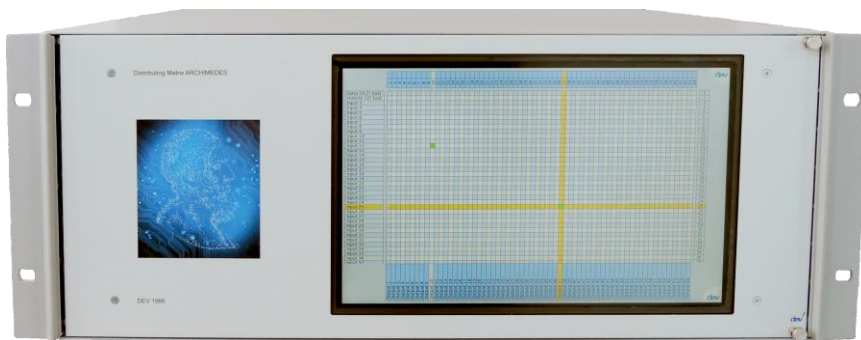


L-Band Distributing Matrix ARCHIMEDES



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

Products:

DEV 1986 mxn Distributing Matrix ARCHIMEDES; 950...2150 MHz; 75 Ohm, F (f)

Standard Configurations: 32x32, 32x64, 64x32 or 64x64

Upgradeable Versions available

Features:

- 64x64 in 4 RU
- Various Input and Output Modules
 - 75 Ohm, F (f) or BNC (f), or 50 Ohm, SMA (f)
 - Optical Inputs
- Variable Gain (MGC or AGC)
- Variable Slope
- RF Sensing
- LNB Powering, switchable 13/18 V and 22 kHz Tone
- Full Color Multi-Touch Display as Local User Interface
- Integrated TV-Receiver
- Integrated Spectrum Analyzer
- Input Channel Redundancy
- Controller Redundancy
- Power Supply Redundancy
- Secure Lock Operation
- SNMP Support
- Easy to use DEV Web Interface
- Signal Recording and Data Backup Feature

Technical Data

DEV 1986/mxn Distributing Matrix ARCHIMEDES

Capacity

Number of	DEV 1986/32x32:	32x32
Inputs (m) x Outputs (n)	DEV 1986/32x64:	32x64
	DEV 1986/64x32:	64x32
	DEV 1986/64x64:	64x64
	(and Field upgradeable Matrices)	

RF Specifications

Frequency Range	950...2150 MHz
Impedance, Connectors	75 Ohm, precision F (f)
Return Loss	>14 dB
Gain Control Modes	MGC (Manual Gain Control) and AGC (Automatic Gain Control)
Damage Input Level	+25 dBm
RF Input Power Range ¹	-50...-5 dBm
MGC Range	-32...+31 dB in 1 dB Steps
Output Power Range AGC	-50...-0 dBm
Flatness	±3.0 dB (over entire Band) ±0.4 dB (in any 36 MHz Interval)
Isolation	Input/Input, Output/Output: typ. 60 dB Input/Output (Crosstalk): typ. 60 dB Off: typ. 80 dB
Intermodulation Distortion	<-40 dBc (two Tones @ -8 dBm)
Group Delay Distortion	<7 ns
Noise Figure	<14 dB
OP1dB	0 dBm
Relay Type	Semiconductor

RF Sensing

Adjustable Threshold Level	0 dBm > Threshold Level > -50 dBm
Threshold Level Accuracy	±3 dB
Threshold Repeatability	<0.5 dB

Remote Communication

Interface (Connector)	Ethernet (RJ-45)
Remote Control & Surveillance	via Web Interface and via SNMP

Redundant Power Supply

Supply Voltage	100...240 V AC supplied by two different Lines
Power Consumption	Max. 130 VA in Operation

General Specifications

Size	19" (483 mm) Width, 4 RU (178 mm) Height, 631 mm Depth
Weight	~18 kg (32x32), ~20 kg (32x64, 64x32), ~25 kg (64x64)
Environmental Conditions	ETS 300019 Part 1-3 Class 3.1E

Note 1: Accumulated power level based on RF-Sensing range

Technical Data (cont.)

Option 20I Change 4 Input Channels to 50 Ohm, SMA (f)

Option 20O Change 4 Output Channels to 50 Ohm, SMA (f)

Per Option 20, one module with four channels is equipped with 50 Ohm, SMA (f) connectors instead of 75 Ohm, F (f) connectors.

Option 21I Change 4 Input Channels to 75 Ohm, BNC (f)

Option 21O Change 4 Output Channels to 75 Ohm, BNC (f)

Per Option 21, one module with four channels is equipped with 75 Ohm, BNC (f) connectors instead of 75 Ohm, F (f) connectors.

Option 22I Change 4 Input Channels to Optical providing LC/APC

Per Option 22I, one module with four input channels is equipped with LC/APC optical connectors instead of 75 Ohm, F (f) RF connectors.

Optical Specifications

Fiber Type	Single Mode 9/125 μ m
Connector Type	LC/APC
Wavelength	1100...1650 nm
Min. optical Input Level (optical Sensitivity)	-22 dBm
Damage optical Input Level	+10 dBm

Option 25 Variable Slope (all Channels)

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

Variable Slope 0...8 dB

Option 34 LNB Powering (all Channels)

With Option 34 each RF input port of the matrix is 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.

The matrix is delivered with an additional 1 RU power supply.

As Option 34 is per chassis, a mix of RF Input Modules with and without LNB Powering is not allowed.

A mix of Optical Input Modules and RF-Input Modules with LNB Powering is allowed.

Note that Option 34 cannot be applied in combination with Option 59 (Prepared for ARCHIMEDES Cluster).

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

Redundant Power Supply

Supply Voltage	100...240 V AC supplied by two different Lines
Power Consumption	<600 VA

General Specifications

Size	19" (483 mm) Width, 1 RU (44 mm) Height, 380 mm Depth
Weight	~12 kg
Environmental Conditions	ETS 300019 Part 1-3 Class 3.1E

Option 36 Integrated Spectrum Analyzer

With 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.

Technical Data (cont.)

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 able to overwrite any path locked by normal users.

Option 39 TV-Receiver

With Option 39, the matrix provides TV view via an integrated TV-Receiver to be operated via the multi-touch display (Option 54). Each matrix input signal can be routed to the TV-Receiver, which is capable to play unprotected content. (Option 54 needs to be ordered separately)

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 Option 52, the device is equipped with two controller modules in redundant operation. 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 device is equipped at the front side with a 10.1" HD full color multi-touch display. With this local user interface, all relevant functionalities are available to monitor quickly the status of the matrix, to switch the matrix, to save or to load switching presets, to lock switched paths, to configure the device IP address, and to use the integrated TV Receiver to check content.

Option 59 Prepared for ARCHIMEDES Cluster

With applied Option 59 the device is prepared to become a member of an ARCHIMEDES cluster which merges a number of DEV 1986 to a single matrix, providing >64 inputs and/or >64 outputs.

Thus, larger matrix configurations (up to 1024x1024) are possible.

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

In addition, please note that Option 59 cannot be applied in combination with Option 34 (LNB Powering).

Option 87 8 Input Channels less

Option 88 8 Output Channels less

Per Option 87 or Option 88, the device is delivered with 8 input channels or 8 output channels less. Thus, the standard configurations can be equipped with less input or output channels. This provides the flexibility to configure the device for the current requirements and to keep the option to upgrade the device to an application specific maximum size. The field upgrade can be performed by the customer by ordering the required number of corresponding upgrade kits.

Technical Information Upgrade Products

DEV 19861 Upgrade Kit for 8 Input Channels; 950...2150 MHz; 75 Ohm, F (f)

(A number of) DEV 19861 can be applied for matrices that were ordered with (a number of) Option 87.

If different input channel properties are required, Option 20I, Option 21I, and Option 22I are provided.

For matrices with applied Option 34, Option 33 needs to be ordered in addition.

DEV 19862 Upgrade Kit for 8 Output Channels; 950...2150 MHz; 75 Ohm, F (f)

(A number of) DEV 19862 can be applied for matrices that were ordered with (a number of) Option 88.

If different output channel properties are required, Option 20O and Option 21O are provided.

DEV 19865 Expansion Block to 64x64

The DEV 19865 is to be applied once in combination with DEV 19866 and/or DEV 19867 to product configurations with more than 32 input channels and with more than 32 output channels.

DEV 19866 32 Input Channel Expansion to 64 Input Channels; 950...2150 MHz; 75 Ohm, F (f)

The DEV 19866 can be applied once to the following products:

■ DEV 1986/64Ux32

■ DEV 1986/64Ux64

■ The DEV 19865 is required in addition to the DEV 19866.

■ DEV 1986/64Ux64U

■ The DEV 19865 is required in addition to the DEV 19866 if ordered in combination with the DEV 19867.

Naturally, the number of additional inputs can be reduced by ordering the appropriate number of Option 87.

If different input channel properties are required, Option 20I, Option 21I, and Option 22I are provided.

For matrices with applied Option 34, Option 33 needs to be ordered in addition.

DEV 19867 32 Output Channel Expansion to 64 Output Channels; 950...2150 MHz; 75 Ohm, F (f)

The DEV 19867 can be applied once to the following products:

■ DEV 1986/32x64U

■ DEV 1986/64x64

■ The DEV 19865 is required in addition to the DEV 19867.

■ DEV 1986/64Ux64U

■ The DEV 19865 is required in addition to the DEV 19867 if ordered in combination with the DEV 19866.

Naturally, the number of additional outputs can be reduced by ordering the appropriate number of Option 88.

If different output channel properties are required, Option 20O and Option 21O are provided.

Order Information

Products

DEV 1986/32x32	32x32 Distributing Matrix ARCHIMEDES; 950...2150 MHz; 75 Ohm, F (f)
DEV 1986/32x64U	32x32 Distributing Matrix ARCHIMEDES, Field upgradeable up to 32x64; 950...2150 MHz; 75 Ohm, F (f)
DEV 1986/64Ux32	32x32 Distributing Matrix ARCHIMEDES, Field upgradeable up to 64x32; 950...2150 MHz; 75 Ohm, F (f)
DEV 1986/64Ux64U	32x32 Distributing Matrix ARCHIMEDES, Field upgradeable up to 64x64; 950...2150 MHz; 75 Ohm, F (f)
DEV 1986/32x64	32x64 Distributing Matrix ARCHIMEDES; 950...2150 MHz; 75 Ohm, F (f)
DEV 1986/64Ux64	32x64 Distributing Matrix ARCHIMEDES, Field upgradeable up to 64x64; 950...2150 MHz; 75 Ohm, F (f)
DEV 1986/64x32	64x32 Distributing Matrix ARCHIMEDES; 950...2150 MHz; 75 Ohm, F (f)
DEV 1986/64x64U	64x32 Distributing Matrix ARCHIMEDES, Field upgradeable up to 64x64; 950...2150 MHz; 75 Ohm, F (f)
DEV 1986/64x64	64x64 Distributing Matrix ARCHIMEDES; 950...2150 MHz; 75 Ohm, F (f)

Options

Option 20I	Change 4 Input Channels to 50 Ohm, SMA (f)
Option 20O	Change 4 Output Channels to 50 Ohm, SMA (f)
Option 21I	Change 4 Input Channels to 75 Ohm, BNC (f)
Option 21O	Change 4 Output Channels to 75 Ohm, BNC (f)
Option 22I	Change 4 Input Channels to Optical providing LC/APC
Option 25	Variable Slope (all Channels)
Option 34	LNB Powering (all Channels)
Option 36 ¹	Integrated Spectrum Analyzer
Option 38	Secure Lock Operation
Option 39	TV-Receiver
Option 48	Input Channel Redundancy
Option 52	Redundant Controller
Option 54	Multi-Touch Display
Option 59	Prepared for ARCHIMEDES Cluster
Option 73	Additional Web License
Option 87	8 Input Channels less
Option 88	8 Output Channels less

Note 1: In combination with Option 54 only

Order Information Upgrade Products

Upgrade Products

DEV 19861	Upgrade Kit for 8 Input Channels; 950...2150 MHz; 75 Ohm, F (f)
Option 20I	Change 4 Input Channels to 50 Ohm, SMA (f)
Option 21I	Change 4 Input Channels to 75 Ohm, BNC (f)
Option 22I	Change 4 Input Channels to Optical providing LC/APC
Option 33	LNB Powering for 8 Inputs (mandatory for products with applied Option 34, and not available for DEV 19861 in combination with Option 22I)
DEV 19862	Upgrade Kit for 8 Output Channels; 950...2150 MHz; 75 Ohm, F (f)
Option 200	Change 4 Output Channels to 50 Ohm, SMA (f)
Option 210	Change 4 Output Channels to 75 Ohm, BNC (f)
DEV 19865	Expansion Block to 64x64 (to be ordered once in combination with DEV 19866 and/or DEV 19867)
DEV 19866	32 Input Channel Expansion to 64 Input Channels; 950...2150 MHz; 75 Ohm, F (f)
Option 20I	Change 4 Input Channels to 50 Ohm, SMA (f)
Option 21I	Change 4 Input Channels to 75 Ohm, BNC (f)
Option 22I	Change 4 Input Channels to Optical providing LC/APC
Option 33	LNB Powering for 8 Inputs (mandatory for products with applied Option 34, and not available for DEV 19866 in combination with Option 22I)
Option 87	8 Input Channels less
DEV 19867	32 Output Channel Expansion to 64 Output Channels; 950...2150 MHz; 75 Ohm, F (f)
Option 200	Change 4 Output Channels to 50 Ohm, SMA (f)
Option 210	Change 4 Output Channels to 75 Ohm, BNC (f)
Option 88	8 Output Channels less

Size Configuration Examples

1. Initial Size: 24x24 → Target Size: 32x32

- Initial Order: DEV 1986/32x32 with 1* Option 87 and 1* Option 88
- Upgrade Order for Target Size: 1* DEV 19861 (for 32x24) plus 1* DEV 19862 (for 32x32)

2. Initial Size: 16x32 → Target Size: 56x32

- Initial Order: DEV 1986/64Ux32 with 2* Option 87
- Upgrade Order for Target Size: 2* DEV 19861 (for 32x32) plus 1* DEV 19866 with 1* Option 87 (for 56x32)

3. Initial Size: 16x32 → Target Size: 32x48

- Initial Order: DEV 1986/32x64U with 2* Option 87
- Upgrade Order for Target Size: 2* DEV 19861 (for 32x32) plus 1* DEV 19867 with 2* Option 88 (for 32x48)

4. Initial Size: 16x16 → Target Size: 56x48

- Initial Order: DEV 1986/64Ux64U with 2* Option 87 and 2* Option 88
- Upgrade Order for Target Size:
 - a. 2* DEV 19861 (for 32x16)
 - b. 2* DEV 19862 (for 32x32)
 - c. 1* DEV 19866 with 1* Option 87 (for 56x32)
 - d. 1* DEV 19865 and 1* DEV 19867 with 2* Option 88 (for 56x48)

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

Rev. 30-Nov-2017

Technical specifications are subject to change