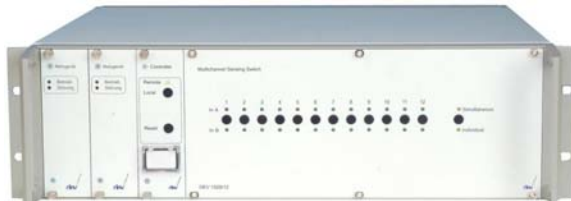


## Multi Channel Switches



### Products:

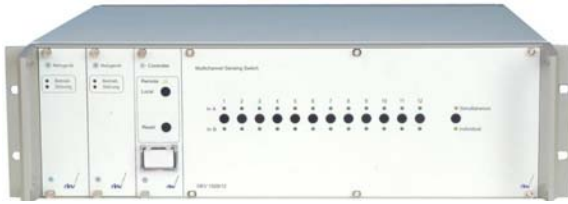
- DEV 1220/xx** - Multi Channel DPST Switch, 50 Ohm SMA (f)
- DEV 1520/50/xx** - Multi Channel L-Band Redundancy Switch, 50 Ohm SMA (f)
- DEV 1520/75/xx** - Multi Channel L-Band Redundancy Switch, 75 Ohm Precision F (f)
- DEV 1530/xx** - Multi Channel CATV-Band Redundancy Switch, 75 Ohm Precision F (f)
- DEV 1720/xx** - Multi Channel CATV-Band Switch with Monitoring Port, 75 Ohm BNC (f)
- DEV 1820/xx** - Multi Channel ASI Redundancy Switch, 75 Ohm BNC (f)

### Features:

- Series of Multi Channel DPST Switches for different Purposes
- Available with 4, 8, 12, or 16 Switch Modules (“/xx”)
- Comprehensive Web Interface for Surveillance and Setup of the Device
- Web Interface Option for comfortable Configuration and Control, providing either Autonomous Switching or Time Scheduled Switching Capability
- Remote Control Protocol Support, e.g. SNMP
- Digital Interface Options available
- Dual Redundant Power Supplies

### Application Areas:

- Satellite Ground Stations
- Cable Head End Stations
- Transmission Studios



Front DEV 1520/zz/12



Rear DEV 1520/75/12

### The Situation

Different fields of application require the application of switches, where the output is fed by one of two signal sources (DPST, double pole single throw (2:1)) or where the input signal can be routed to one of two output ports (SPDT, single pole double throw (1:2)). Usually, the number of the same type of switches varies, due to the requirements of the application.

### DEV worked out a Solution

The DEV 1x20/xx and DEV 1530/xx were developed for the professional use. Basically, the aim of this series of multi channel switches is to cover the requirements for a number of DPST or SPDT switches integrated in a compact rack-mountable chassis.

The devices support the individual switching of each channel or the simultaneous switching of a group of channels. Products with sensing switch modules applied, even provide autonomous switching capability, i.e. based on the RF level measured for each input port, the device decides to automatically switch a channel or a group to the secondary input(s) without any external interaction. If Option 28 is applied, the device is even enabled to switch back to the primary input(s) considering an adjustable offset.

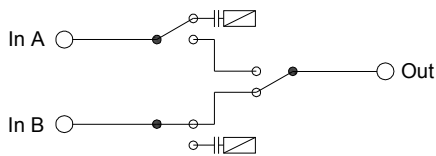
### The Technical Concept

The common base of the DEV 1x20/xx and the DEV 1530/xx is a 19" 3 RU chassis prepared for the integration of various switch modules. The field of application is indicated by the different model numbers, please refer to the next page, where the functionality of the different switch modules is explained. The products of this series are available with a different number of switch modules installed, indicated by "/xx" which can be either /4, /8, /12, or /16.

There are various possibilities to operate the product: First, there is the operation via the device panel, enabling the local control. The default Basic Web Interface is installed for checking the health status of the device and for changing the basic setup of the device. The product is (DEV 1520/zz/xx & DEV 1530/zz) or can be equipped with the Web Interface Option (Option 78). With this Web Interface, the devices either provide autonomous switching capability (DEV 1520/zz/xx & DEV 1530/zz) or provide time scheduled switching.

Additionally, the implementation of protocols (Sandar Prosan, Leitch, QEC, SNMP) or of a digital interface option enables the remote control and surveillance of the device.

## Functionality of the Different Switch Modules

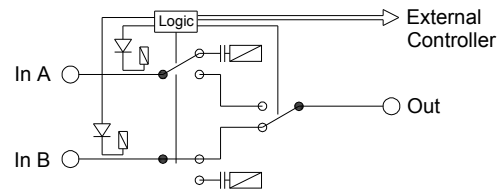


### DEV 1220: DEV 11-0051 – DPST Switch Module

For the frequency range DC...2.5 GHz in 50 Ohm with SMA connectors.

The common output port can be switched to one of two input ports (DPST, Double Pole Single Throw (2:1)).

Due to the fact that the signal is routed via relays only, the module can be used in reverse direction as well, i.e. to realize a SPDT (Single Pole Double Throw (1:2)) switch.



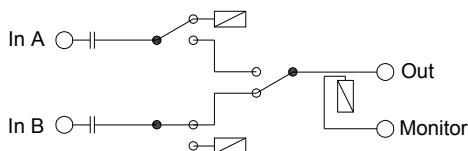
### DEV 1520/50, DEV 1520/75, & DEV 1530: DEV 11-0014, DEV 11-0026 or DEV 11-0102, & DEV 11-0034 - DPST Sensing Switch Modules

For L-Band applications (DC, 950...2150 MHz, DEV 11-0014 (50 Ohm, SMA), DEV 11-0026 & DEV 11-0102 (75 Ohm, Precision F)) or CATV-Band applications (DC, 47...862 MHz, DEV 11-0034 (75 Ohm, Precision F)).

Two input ports can be switched to one output port.

Both input ports are individually monitored for the user defined RF threshold level. Alarming functionality is provided. The device is able to control the switching autonomously. The module is able to pass an external 10 MHz reference signal.

If ordered with the high power RF sensing range option (Option 27), the DEV 1520/75 is equipped with modules DEV 11-0102, instead of modules DEV 11-0026.



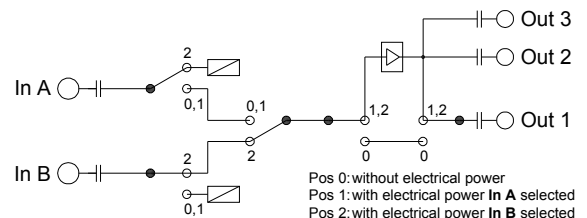
### DEV 1720: DEV 11-0031 or DEV 11-0097- (extended) CATV-Band Switch Modules with (or without) Monitor Port

For CATV-Band applications in 75 Ohm with BNC connectors.

The output port can be switched to one of two input ports.

Without Option 62, the module 11-0031 is applied in the DEV 1720 covering the frequency range 47...862 MHz. The module provides a monitoring port.

If ordered with Option 62 the module 11-0097 is applied in the DEV 1720. This passive module does not provide a monitoring port, but covers the frequency range 47...1500 MHz and can be used for ASI signals as well.



### DEV 1820: DEV 14-0068- ASI Redundancy Switch Module

For ASI signal applications in 75 Ohm with BNC connectors.

The module combines a 2:1 input selection and a 1:3 active distribution amplifier for ASI signals. One of two inputs feed the three outputs which are carrying the same signal.

The signal transmission of DC is blocked.

## Technical Data

### DEV 1x20 / DEV 1530 - Multi Channel Switch Chassis

#### Capacity

Number of slots for switch modules	4 (DEV 1x20/4, DEV 1530/4) 8 (DEV 1x20/8, DEV 1530/8) 12 (DEV 1x20/12, DEV 1530/12) 16 (DEV 1x20/16, DEV 1530/16)
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#### Remote Communication

Interfaces (connectors)	<ul style="list-style-type: none"> <li>• Ethernet (RJ-45);</li> <li>• serial interface RS 232 (optional RS 422/RS 485) (Sub-D-9 (f));</li> <li>• optional digital interface (Sub-D-37 (m)).</li> </ul>
Remote control & surveillance (interface)	<ul style="list-style-type: none"> <li>• via Web Interface (Ethernet);</li> <li>• via SNMP (Ethernet);</li> <li>• via Sandar Prosan protocol (serial interface); <i>OR</i></li> <li>• via Leitch protocol (Ethernet/Telnet (up to 7 sessions) and via serial interface); <i>OR</i></li> <li>• via QEC protocol Ethernet (Telnet port 23) and via serial interface).</li> </ul>

#### Redundant Power Supply

Redundant power supplies	100...240 V AC supplied by two different lines
Power consumption	<100 VA

#### Potential Free Contacts

Alarm connector	Sub-D-9 (m)
Contact load	60 V; 300 mA
Summary Alarm	Via remote interface and via potential free contacts

Two Stage Alarm Signalization for Power Line Failure:

B-Alarm	One power supply unit does not deliver any secondary power.
A-Alarm	All power supply units do not deliver any secondary power.

#### General Specifications

Housing	19" (483 mm), 3 RU (133 mm), 495 mm depth
Weight	~9...12 kg
Environmental conditions	ETS 300019 Part 1-3 Class 3.1

### Technical Data (cont.)

#### DEV 1220: DEV 11-0051 – DPST Switch Module, DC...2.5 GHz, 50 Ohm, SMA (f)

##### RF Specifications

Frequency range	DC...2.5 GHz	
Number of inputs	2	
Number of outputs	1	
Impedance, connectors	50 Ohm, SMA (f)	
Damage level	+30 dBm	
Return loss selected path	>14 dB, typical 16 dB	
Return loss not selected path	>14 dB, typical 16 dB	
Insertion loss	<2 dB	
Isolation on/off	>50 dB	
Relay type	latching	
Contact rating	28 V DC, 250 mA	
Switching cycles	>10E6	(no DC)
	>10E5	(28 V DC, 250 mA)

#### DEV 1520/50: DEV 11-0014 – DPST Sensing Switch Module, L-Band, 50 Ohm, SMA (f)

#### DEV 1520/75: DEV 11-0026 – DPST Sensing Switch Module, L-Band, 75 Ohm, Precision F (f) (or DEV 11-0102 – DPST Sensing Switch Module, L-Band, 75 Ohm, Precision F (f), high power)

#### DEV 1530: DEV 11-0034 – DPST Sensing Switch Module, CATV-Band, 75 Ohm, Precision F (f)

##### RF Specifications

Frequency range	DC, 47...862 MHz	(DEV 11-0034)
	DC, 950...2150 MHz	(DEV 11-0014, DEV 11-0026, DEV 11-0102)
Number of inputs	2	
Number of outputs	1	
Impedance, connectors	50 Ohm, SMA (f)	(DEV 11-0014)
	75 Ohm, Precision F (f)	(DEV 11-0026, DEV 11-0034, DEV 11-0102)
Damage level	+10 dBm	(DEV 11-0034)
	+15 dBm	(DEV 11-0014, DEV 11-0026)
	+40 dBm	(DEV 11-0102)
Nominal input level	0 dBm	
Return loss selected path	>14 dB, typical 16 dB	
Return loss not selected path	>14 dB, typical 16 dB	
Insertion loss	<2 dB	
Frequency response	±0.5 dB	
Relay type	latching	
Switching cycles	>10E6	(no DC)

##### RF Sensing

Adjustable threshold level	-10 dBm > threshold level > -55 dBm	(DEV 11-0014, DEV 11-0026, DEV 11-0034)
		(DEV factory setting: -30 dBm)
	+30 dBm > threshold level > -10 dBm	(DEV 11-0102)
		(DEV factory setting: 0 dBm)
Alarm indication	via LED and via remote interface	

**Technical Data (cont.)**

**DEV 1720: DEV 11-0031 – DPST Switch Module w/ Monitor Port, CATV-Band, 75 Ohm, BNC (f)**  
**(or DEV 11-0097 – DPST Switch Module w/o Monitor Port, extended CATV-Band, 75 Ohm, BNC (f))**

**RF Specifications**

Frequency range	47...862 MHz	(DEV 11-0031)
	47...1500 MHz	(DEV 11-0097)
Number of inputs	2	
Number of outputs	1	
Impedance, connectors	75 Ohm, BNC (f)	
Damage level	+30 dBm	
Return loss selected path	>23 dB @ 70 MHz	
	>18 dB @ 140 MHz	
	>14 dB @ 700 MHz, typical 16 dB	
Return loss not selected path	>23 dB @ 70 MHz	
	>18 dB @ 140 MHz	
	>14 dB @ 700 MHz, typical 16 dB	
Insertion loss	<2 dB	
Isolation on/off	>80 dB @ 140 MHz	
	>55 dB @ 700 MHz	
Relay type	failsafe	
Switching cycles	10E6	

**Monitoring Port (DEV 11-0031 only)**

Impedance, connector	75 Ohm, BNC (f)
Return loss	>18dB
Insertion loss	= output level - 20±3 dB

**DEV 1820: DEV 14-0068 - ASI Redundancy Switch Module, 75 Ohm, BNC (f)**

Signal type	ASI / 0.8 V
Transmission rate	30...540 MBit/s
Number of inputs	2
Number of outputs	3
Impedance, connectors	75 Ohm, BNC (f)
Input level	100...800 mV
Output level	>600 mV
Isolation on/off	>50 dB
Relay type	failsafe
Switching cycles	10E6

## Order Information

The “**xx**” in the following stands for the number of channels, which can be **4, 8, 12, or 16**. Please specify this number for the order of the selected product.

DEV 1220/ <b>xx</b>	<b>xx</b>	Channel DPST Switch, 50 Ohm SMA (f)
DEV 1520/50/ <b>xx</b>	<b>xx</b>	Channel L-Band Redundancy Switch, 50 Ohm SMA (f)
DEV 1520/75/ <b>xx</b>	<b>xx</b>	Channel L-Band Redundancy Switch, 75 Ohm Precision F (f)
DEV 1530/ <b>xx</b>	<b>xx</b>	Channel CATV -Band Redundancy Switch, 75 Ohm Precision F (f)
DEV 1720/ <b>xx</b>	<b>xx</b>	Channel CATV-Band Switch with Monitoring Port, 75 Ohm BNC (f)
DEV 1820/ <b>xx</b>	<b>xx</b>	Channel ASI Redundancy Switch, 75 Ohm BNC (f)

Option 27 for DEV 1520/75/**xx** only:  
High Power RF Sensing Range: -10...+30 dBm instead of -55...-10 dBm

Option 28 for DEV 1520/zz/**xx** and DEV 1530/**xx** only:  
Automatic Switch Back

Option 52 RS 422 instead of RS 232

Option 53 RS 485 instead of RS 232

Option 56 Digital Interface 24 V for up to 16 channels

Option 57 Digital Interface 12 V for up to 16 channels

Option 62 for DEV 1720/**xx** only:  
DPST Switch without Monitoring Port, 47...1500 MHz, 75 Ohm BNC (f)

Option 78 Web Interface Option (can be ordered multiple times)

Option 83 The chassis is prepared for the number of channels which are required in the application finally, but is delivered with 4 switch modules less. I.e. Option 83 can be ordered in different quantities depending on the type of model (“**xx**”):

- up to 3 times for a 16 channel product (/16),
- up to 2 times for a 12 channel product (/12), and
- max. once for an 8 channel product (/8).

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Rev. 07-DEC-2011