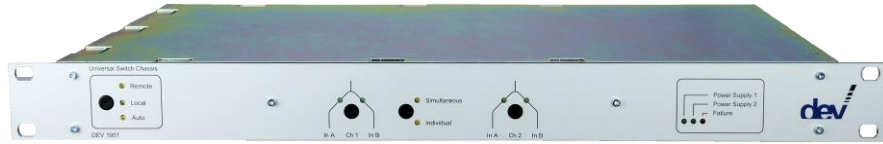


Universal Switch Chassis 1 RU



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

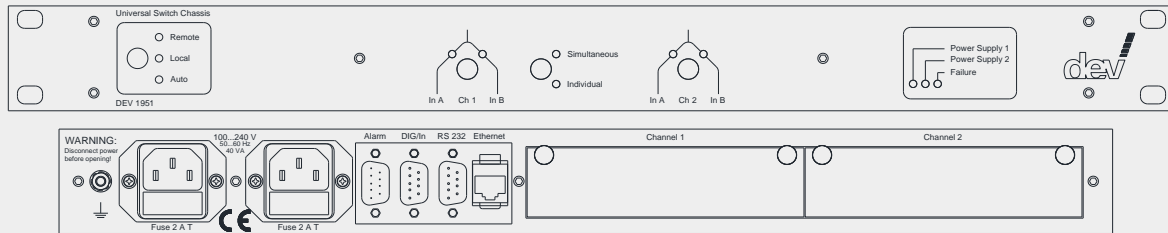
Product
DEV 1951 Universal Switch Chassis 1 RU

Modules

Module	Functionality						Frequency Range				Technical Data on Page
	DPST Switch	DPST Sensing Switch	Transfer Switch	Passive Splitter	ASI...3G Switch or DA	Optical Switch	up to 1006 MHz	L-Band	Broadband	ASI / SDI/HD / SDI/3G	
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 11-0117		X					X				4
DEV 11-0119		X					X				4
DEV 11-0121		X						X			4
DEV 11-0123		X		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 13-0439				X				X			7
DEV 14-0087					X				X		8
DEV 14-0091					X				X		8
DEV 14-0093					X				X		8
DEV 14-0095					X				X		8

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 28 Automatic Switch Back / Main Backup Swap

Either functionality can be selected via a configuration menu:

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).

Main Backup Swap:

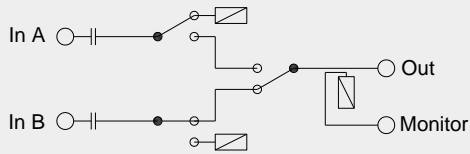
In combination with sensing switch module(s) (or with ASI/SDI switch module(s)), this option enables the dynamic change of main and backup assignment of the primary input and the secondary input. I.e., the conditions for the autonomous switching from the secondary to the primary input are the same as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

Option 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

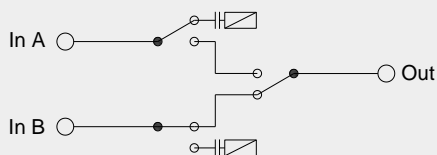
Frequency Range	47...1006 MHz
Number of Inputs / Outputs	2 / 1 + Monitor Port
Impedance, Connectors	75 Ohm, BNC (f)
Damage Level	+30 dBm
Return Loss selected Path	>23 dB @ 70 MHz >18 dB @ 140 MHz >14 dB @ 700 MHz, typical 16 dB
Return Loss not selected Path	>23 dB @ 70 MHz >18 dB @ 140 MHz >14 dB @ 700 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)

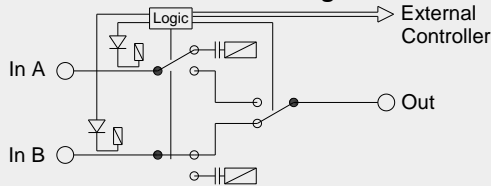


RF Specifications

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...2300 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 11-0117	DPST Sensing Switch Module; DC, 47...1006 MHz; 75 Ohm, BNC (f)
DEV 11-0119	DPST Sensing Switch Module; DC, 47...1006 MHz; 50 Ohm, BNC (f)
DEV 11-0121	DPST Sensing Switch Module; DC, 950...2150 MHz; 50 Ohm, BNC (f)
DEV 11-0123	DPST Sensing Switch Module; DC, 950...2150 MHz; 75 Ohm, F (f); Dual Output Port

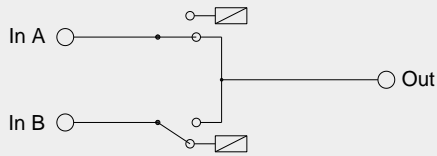


RF Specifications

Frequency Range	DEV 11-0011, DEV 11-0108, DEV 11-0117, DEV 11-0119:	DC, 47...1006 MHz
	DEV 11-0010, DEV 11-0107, DEV 11-0121, DEV 11-0123:	DC, 950...2150 MHz
	DEV 11-0058:	DC, 950...2300 MHz
Number of Inputs / Outputs	2 / 1 (DEV 11-0123: 2 / 2)	
Impedance, Connectors	DEV 11-0058:	50 Ohm, SMA (f)
	DEV 11-0119, DEV 11-0121:	50 Ohm, BNC (f)
	DEV 11-0010, DEV 11-0011, DEV 11-0107, DEV 11-0108, DEV 11-0123:	75 Ohm, precision F (f)
	DEV 11-0117:	75 Ohm, BNC (f)
Damage Level	DEV 11-0011, DEV 11-0117, DEV 11-0119:	+10 dBm
	DEV 11-0010, DEV 11-0058, DEV 11-0121, DEV 11-0123:	+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 11-0010, DEV 11-0011, DEV 11-0107, DEV 11-0108, DEV 11-0117, DEV 11-0119:	<2 dB
	DEV 11-0058, DEV 11-0121:	<2.5 dB
	DEV 11-0123:	<6 dB
Isolation on/off	DEV 11-0058, DEV 11-0010, DEV 11-0107, DEV 11-0108, DEV 11-0121, DEV 11-0123:	>45 dB
	DEV 11-0011, DEV 11-0117, DEV 11-0119:	>55 dB
Flatness	±0.5 dB (over entire Band)	
	DEV 11-0010, DEV 11-0058, DEV 11-0107, DEV 11-0121, DEV 11-0123:	±0.3 dB (in any 36 MHz Interval)
	DEV 11-0011, DEV 11-0108, DEV 11-0117, DEV 11-0119:	±0.2 dB (in any 8 MHz Interval)
Relay Type	Latching	
Switching Cycles	>10E6 (no DC)	
RF Sensing		
Adjustable Threshold Level	DEV 11-0108:	+20 dBm > Threshold Level > -10 dBm
	DEV 11-0107:	+30 dBm > Threshold Level > -10 dBm
	DEV 11-0010:	0 dBm > Threshold Level > -50 dBm
	DEV 11-0011, DEV 11-0058, DEV 11-0117, DEV 11-0119, DEV 11-0121, DEV 11-0123:	0 dBm > Threshold Level > -60 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)

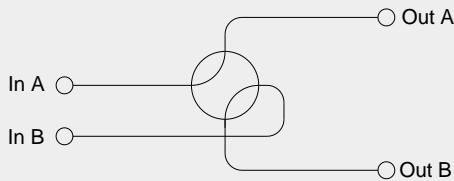


RF Specifications

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)

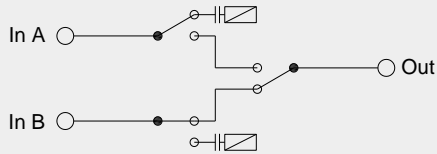


RF Specifications

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	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.)

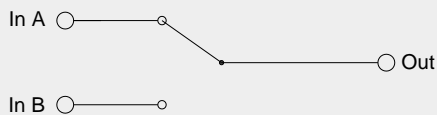
DEV 11-0028 DPST Switch Module; DC, 47...2500 MHz; 75 Ohm, F (f)



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)

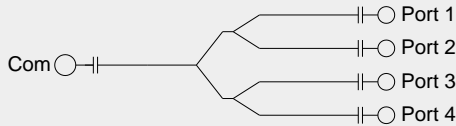


RF Specifications

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.)

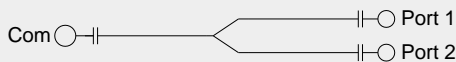
- DEV 13-0169** 1:4/4:1 Splitter/Combiner Module, Passive; 47...1006 MHz; 75 Ohm, F (f)
DEV 13-0170 1:4/4:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 75 Ohm, F (f)
DEV 13-0171 1:4/4:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 50 Ohm, SMA (f)



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	

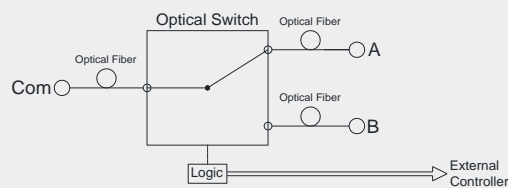
- DEV 13-0174** 1:2/2:1 Splitter/Combiner Module, DC, Passive; 950...2150 MHz; 75 Ohm, F (f)
DEV 13-0439 1:2/2:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 75 Ohm, F (f)



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	DEV 13-0174:	No
	DEV 13-0439:	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



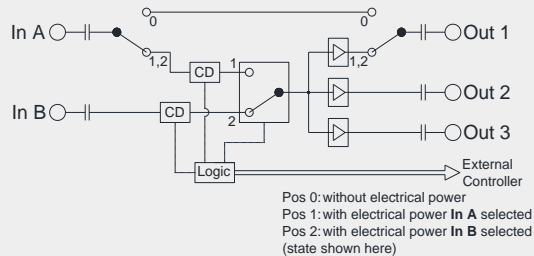
Optical Specifications

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)

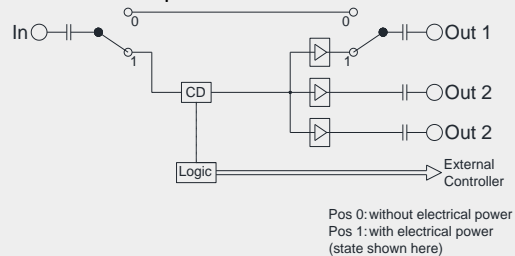
Technical Data (cont.)

- DEV 14-0087** DPST Switch Module with DA 1:3; ASI; 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)

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

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

Order Information

Product

DEV 1951 Universal Switch Chassis 1 RU

Options

Option 28 Automatic Switch Back / Main Backup Swap
 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...2300 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 11-0117 DPST Sensing Switch Module; DC, 47...1006 MHz; 75 Ohm, BNC (f)
 DEV 11-0119 DPST Sensing Switch Module; DC, 47...1006 MHz; 50 Ohm, BNC (f)
 DEV 11-0121 DPST Sensing Switch Module; DC, 950...2150 MHz; 50 Ohm, BNC (f)
 DEV 11-0123 DPST Sensing Switch Module; DC, 950...2150 MHz; 75 Ohm, F (f); Dual Output Port
 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; DC, 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 13-0439 1:2/2:1 Splitter/Combiner Module, Passive; 950...2150 MHz; 75 Ohm, F (f)
 DEV 14-0087 DPST Switch Module with DA 1:3; ASI; 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)

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