C15	1.5m cable extension to connect one MiniModule to R FR 3010
R PS C25	2.5m cable extension to connect one MiniModule to R FR 3010
R PS 5010	Redundant power supply for the R FR 3010 card cage
R CT 5020	Rack controller for the R FR 3010 rack frame
R CT 5030	Master controller with TCP/IP Interface for the R FR 3010 rack frame
R CT 5010	Rack Bus Extension for R FR 3010 rack frame. In combination with R CT 5020
R CT 3000	Service Adapter for remote configuration of one MiniModule via PC
R CP 3062	Remote Control Panel for S VD 3062. 6 units can be controlled from one panel.

Parts List

Due to the very dense design and high level of integration there are no user serviceable electronic assemblies within the S VD 3062 module.

S VD 3062 Mini Module (complete)

Description	SDI 6>2 input Switch
Model Number	S VD 3062
Part Number	5.155.003.270

Service

If you are experiencing problems, or have questions concerning your S VD 3062 MiniModule please contact your local distributor for assistance.

We offer a fixed cost service exchange program for defective Series 3000 MiniModules out of Warranty. Please contact your distributor or check our web site for details on this program.

More detailed information and product updates may be available on our web site:

www.lynx-technik.com

You will also find links to contact us directly for assistance.

Contact Information

Please contact your local distributor; this is your local and fastest method for obtaining support and sales information.

LYNX Technik can be contacted directly using the information below.

Address	LYNX Technik AG Brunnenweg 3 64331 Weiterstadt Germany.
Website	www.lynx-technik.com
E-Mail	info@lynx-technik.com

LYNX Technik manufactures a complete range of high quality modular products for broadcast and Professional markets, please contact your local representative or visit our web site for more product information.

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Notes