

L-Band Distributing Matrix SIGMA



DEV's new generation RF Matrix Sigma enables the routing of up to 128 inputs to 128 outputs in a 10 RU compact housing. Sigma features enhanced resilience and performance with highest possible flexibility provided by scalable and expandable structure.

THE ART OF ENGINEERING

- ▲ Up to 128x128 in 10 RU
- ▲ (Up to) 512x512 Cluster without additional Hardware (Splitter/Combiner)
- ▲ All Active Modules (including Controller Modules and Power Supply Modules) are accessible at the Front Side and provide Hot-Swap-Capability
- ▲ Availability of various Input Modules and Output Modules
- ▲ Variable Gain (MGC or AGC), Variable Slope and RF Sensing
- ▲ LNB Power, switchable 13/18 V and 22 kHz Tone
- ▲ Full 15" Color Multi-Touch Display as Local User Interface
- ▲ Power Supply and Controller Redundancy
- ▲ Integrated Spectrum Analyzer
- ▲ Easy to use DEV Web Interface with SNMP Support
- ▲ Advanced Software Features:
Secure Lock Operation, TRAC, Signal Recording, Data Backup & Restore



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Technical Data

DEV 19128 mxn Distributing Matrix SIGMA

Capacity

Number of Inputs (m) x Outputs (n)	Up to 128x128
	Configurable in steps of 8 Inputs or 8 Outputs
	Upgradeable via clustering up to 512x512 without external splitters/combiners

RF Specifications

Frequency Range	(Options vIn50, vIn50B, vIn75, vIn75B, vOut50, vOut50B, vOut75, vOut75B) 850...2450 MHz
Impedance, Connectors	50 Ohm or 75 Ohm, SMA (f), F (f), BNC (f)
Damage Level	+20 dBm
Return Loss	>12 dB
Operational Input Level	<-10 dBm
Variable Gain	-20...+30 dB
Flatness	±3.0 dB (over entire Band) ±0.75 dB (in any 36 MHz Interval)
Isolation	Input/Input, Output/Output: typ. 60 dB Input/Output (Crosstalk): typ. 50 dB Off: typ. 70 dB

OIP3	11 dBm
OP1dB	-7 dBm
Group Delay Distortion	<2 ns (in any 36 MHz Interval)
Noise Figure	<22 dB
Relay Type	Semiconductor
Switching time	10 msec. typ.

Optical Specifications

Fiber Type	(Option vInOptSC) Single Mode 9/125 μm
Connector Type	SC/APC
Wavelength	1100...1650 nm
Optical Input Level	-22...0 dBm
Damage optical Input Level	+10 dBm

Remote Communication

Interface (Connector)	Ethernet (RJ-45)
Remote Control & Surveillance (Interface)	<ul style="list-style-type: none"> • via Web Interface (Ethernet) • via SNMP (Ethernet)

Redundant Power Supply

Supply Voltage	100...240 V AC supplied by three different Lines
Power Consumption	<ul style="list-style-type: none"> < 500 VA per line < 1000 VA without LNB powering (2 Power Supply Modules) < 1500 VA in case of LNB powering (3 Power Supply Modules)

General Specifications

Size	19" (483 mm) Width, 10 RU (445 mm) Height, 500 mm Depth
Weight	~35 kg (128x128)
Environmental Conditions	ETS 300019 Part 1-3 Class 3.1E

Technical Data (cont.)

Input and Output Channel Options

The required matrix size of the DEV 19128 is to be specified via the (field upgradable) product version options. The number (1...16) and type (a mix is possible!) of input channels and of output channels is to be selected in multiples of eight:

Option vIn50	8 Input Channels 50 Ohm, SMA (f)
Option vIn50B	8 Input Channels 50 Ohm, BNC (f)
Option vIn75	8 Input Channels 75 Ohm, F (f)
Option vIn75B	8 Input Channels 75 Ohm, BNC (f)
Option vInOptSC	8 Input Channels Optical, SC/APC
Option vOut50	8 Output Channels 50 Ohm, SMA (f)
Option vOut50B	8 Output Channels 50 Ohm, BNC (f)
Option vOut75	8 Output Channels 75 Ohm, F (f)
Option vOut75B	8 Output Channels 75 Ohm, BNC (f)

Option 16 3rd Power Supply

With (the field upgradable) Option 16, the matrix is equipped with a 3rd power supply module. To assure redundancy, this 3rd power supply is mandatory when using the LNB power feature (Option 34).

Option 25 Variable Slope (all Channels)

With Option 25, the matrix provides slope control for all paths.

Variable Slope -5...+5 dB

Option 34 LNB Powering for 8 RF Input Channels

Per Option 34, eight RF input channels of the matrix are capable to deliver LNB power and to select the polarity (vertical (13 V) or horizontal (18 V)) and the band (low band (0 Hz) or high band (22 kHz)) of the LNB. To use the LNB power feature, a 3rd 1 RU power supply (Option 16) is mandatory.

LNB Power & Current Monitoring

LNB Power	max. 350 mA per Input
Voltage and Tone Control	13 V, 18 V and 0 Hz, 22 kHz
Adjustable Level Setting:	
• Upper Alarm Level	• max. 330 mA
• Lower Alarm Level	• min. 50 mA

Option 36 Integrated Spectrum Analyzer

With (the field upgradable) Option 36, the matrix provides integrated spectrum analyzer functionality either to be operated via Web Interface or via the multi-touch display (Option 54). The matrix chassis provides a dedicated external 50 Ohm, SMA (f) spectrum analyzer input port for connecting any signal to be probed.

For the technical data of the spectrum analyzer, please refer to the separate spec sheet.

Note that Option 36 is available in combination with Option 54 (Multi-Touch Display) only.

Option 37 TRAC

With Option 37 "Trap Receiver Action Controller" (TRAC), the matrix is able to perform switching actions based on 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 matrix is able to command itself and other equipment via SNMP.

Option 38 Secure Lock Operation

With Option 38, the matrix provides the ability of Secure Lock Operation for multiple user operation.

While each user can be configured to operate dedicated inputs and outputs, Secure Lock Operation allows user X to lock a switched path while user Y cannot unlock this path to prevent unwanted service interruptions.

An admin user is capable to overwrite any path locked by normal users.

Technical Data (cont.)

Option 48 Input Channel Redundancy

With Option 48, the matrix software provides the ability to configure redundant input channel configurations. Triggered via the integrated RF Sensing functionality an assigned redundancy channel can take over autonomously the signal transport of a main channel. The switching back to the main channel can be performed either manually or automatically.

Option 52 Redundant Controller

With (the field upgradable) Option 52, the matrix is equipped with a second controller module. In case of a malfunction of the main controller, the redundant controller will take over, using the same IP settings and the same MAC address.

Option 54 Multi-Touch Display

With Option 54, the matrix is equipped at the front side with a 15.1" HD full color multi-touch display. With this local user interface, all relevant functionalities are available. Among other functions, it is possible to quickly monitor the status, to switch cross points, to save or to load switching presets, to lock switched paths, to configure the IP address, or to use the optional integrated spectrum analyzer.

Option 59 SIGMA Cluster Preparation for 64 Channels

Per (field upgradable) Option 59, 64 (input or output) channels are prepared for SIGMA clustering which combines physically and logically a number (>1) of DEV 19128 to a single matrix, supporting more than 128 input channels and/or more than 128 output channels.

Thus, larger matrix configurations (up to 512x512) are possible.

Please contact DEV Systemtechnik to discuss the requirements of your SIGMA cluster!

Option 77 Signal Recording

With Option 77, the Web Interface additionally provides the Recording Window that permits the visualization and the external storage of signal data.

Order Information

Product

DEV 19128 mxn Distributing Matrix SIGMA; 850...2450 MHz

Product Version Options *

■ The number and type of input channels and output channels can be configured very flexible.

Thus, for ordering the product, it is mandatory to specify

- a) 1...16 × Input Channel Options (8 channels each, a mix is possible!) and
- b) 1...16 × Output Channel Options (8 channels each, a mix is possible!)

a) Input Channel Options

Option vIn50 8 Input Channels 50 Ohm, SMA (f)
 Option vIn50B 8 Input Channels 50 Ohm, BNC (f)
 Option vIn75 8 Input Channels 75 Ohm, F (f)
 Option vIn75B 8 Input Channels 75 Ohm, BNC (f)
 Option vInOptSC 8 Input Channels Optical, SC/APC

b) Output Channel Options

Option vOut50 8 Output Channels 50 Ohm, SMA (f)
 Option vOut50B 8 Output Channels 50 Ohm, BNC (f)
 Option vOut75 8 Output Channels 75 Ohm, F (f)
 Option vOut75B 8 Output Channels 75 Ohm, BNC (f)

Other Options

Option 16 *	3 rd Power Supply	
Option 25	Variable Slope (all Channels)	
Option 34	LNB Powering for 8 RF Input Channels	<i>(can be ordered 1...16 times)</i>
Option 36 *	Integrated Spectrum Analyzer	
Option 37	TRAC	
Option 38	Secure Lock Operation	
Option 48	Input Channel Redundancy	
Option 52 *	Redundant Controller	
Option 54	Multi-Touch Display	
Option 59 *	SIGMA Cluster Preparation for 64 Channels	<i>(can be ordered 1...4 times)</i>
Option 77	Signal Recording	

* Field upgradable option i.e., the option can be ordered after the initial delivery.
 The hot-swap-upgrade can be performed the customer onsite.

Contact

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

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