The Experts in RF Signal Handling

Universal Switch Chassis

Product:

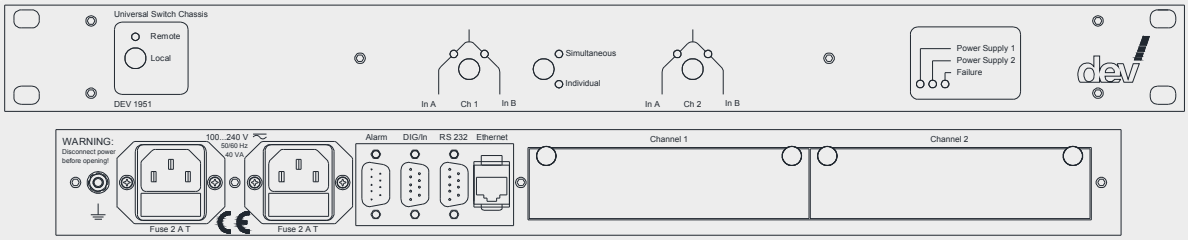
DEV 1951 Dual channel universal switch chassis

Modules:

Module	Functionality	DPST switch	DPST sensing switch	DPDT switch	Passive splitter	Ethernet switch	ASI / SD/HD/3G-SDI	Frequency Range	up to 1003 MHz	L-Band	Broadband	Ethernet	ASI / SD/HD/3G-SDI		Technical Data on Page
DEV 11-0005		X							X						3
DEV 11-0009		X									X				4
DEV 11-0010			X							X					5
DEV 11-0011			X						X						5
DEV 11-0024		X									X				6
DEV 11-0027				X							X				7
DEV 11-0028		X									X				8
DEV 11-0033		X									X				8
DEV 11-0050		X									X				4
DEV 11-0057				X					X						7
DEV 11-0058			X							X					5
DEV 11-0107			X							X					5
DEV 11-0108			X						X						5
DEV 13-0169					X				X						9
DEV 13-0170					X					X					9
DEV 13-0171					X					X					9
DEV 13-0174					X					X					9
DEV 14-0014						X						X			10
DEV 14-0087							X						X		10
DEV 14-0088							X						X		10
DEV 14-0091							X						X		10
DEV 14-0093							X						X		10
DEV 14-0095							X						X		10
DEV 14-0102							X						X		10

Technical Data

DEV 1951 - Dual channel universal switch chassis



Capacity

Number of slots	2

Remote Communication

Interfaces (connectors)	• Ethernet (RJ-45); • serial interface RS 232 (optional RS 422/RS 485) (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 (up to 7 sessions) and via serial interface); **OR** • via QEC protocol (Ethernet (Telnet port 23) and via serial interface).

Redundant Power Supply

Redundant power supplies	100…240 V AC supplied by two different lines; **OR** -40…-56 V DC supplied by two different lines (Option 14)
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:

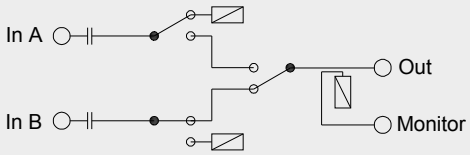
B-Alarm	One power supply unit does not deliver any secondary power.
A-Alarm	All power supply units do not deliver any secondary power.

General Specifications

Size	19“ (483 mm), 1 RU (44 mm), 285 mm depth
Weight	~5 kg
Environmental conditions	ETS 300019 Part 1-3 Class 3.1

Technical Data (cont.)

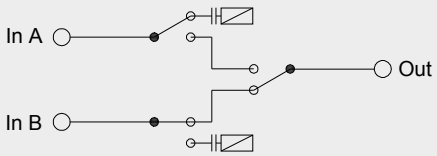
DEV 11-0005 - DPST switch module with monitor port; 47…862 MHz; 75 Ohm, BNC (f)



RF Specifications	
Frequency range	47…862 MHz
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	
Impedance, connector	75 Ohm, BNC (f)
Return loss	>18 dB
Insertion loss	= output level - 20±3 dB

Technical Data (cont.)

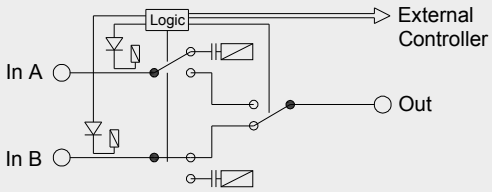
DEV 11-0009 - DPST switch module; DC…2.5 GHz; 50 Ohm, N (f)
DEV 11-0050 - DPST switch module, DC…2.5 GHz, 50 Ohm, SMA (f)



RF Specifications	
Frequency range	DC…2.5 GHz
Number of inputs	2
Number of outputs	1
Impedance, connectors	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	>50 dB (up to 1.8 GHz) >40 dB (1.8…2.5 GHz)
Relay type	latching
Contact rating	28 V DC, 250 mA
Switching cycles	>10E6 (no DC) >10E5 (28 V DC, 250 mA)

Technical Data (cont.)

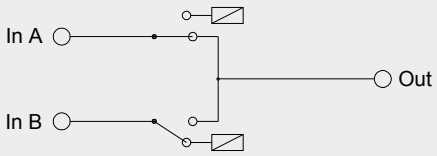
DEV 11-0010 - DPST sensing switch module; DC, 950…2150 MHz; 75 Ohm, F (f)
DEV 11-0011 - DPST sensing switch module; DC, 47…862 MHz; 75 Ohm, F (f)
DEV 11-0058 - DPST sensing switch module; DC, 950…2150 MHz; 50 Ohm, SMA (f)
DEV 11-0107 - DPST high power sensing switch module; DC, 950…2150 MHz; 75 Ohm, F (f)
DEV 11-0108 - DPST high power sensing switch module; DC, 47…862 MHz; 75 Ohm, F (f)



RF Specifications		
Frequency range	DEV 11-0011, DEV 11-0108:	DC, 47…862 MHz
	DEV 11-0010, DEV 11-0058, DEV 11-0107:	DC, 950…2150 MHz
Number of inputs	2	
Number of outputs	1	
Impedance, connectors	DEV 11-0058:	50 Ohm, SMA (f)
	DEV 11-0010, DEV 11-0011, DEV 11-0107, 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	<2 dB	
Frequency response	±0.5 dB	
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	
	(DEV factory setting: 20 dB above minimum level)	
Threshold level accuracy	±3 dBm	
Threshold repeatability	<0.5 dB	

Technical Data (cont.)

DEV 11-0024 - DPST relay switch module with termination; DC…18 GHz; 50 Ohm, SMA (f)

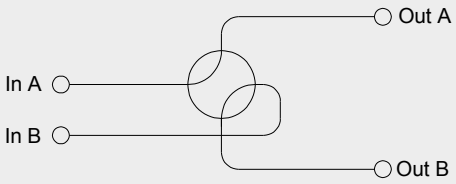


RF Specifications

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)

Technical Data (cont.)

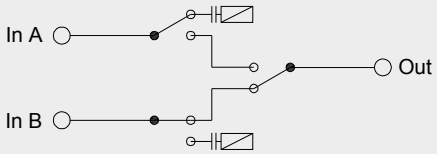
DEV 11-0027 - DPDT relay switch module; DC…18 GHz; 50 Ohm, SMA (f)
DEV 11-0057 - DPDT switch module; DC…862 MHz; 75 Ohm, BNC (f)



RF Specifications	
Frequency range	DEV 11-0057: DC…862 MHz DEV 11-0027: DC…18 GHz
Number of inputs	2
Number of outputs	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.)

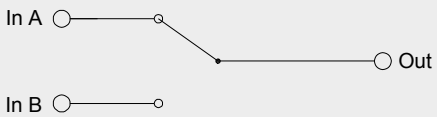
DEV 11-0028 - DPST switch module; DC…2.5 GHz; 75 Ohm, F (f)



RF Specifications

Frequency range	DC…2.5 GHz
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 (DC…2300 MHz) >10 dB (2300…2500 MHz)
Insertion loss	<1.2 dB (DC...1003 MHz) <2.0 dB (950...2150 MHz) <2.5 dB (2150...2500 MHz)
Frequency response	±0.5 dB
Contact rating	60 V DC, 100 mA
Switching cycles	>10E6

DEV 11-0033 - DPST relay switch module; DC…18 GHz; 50 Ohm, SMA (f)

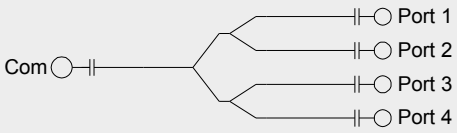


RF Specifications

Frequency range	DC…18 GHz
Impedance, connectors	50 Ohm, SMA (f)
Input level	<+30 dBm
Return loss 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)

Technical Data (cont.)

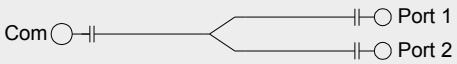
DEV 13-0169 - Passive 1:4 splitter module; 47…862 MHz; 75 Ohm, F (f)
DEV 13-0170 - Passive 1:4 splitter module; 950…2150 MHz; 75 Ohm, F (f)
DEV 13-0171 - Passive 1:4 splitter module; 950…2150 MHz; 50 Ohm, SMA (f)



RF Specifications

Frequency range	13-0169: 47…862 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	>16 dB, typical 18 dB
Insertion loss	7.5±1 dB
Frequency response	±0.25 dB (within any 36 MHz interval)
Isolation	>22 dB, typical 25 dB
DC blocked	yes

DEV 13-0174 - Passive 1:2 splitter module; 950…2150 MHz; 75 Ohm, F (f)

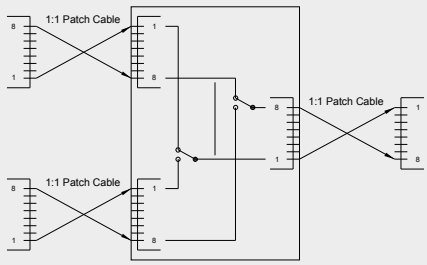


RF Specifications

Frequency range	950…2150 MHz
Impedance, connectors	75 Ohm, precision F (f)
Return loss	>16 dB, typical 18 dB
Insertion loss	4±1 dB
Frequency response	±0.2 dB (within any 36 MHz interval)
Isolation	>22 dB, typical 25 dB
DC blocked	yes

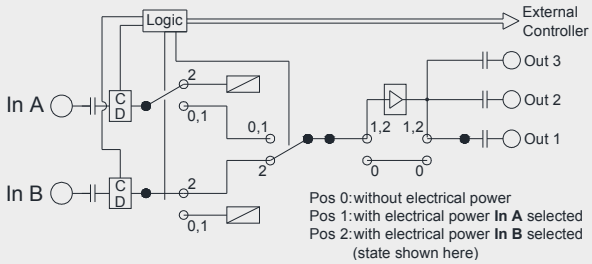
Technical Data (cont.)

DEV 14-0014 - Ethernet 2:1 redundancy switch module



Transmission rate	Max. 100 MBit/s
Connectors	RJ-45

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; SD/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; 3G-SDI; 75 Ohm, BNC (f)
DEV 14-0095 - Distribution amplifier 1:3; 3G-SDI; 75 Ohm, BNC (f)
DEV 14-0102 - Distribution amplifier 1:3; SD/HD-SDI; 75 Ohm, BNC (f)



- 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).

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
	14-0093, 14-0095: 3G-SDI (SMPTE 424M); 0.8 V
Transmission rate	14-0087, 14-0091: ASI
	14-0088, 14-0102: SD/HD-SDI
	14-0093, 14-0095: SD/HD-SDI; 3G-SDI
Number of inputs	14-0091, 14-0102, 14-0095: 1
	14-0087, 14-0088, 14-0093: 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
Automatic switching capability	based on carrier detect sensing (not 14-0091, 14-0102 & 14-0095)

Order Information

Product:	
DEV1951	Dual channel universal switch chassis
Options:	
Option 14	-40…-56 V DC supply voltage
Option 28	Automatic switch back(in combination with sensing switch module(s) and ASI/SDI switch module(s) this option enables the automatic switching in both directions)
Option 37	TRAC Trap Receiver Action Controller
Option 52	RS 422 interface instead of RS 232
Option 53	RS 485 interface instead of RS 232
Option 79	Additional web license
Option 81	Blanking plate (to cover an empty slot)
Modules:	
DEV 11-0005	DPST switch module with monitor port; 47…862 MHz; 75 Ohm, BNC (f)
DEV 11-0009	DPST switch module; DC…2.5 GHz; 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…862 MHz; 75 Ohm, F (f)
DEV 11-0024	DPST relay switch module with termination; DC…18 GHz; 50 Ohm, SMA (f)
DEV 11-0027	DPDT relay switch module; DC…18 GHz; 50 Ohm, SMA (f)
DEV 11-0028	DPST switch module; DC…2.5 GHz; 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…2.5 GHz; 50 Ohm, SMA (f)
DEV 11-0057	DPDT switch module; DC…862 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…862 MHz; 75 Ohm, F (f)
DEV 13-0169	Passive 1:4 splitter module; 47…862 MHz; 75 Ohm, F (f)
DEV 13-0170	Passive 1:4 splitter module; 950…2150 MHz; 75 Ohm, F (f)
DEV 13-0171	Passive 1:4 splitter module; 950…2150 MHz; 50 Ohm, SMA (f)
DEV 13-0174	Passive 1:2 splitter module; 950…2150 MHz; 75 Ohm, F (f)
DEV 14-0014	Ethernet 2:1 redundancy 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; SD/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; 3G-SDI; 75 Ohm, BNC (f)
DEV 14-0095	Distribution amplifier 1:3; 3G-SDI; 75 Ohm, BNC (f)
DEV 14-0102	Distribution amplifier 1:3; SD/HD-SDI; 75 Ohm, BNC (f)

Contact

DEV Systemtechnik GmbH & Co. KG
Grüner Weg 4A
61169 Friedberg
GERMANY
Phone: +49 6031 6975 100
Fax: +49 6031 6975 114
info@dev-systemtechnik.com
www.dev-systemtechnik.com

DEV America LP
info@dev-america.com
www.dev-america.com

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Technical specifications are subject to change