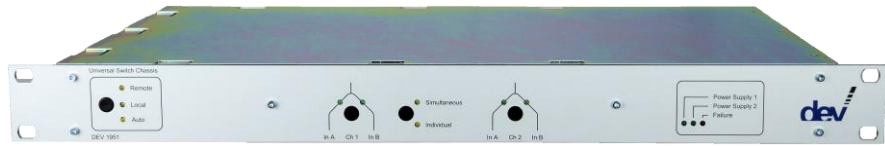


Universal Switch Chassis 1 RU



The final product may vary from the above image depending on the options selected.

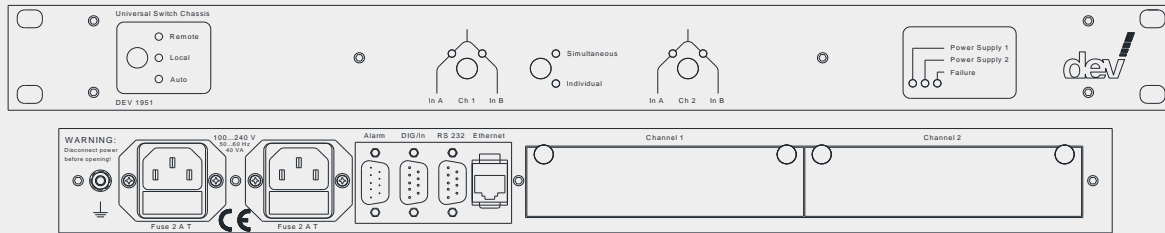
Product:
DEV 1951 Universal Switch Chassis 1 RU

Modules:

Module	Functionality	Switching Capabilities							Frequency Range	Frequency Bands					Technical Data on Page
		DPST Switch	DPST Sensing Switch	Transfer Switch	Passive Splitter	Ethernet Switch	ASI...3G Switch or DA	E1/T1 Switch		Optical Switch	up to 1006 MHz	L-Band	Broadband	Ethernet	
DEV 11-0005	X								X						3
DEV 11-0009	X										X				3
DEV 11-0010		X								X					4
DEV 11-0011		X							X						4
DEV 11-0024	X										X				5
DEV 11-0027			X								X				5
DEV 11-0028	X										X				6
DEV 11-0033	X										X				6
DEV 11-0050	X										X				3
DEV 11-0057			X						X						5
DEV 11-0058		X								X					4
DEV 11-0107		X								X					4
DEV 11-0108		X							X						4
DEV 13-0169				X					X						7
DEV 13-0170				X						X					7
DEV 13-0171				X						X					7
DEV 13-0174				X						X					7
DEV 13-0366								X							7
DEV 13-0367								X							7
DEV 13-0368								X							7
DEV 14-0014					X							X			8
DEV 14-0087						X							X		8
DEV 14-0088						X							X		8
DEV 14-0091						X							X		8
DEV 14-0093						X							X		8
DEV 14-0095						X							X		8
DEV 14-0102						X							X		8
DEV 14-0110							X							X	9

Technical Data

DEV 1951 Universal Switch Chassis 1 RU



Capacity

Number of Slots 2

Remote Communication

Interfaces (Connectors)

- Ethernet (RJ-45)
- Serial Interface RS 232 (Sub-D-9 (f))
- Digital Interface (Sub-D-9 (m))

Remote Control & Surveillance (Interface)

- via Web Interface (Ethernet);
- via SNMP (Ethernet);
- via Sandar Prosan Protocol (Serial Interface); **OR**
- via Leitch Protocol (Ethernet/Telnet & Serial Interface); **OR**
- via QEC Protocol (Ethernet/Telnet & Serial Interface).

Redundant Power Supply

Supply Voltage 100...240 V AC supplied by two different Lines
Power Consumption <40 VA

Dry Contacts

Alarm Connector Sub-D-9 (m)
Contact Load 60 V; 300 mA
Summary Alarm Via Remote Interface and via dry Contacts

Two Stage Alarm Signalization for Power Line Failure:

B-Alarm One Power Supply Unit is defective.
A-Alarm All Power Supply Units are defective.

General Specifications

Size 19" (483 mm) Width, 1 RU (44 mm) Height, 285 mm Depth
Weight ~5 kg
Environmental Conditions ETS 300019 Part 1-3 Class 3.1E

Option 22 Main Backup Swap

In combination with sensing switch module(s) (or with ASI/SDI switch module(s)), this option enables the dynamic change of main and backup assignment of the primary input and the secondary input. I.e. the conditions for the autonomous switching from the secondary to the primary input are the same as for the (standard) autonomous switching from the primary to the secondary input.

Option 28 Automatic Switch Back

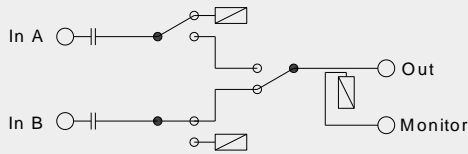
In combination with sensing switch module(s) (or ASI/SDI switch module(s)) this option enables the autonomous switch back from the secondary to the primary input based on the RF signal level information (on the digital signal quality, respectively) in combination with an adjustable hysteresis (for sensing switch modules) or an adjustable delay (for ASI/SDI switch modules).

Option 37 TRAC

With "Trap Receiver Action Controller" (TRAC), the device is able to perform switching actions based on industry standard SNMP traps received from any external equipment without additional M&C software. In addition, the IP Monitoring functionality checks permanently the availability of external equipment used in any TRAC configuration. The device is able to command itself and other equipment via SNMP.

Technical Data (cont.)

DEV 11-0005 DPST Switch Module with Monitor Port; 47...1006 MHz; 75 Ohm, BNC (f)



RF Specifications

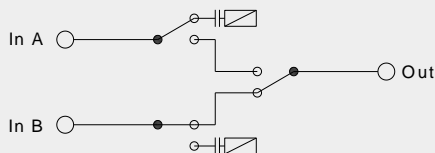
Frequency Range	47...1006 MHz
Number of Inputs / Outputs	2 / 1 + Monitor Port
Impedance, Connectors	75 Ohm, BNC (f)
Damage Level	+30 dBm
Return Loss selected Path	>23 dB @ 70 MHz >18 dB @ 140 MHz >14 dB @ 700 MHz, typical 16 dB
Return Loss not selected Path	>23 dB @ 70 MHz >18 dB @ 140 MHz >14 dB @ 700 MHz, typical 16 dB
Insertion Loss	<2 dB
Isolation on/off	>80 dB @ 140 MHz >55 dB @ 700 MHz >50 dB @ 1000 MHz
Relay Type	Failsafe
Switching Cycles	>10E6

Monitor Port

Impedance, Connector	75 Ohm, BNC (f)
Return Loss	>18 dB
Insertion Loss	= Output Level - 20±3 dB

DEV 11-0009 DPST Switch Module; DC...2500 MHz; 50 Ohm, N (f)

DEV 11-0050 DPST Switch Module, DC...2500 MHz, 50 Ohm, SMA (f)

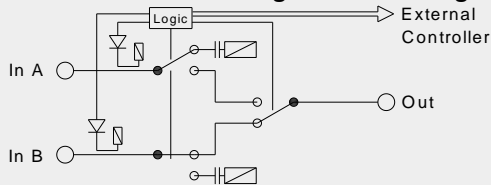


RF Specifications

Frequency Range	DC...2500 MHz
Impedance, Connectors	DEV 11-0009: 50 Ohm, N (f) DEV 11-0050: 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	>60 dB (up to 1006 MHz) >40 dB (1006...2500 MHz)
Relay Type	Latching
Contact Rating	28 V DC, 250 mA
Switching Cycles	>10E6 (no DC) >10E5 (28 V DC, 250 mA)

Technical Data (cont.)

DEV 11-0010	DPST Sensing Switch Module; DC, 950...2150 MHz; 75 Ohm, F (f)
DEV 11-0011	DPST Sensing Switch Module; DC, 47...1006 MHz; 75 Ohm, F (f)
DEV 11-0058	DPST Sensing Switch Module; DC, 950...2150 MHz; 50 Ohm, SMA (f)
DEV 11-0107	DPST High Power Sensing Switch Module; DC, 950...2150 MHz; 75 Ohm, F (f)
DEV 11-0108	DPST High Power Sensing Switch Module; DC, 47...1006 MHz; 75 Ohm, F (f)

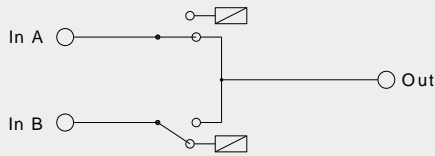


RF Specifications

Frequency Range	DEV 11-0011, DEV 11-0108: DC, 47...1006 MHz
Impedance, Connectors	DEV 11-0010, DEV 11-0058, DEV 11-0107: DC, 950...2150 MHz DEV 11-0058: 50 Ohm, SMA (f) DEV 11-0010, DEV 11-0011, DEV 11-0107, and DEV 11-0108: 75 Ohm, precision F (f)
Damage Level	DEV 11-0011: +10 dBm DEV 11-0010, DEV 11-0058: +15 dBm DEV 11-0107, DEV 11-0108: +40 dBm
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	DEV 11-0058: <2.5 dB DEV 11-0010, DEV 11-0011, DEV 11-0107, and DEV 11-0108: <2 dB
Isolation on/off	DEV 11-0011: >55 dB DEV 11-0058, DEV 11-0010, DEV 11-0107, DEV 11-0108: >45 dB
Flatness	±0.5 dB (over entire Band) ±0.3 dB (in any 36 MHz Interval (DEV 11-0010, DEV 11-0058, DEV 11-0107)) ±0.2 dB (in any 8 MHz Interval (DEV 11-0011, DEV 11-0108))
Relay Type	Latching
Switching Cycles	>10E6 (no DC)
RF Sensing	
Adjustable Threshold Level	DEV 11-0010: 0 dBm > Threshold Level > -50 dBm DEV 11-0011, DEV 11-0058: 0 dBm > Threshold Level > -60 dBm DEV 11-0107: +30 dBm > Threshold Level > -10 dBm DEV 11-0108: +20 dBm > Threshold Level > -10 dBm
Threshold Level Accuracy	±3 dB
Threshold Repeatability	<0.5 dB

Technical Data (cont.)

DEV 11-0024 DPST Relay Switch Module with Termination; DC...18 GHz; 50 Ohm, SMA (f)

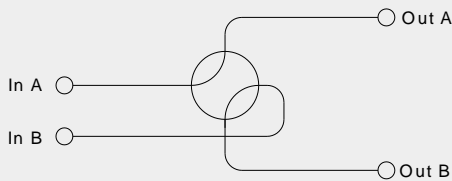


RF Specifications

Frequency Range	DC...18 GHz
Impedance, Connectors	50 Ohm, SMA (f)
Input Level	<+30 dBm
Return Loss selected Path	>14 dB, typical 16 dB
Return Loss not selected Path	>14 dB, typical 16 dB
Insertion Loss	<0.5 dB
Isolation on/off	>60 dB
Relay Type	Latching
Contact Rating	28 V DC, 250 mA
Switching Cycles	>10E6 (no DC) >10E5 (28 V DC, 250 mA)

DEV 11-0027 Relay Transfer Switch Module; DC...18 GHz; 50 Ohm, SMA (f)

DEV 11-0057 Transfer Switch Module; DC...1006 MHz; 75 Ohm, BNC (f)

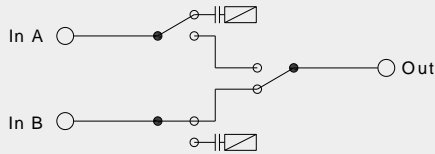


RF Specifications

Frequency Range	DEV 11-0057: DC...1006 MHz DEV 11-0027: DC...18 GHz
Number of Inputs / Outputs	2 / 2
Impedance, Connectors	DEV 11-0027: 50 Ohm, SMA (f) DEV 11-0057: 75 Ohm, BNC (f)
Input Level	<+30 dBm
Return Loss (In A – Out A, In B – Out B)	DEV 11-0027: >14 dB, typical 16 dB DEV 11-0057: >18 dB
Return Loss (In A – Out B, In B – Out A)	>14 dB, typical 16 dB
Insertion Loss	DEV 11-0027: <0.5 dB DEV 11-0057: <1 dB
Isolation on/off	DEV 11-0027: >60 dB DEV 11-0057: >40 dB
Relay Type	DEV 11-0027: Latching DEV 11-0057: Failsafe
Contact Rating	DEV 11-0027: 28 V DC, 250 mA
Switching Cycles	DEV 11-0027: >10E6 (no DC) >10E5 (28 V DC, 250 mA) DEV 11-0057: >10E6

Technical Data (cont.)

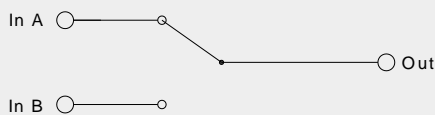
DEV 11-0028 DPST Switch Module; DC, 47...2500 MHz; 75 Ohm, F (f)



RF Specifications

Frequency Range	DC, 47...2500 MHz
Impedance, Connectors	75 Ohm, precision F (f)
Damage Level	+15 dBm
Nominal Input Level	0 dBm
Return Loss selected Path	>16 dB (DC...2300 MHz) >13 dB (2300...2500 MHz)
Return Loss not selected Path	>14 dB (47...2300 MHz) >10 dB (2300...2500 MHz)
Insertion Loss	<1.2 dB (DC...1006 MHz) <1.5 dB (950...2150 MHz) <1.8 dB (2150...2500 MHz)
Isolation on/off	>40 dB
Flatness	±0.8 dB (over entire Band) ±0.5 dB (47...1006 MHz) ±0.3 dB (950...2150 MHz)
Contact Rating	60 V DC, 100 mA
Switching Cycles	>10E6

DEV 11-0033 DPST Relay Switch Module; DC...18 GHz; 50 Ohm, SMA (f)

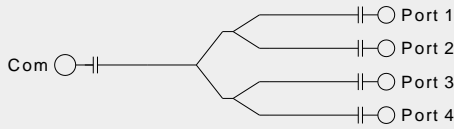


RF Specifications

Frequency Range	DC...18 GHz
Impedance, Connectors	50 Ohm, SMA (f)
Input Level	<+30 dBm
Return Loss	>14 dB, typical 16 dB (selected Path & not selected Path)
Insertion Loss	<0.5 dB
Isolation on/off	>60 dB
Relay Type	Latching
Contact Rating	28 V DC, 250 mA
Switching Cycles	>10E6 (no DC) >10E5 (28 V DC, 250 mA)

Technical Data (cont.)

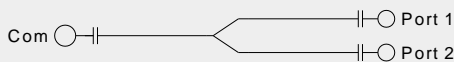
- DEV 13-0169** 1:4/4:1 Splitter/Combiner Module, Passive; 47...1006 MHz; 75 Ohm, F (f)
DEV 13-0170 1:4/4:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 75 Ohm, F (f)
DEV 13-0171 1:4/4:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 50 Ohm, SMA (f)



RF Specifications

Frequency Range	13-0169:	47...1006 MHz
	13-0170, 13-0171:	950...2150 MHz
Impedance, Connectors	13-0171:	50 Ohm, SMA (f)
	13-0169, 13-0170:	75 Ohm, precision F (f)
Return Loss	>14 dB, typical 18 dB	
Insertion Loss	7.5±1 dB	
Flatness	±0.25 dB (within any 36 MHz Interval)	
Isolation	>20 dB, typical 25 dB	
DC blocked	Yes	

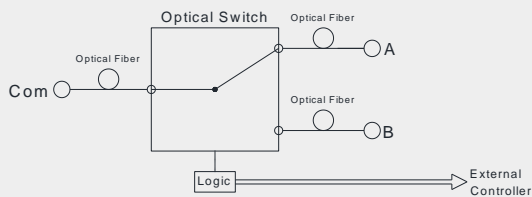
- DEV 13-0174** 1:2/2:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 75 Ohm, F (f)



RF Specifications

Frequency Range	950...2150 MHz	
Impedance, Connectors	75 Ohm, precision F (f)	
Return Loss	>16 dB, typical 18 dB	
Insertion Loss	4±1 dB	
Flatness	±0.2 dB (within any 36 MHz Interval)	
Isolation	>22 dB, typical 25 dB	
DC blocked	Yes	

- DEV 13-0366** 1:2 Optical Switch Module; 1260...1610 nm; SC/APC
DEV 13-0367 1:2 Optical Switch Module; 1260...1610 nm; E2000/HRL
DEV 13-0368 1:2 Optical Switch Module; 1260...1610 nm; FC/APC

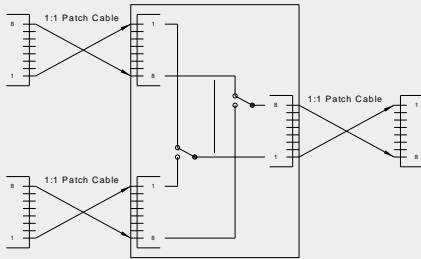


Optical Specifications

Number of optical Inputs	1
Number of optical Outputs	2
Wavelength	1260...1610 nm
Optical Connectors	DEV 13-0366: SC/APC DEV 13-0367: E2000 HRL DEV 13-0368: FC/APC
Optical Insertion Loss	<1.5 dB
Isolation in/out	>55 dB
Max. operational optical Power	500 mW / 27 dBm
Switching Type	Latching
Switching Time	3 ms (typical)

Technical Data (cont.)

DEV 14-0014 Ethernet 2:1/1:2 Switch Module



Specifications

Transmission Rate	Max. 100 MBit/s
Connectors	RJ-45
Relay Type	Latching

DEV 14-0087 DPST Switch Module with DA 1:3; ASI; 75 Ohm, BNC (f)

DEV 14-0088 DPST Switch Module with DA 1:3; ASI¹ / HD-SDI; 75 Ohm, BNC (f)

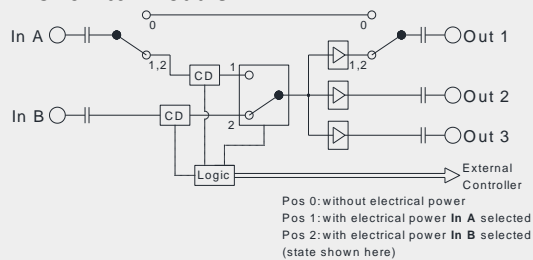
DEV 14-0091 Distribution Amplifier 1:3; ASI; 75 Ohm, BNC (f)

DEV 14-0093 DPST Switch Module with DA 1:3; ASI¹ / 3G-SDI; 75 Ohm, BNC (f)

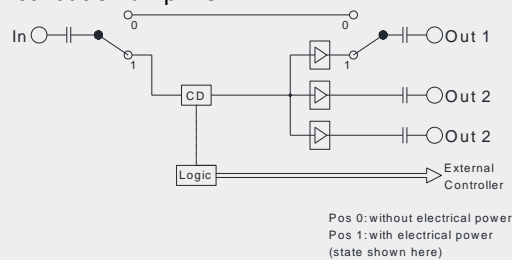
DEV 14-0095 Distribution Amplifier 1:3; ASI¹ / 3G-SDI; 75 Ohm, BNC (f)

DEV 14-0102 Distribution Amplifier 1:3; ASI¹ / HD-SDI; 75 Ohm, BNC (f)

DPST switch module



Distribution amplifier



- The DEV 14-0087 is the successor of the DEV 14-0001 and can be used as direct replacement.
- The DEV 14-0091, the DEV 14-0102, and the DEV 14-0095 are equivalent to a DEV 14-0087, to a DEV 14-0088, or to a DEV 14-0093, but without switching functionality i.e. the distribution modules provide a single input, only (meaning that "In B" is not available).

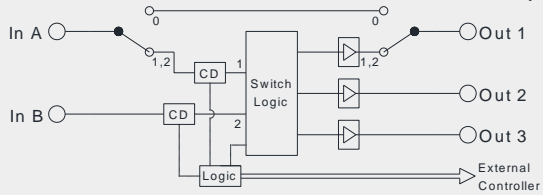
Specifications

Signal Type	14-0087, 14-0091:	ASI; 0.8 V
	14-0088, 14-0102:	SD-SDI (SMPTE 259M) / HD-SDI (SMPTE 292M); 0.8 V
Transmission Rate	14-0093, 14-0095:	3G-SDI (SMPTE 424M); 0.8 V
	14-0087, 14-0091:	ASI
Number of Inputs / Outputs	14-0088, 14-0102:	ASI ¹ / SD-SDI / HD-SDI
	14-0093, 14-0095:	ASI ¹ / SD-SDI / HD-SDI / 3G-SDI
Impedance, Connectors	14-0091, 14-0102, 14-0095:	1 / 3
	14-0087, 14-0088, 14-0093:	2 / 3
Input Level	75 Ohm, BNC (f)	
Output Level	300...800 mV	
Isolation on/off	>600 mV	
Relay Type	>50 dB	
Switching Cycles	Failsafe (DEV 14-0087, DEV 14-0088, and DEV 14-0093, only)	
Automatic Switching Capability	>10E6 (DEV 14-0087, DEV 14-0088, and DEV 14-0093, only)	
	based on Signal Status (DEV 14-0087, DEV 14-0088, and DEV 14-0093)	

Note 1: DEV 14-0088, DEV 14-0093, DEV 14-0095, and DEV 14-0102 deliver an inverted ASI signal on output port 1 (Out 1)

Technical Data (cont.)

DEV 14-0110 DPST Switch Module with DA 1:3; E1/T1; 75 Ohm, BNC (f)



Pos 0: without electrical power
 Pos 1: with electrical power In A selected
 Pos 2: with electrical power In B selected

Specifications

Signal Type	E1 or T1
Number of Inputs / Outputs	2 / 3
Impedance, Connectors	75 Ohm, BNC (f)
Input Level	2.37 V (nominal)
Output Level	2.13...2.60 V, typical 2.37 V
Return Loss	>16 dB, typical 18 dB
Isolation on/off	>50 dB
DC blocked	No

Order Information

Product

DEV 1951 Universal Switch Chassis 1 RU

Options:

Option 22	Main Backup Swap
Option 28	Automatic Switch Back
Option 37	TRAC
Option 81	Blind Plate (to cover an empty Slot)

Modules

DEV 11-0005	DPST Switch Module with Monitor Port; 47...1006 MHz; 75 Ohm, BNC (f)
DEV 11-0009	DPST Switch Module; DC...2500 MHz; 50 Ohm, N (f)
DEV 11-0010	DPST Sensing Switch Module; DC, 950...2150 MHz; 75 Ohm, F (f)
DEV 11-0011	DPST Sensing Switch Module; DC, 47...1006 MHz; 75 Ohm, F (f)
DEV 11-0024	DPST Relay Switch Module with Termination; DC...18 GHz; 50 Ohm, SMA (f)
DEV 11-0027	Relay Transfer Switch Module; DC...18 GHz; 50 Ohm, SMA (f)
DEV 11-0028	DPST Switch Module; DC, 47...2500 MHz; 75 Ohm, F (f)
DEV 11-0033	DPST Relay Switch Module; DC...18 GHz; 50 Ohm, SMA (f)
DEV 11-0050	DPST Switch Module; DC...2500 MHz; 50 Ohm, SMA (f)
DEV 11-0057	Transfer Switch Module; DC...1006 MHz; 75 Ohm, BNC (f)
DEV 11-0058	DPST Sensing Switch Module; DC, 950...2150 MHz; 50 Ohm, SMA (f)
DEV 11-0107	DPST High Power Sensing Switch Module; DC, 950...2150 MHz; 75 Ohm, F (f)
DEV 11-0108	DPST High Power Sensing Switch Module; DC, 47...1006 MHz; 75 Ohm, F (f)
DEV 13-0169	1:4/4:1 Splitter/Combiner Module, Passive; 47...1006 MHz; 75 Ohm, F (f)
DEV 13-0170	1:4/4:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 75 Ohm, F (f)
DEV 13-0171	1:4/4:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 50 Ohm, SMA (f)
DEV 13-0174	1:2/2:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 75 Ohm, F (f)
DEV 13-0366	1:2 Optical Switch Module; 1260...1610 nm; SC/APC
DEV 13-0367	1:2 Optical Switch Module; 1260...1610 nm; E2000/HRL
DEV 13-0368	1:2 Optical Switch Module; 1260...1610 nm; FC/APC
DEV 14-0014	Ethernet 2:1/1:2 Switch Module
DEV 14-0087	DPST Switch Module with DA 1:3; ASI; 75 Ohm, BNC (f)
DEV 14-0088	DPST Switch Module with DA 1:3; ASI / HD-SDI; 75 Ohm, BNC (f)
DEV 14-0091	Distribution Amplifier 1:3; ASI; 75 Ohm, BNC (f)
DEV 14-0093	DPST Switch Module with DA 1:3; ASI / 3G-SDI; 75 Ohm, BNC (f)
DEV 14-0095	Distribution Amplifier 1:3; ASI / 3G-SDI; 75 Ohm, BNC (f)
DEV 14-0102	Distribution Amplifier 1:3; ASI / HD-SDI; 75 Ohm, BNC (f)
DEV 14-0110	DPST Switch Module with DA 1:3; E1/T1; 75 Ohm, BNC (f)

Contact

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Technical specifications are subject to change