

Managed L-Band Distribution System



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

Product:

DEV 2190

Managed L-Band Distribution System

Features:

- ▀ 4 RU Chassis for up to 16 Amplifier Modules
- ▀ Amplifier Modules with
 - ▀ Variable Gain
 - ▀ Variable Slope
 - ▀ Monitoring Output
 - ▀ RF Sensing
 - ▀ LNB Power with Current Monitoring, switchable 13/18 V and 22 kHz Tone
- ▀ Impedance 50 Ohm, SMA (f) or 75 Ohm, F (f)
- ▀ Distribution Options
- ▀ Combiner Options
- ▀ IRD controlled Switch Options
- ▀ Redundant Amplifier for “No single point of failure”
- ▀ Automatic Switch Back Option for Redundant Amplifiers
- ▀ SNMP Support
- ▀ DEV Web Interface
- ▀ Signal Recording and Data Backup Feature
- ▀ Power Line and Power Supply Redundancy

Technical Data

DEV 2190 Managed L-Band Distribution System

Capacity

Front Side	16 Slots
Rear Side	4 horizontal Slots with up to 32 RF Ports, each plus Top Slot for the Input Ports

RF Specifications

Frequency Range	950...2150 MHz
Damage Level	+10 dBm @ 50 Ohm / 120 dB μ V @ 75 Ohm
Nominal Input Level	-10 dBm @ 50 Ohm / 85 dB μ V @ 75 Ohm
Return Loss	>14 dB
Amplifier Gain Variation	0...21 dB
Isolation between Output Ports	>25 dB
Group Delay	<5 ns
Noise Figure	<10 dB

Monitoring Port

Impedance, Connector	50 Ohm, SMA (f)
Return Loss	>18 dB

LNB Power & Current Monitoring

Voltage and Tone Control	13 V, 18 V and 0 Hz, 22 kHz
LNB Power	max. 350 mA per Input; total max. Current 1.4 A (with 2 Power Supply Modules)

Adjustable Level Setting:

- Upper Alarm Level
- Lower Alarm Level

RF Sensing

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

Remote Communication

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

Redundant Power Supply

Supply Voltage	100...240 V AC supplied by two different Lines
Power Consumption	<100 VA (with 2 Power Supply Modules installed)

General Specifications

Size	19" (483 mm) Width, 4 RU (178 mm) Height, ~490 mm Depth
Weight	~16 kg
Environmental Conditions	ETS 300019 Part 1-3 Class 3.1

Option 16 Additional Power Module 16 V, 50 W horizontal use for 4 RU Chassis

With \geq 8 amplifier modules the third power supply module is recommended for keeping the power supply redundancy.

Power Consumption	<150 VA (with 3 Power Supply Modules installed)
LNB Power	Total max. Current: 2.8 A (with 3 Power Supply Modules)

Technical Data (cont.)

Option 22 Main Backup Swap

Main Backup Swap enables the dynamic change of main and backup assignment to realize the autonomous switching from the backup link to the main link in addition to the (standard) autonomous switching from the main link to the backup link.

■ Available in conjunction with redundant amplifier options

Option 25 Enhanced var. Gain plus var. Slope

Advanced amplifier module instead of standard amplifier module.

Frequency Range	700...2300 MHz
Amplifier Gain Variation	0...31 dB
Variable Slope	0...8 dB

Option 26 Delete one Amplifier

The chassis is delivered with the required functionality, but without the amplifier module(s).

Redundant Amplifier Options

Redundant amplifier options are used to realize a redundant backup link to a dedicated main link.

- Up to 5 times
- Available with dedicated inputs (Option 23/zz) or with integrated 1:2 splitter (Option 24/zz)
- Add 0.5 dB to the flatness tolerance of amplifier/distribution/combiner options,

Front Slot Requirements • 3 Slots per Redundant Amplifier Option

Pre-Divider Options

Pre-divider options are used to extend a distribution system to more than one 4 RU chassis.

Rear Slot Requirements • 1 Slot for 1 or 2 Pre-Divider Options

IRD Controlled Switch Options

Two or four amplifier modules feed an IRD controlled switch.

- Up to 4 times 2x16 (or 4x16) or up to 2 times 2x32 (or 4x32)
- One 2x48 (or 4x48) or one 2x64 (or 4x64)

Number of Inputs / Outputs	2 or 4 Inputs / 16, 32, 48, or 64 Outputs per IRD controlled Switch
Frequency Range	950...2150 MHz
Return Loss	>14 dB (Inputs), >12 dB (Outputs)
Flatness	±0.6 dB (in any 36 MHz Interval)
Isolation between Input Ports	>25 dB
Intermodulation Distortion	<-35 dBc @ 85 dBμV
IMA3 / IMA2 Output Level	<89 dBμV / <87 dBμV
Switch Control	13 V, 18 V and 0 Hz, 22 kHz at each Output
Front Slot Requirements	• 2 or 4 per IRD controlled Switch Option
Rear Slot Requirements	• 1 Slot for a IRD controlled Switch Option with 16 Outputs • 2 Slots for a IRD controlled Switch Option with 32 Outputs • 3 Slots for a IRD controlled Switch Option with 48 Outputs • 4 Slots for a IRD controlled Switch Option with 64 Outputs

Technical Data (cont.)

Amplifier Options, Distribution Options, Combiner Options, and IRD Controlled Switch Option Extensions

Amplifier options are required for the direct access to the ports of an installed amplifier module.

Distribution options provide a number of RF outputs per RF input.

Combiner options provide a number of RF inputs per RF output.

IRD controlled switch option extensions are distribution options providing additional RF outputs per IRD controlled switch input.

- Up to 16 amplifier options
- Up to 8 times 2*1:4 distribution or 2*4:1 combiner
- Up to 16 times 1:8 distribution or 8:1 combiner
- Up to 8 times 1:16 distribution or 16:1 combiner
- Up to 4 times 1:32 distribution
- Up to 2 times 1: 64 distribution
- One 1:128 distribution
- Up to 4 times 1:8 (1:16) IRD controlled switch option extensions for IRD controlled switch options with up to 48 (32) outputs
- Distribution options with 75 Ohm ports are available with BNC (f) instead of F (f) connectors via Option 8/BNC (for 8 outputs plus input)

Number of RF Ports	1 or 2 Outputs per Amplifier Option 2*4, 8, 16, 32, 64, or 128 Outputs per Distribution Option 2*4, 8, or 16 Inputs per Combiner Option 8 or 16 Outputs per IRD controlled Switch Option Extension
Impedance, Connectors	50 Ohm, SMA (f) or 75 Ohm, precision F (f) or BNC (f)
Flatness (over entire Band)	for up to 16 Ports: ±1.0 dB for 32 Port Distribution Options: ±1.5 dB for 64 Port Distribution Options: ±2.0 dB for a 128 Port Distribution Option: ±2.5 dB
Flatness (in any 36 MHz Interval)	for up to 16 Outputs: ±0.3 dB for 32 Port Distribution Options: ±0.5 dB for 64 Port Distribution Options: ±0.6 dB for a 128 Port Distribution Option: ±0.8 dB
Intermodulation Distortion	<-40 dBc @ -10 dBm
Rear Slot Requirements	<ul style="list-style-type: none"> • 1/32 Slot per Amplifier Option with 1 Output • 1/16 Slot per Amplifier Option with 2 Outputs • ¼ Slot per 2*4 Port Distribution/Combiner Option • ¼ Slot per 8 Port Distribution/Combiner/Extension Option • ½ Slot per 16 Port Distribution/Combiner/Extension Option • 1 Slot per 32 Port Distribution Option • 2 Slots per 64 Port Distribution Option • 4 Slots for a 128 Port Distribution Option

Order Information

Product and Product Options

DEV 2190	Managed L-Band Distribution System
Option 16	Additional Power Module 16 V, 50 W horizontal use for 4 RU Chassis
Option 22	Main Backup Swap only in conjunction with Options 23/xx or 24/xx
Option 25	Enhanced var. Gain plus var. Slope
Option 26	Delete one Amplifier
Option 78	Additional Web License 3-4 RU

Redundant Amplifier Options

Option 23/50	Redundant Distribution Amplifier Kit; 50 Ohm, SMA (f); Dual Input
Option 23/75	Redundant Distribution Amplifier Kit; 75 Ohm, F (f); Dual Input
Option 24/50	Redundant Distribution Amplifier Kit; 50 Ohm, SMA (f)
Option 24/75	Redundant Distribution Amplifier Kit; 75 Ohm, F (f)

Pre-Divider Options

Option 4*1x2/50	4*1:2 Pre-Divider; 700...2300 MHz; 50 Ohm, SMA (f)
Option 4*1x2/75	4*1:2 Pre-Divider; 700...2300 MHz; 75 Ohm, F (f)

IRD Controlled Switch Options

Option 2x16/50-75	2x16 IRD Controlled Switch; 950...2150 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 2x16/75	2x16 IRD Controlled Switch; 950...2150 MHz; 75 Ohm, F (f)
Option 4x16/50-75	4x16 IRD Controlled Switch; 950...2150 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 4x16/75	4x16 IRD Controlled Switch; 950...2150 MHz; 75 Ohm, F (f)
Option 2x32/50-75	2x32 IRD Controlled Switch; 950...2150 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 2x32/75	2x32 IRD Controlled Switch; 950...2150 MHz; 75 Ohm, F (f)
Option 4x32/50-75	4x32 IRD Controlled Switch; 950...2150 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 4x32/75	4x32 IRD Controlled Switch; 950...2150 MHz; 75 Ohm, F (f)
Option 2x48/50-75	2x48 IRD Controlled Switch; 950...2150 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 2x48/75	2x48 IRD Controlled Switch; 950...2150 MHz; 75 Ohm, F (f)
Option 4x48/50-75	4x48 IRD Controlled Switch; 950...2150 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 4x48/75	4x48 IRD Controlled Switch; 950...2150 MHz; 75 Ohm, F (f)
Option 2x64/50-75	2x64 IRD Controlled Switch; 950...2150 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 2x64/75	2x64 IRD Controlled Switch; 950...2150 MHz; 75 Ohm, F (f)
Option 4x64/50-75	4x64 IRD Controlled Switch; 950...2150 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 4x64/75	4x64 IRD Controlled Switch; 950...2150 MHz; 75 Ohm, F (f)

IRD Controlled Switch Option Extensions

Option plus8/50	*	Additional 1:8 Splitter; 50 Ohm, SMA (f); for IRD Controlled Switch only
Option plus8/75	*	Additional 1:8 Splitter; 75 Ohm, F (f); for IRD Controlled Switch only
Option plus16/50	*	Additional 1:16 Splitter; 50 Ohm, SMA (f); for IRD Controlled Switch only
Option plus16/75	*	Additional 1:16 Splitter; 75 Ohm, F (f); for IRD Controlled Switch only

* Please specify for which polarization/band the additional splitter is to be applied

Order Information (cont.)

Amplifier Options & Distribution Options

Option 1/50	Amplifier 1 In / 1 Out; 700...2300 MHz; 50 Ohm, SMA (f)
Option 1/75	Amplifier 1 In / 1 Out; 700...2300 MHz; 75 Ohm, F (f)
Option 2/50	1:2 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f)
Option 2/50-50-75	1:2 Distribution Amplifier; 700...2300 MHz; In 50 Ohm, SMA (f) - Out 1 75 Ohm, F (f) - Out 2 50 Ohm, SMA (f)
Option 2/50-75	1:2 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 2/75	1:2 Distribution Amplifier; 700...2300 MHz; 75 Ohm, F (f)
Option 2*4/50	2*1:4 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f)
Option 2*4/75	2*1:4 Distribution Amplifier; 700...2300 MHz; 75 Ohm, F (f)
Option 8/50	1:8 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f)
Option 8/50-75	1:8 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 8/75	1:8 Distribution Amplifier; 700...2300 MHz; 75 Ohm, F (f)
Option 16/50	1:16 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f)
Option 16/50-75	1:16 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 16/75	1:16 Distribution Amplifier; 700...2300 MHz; 75 Ohm, F (f)
Option 32/50	1:32 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f)
Option 32/50-75	1:32 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 32/75	1:32 Distribution Amplifier; 700...2300 MHz; 75 Ohm, F (f)
Option 64/50	1:64 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f)
Option 64/50-75	1:64 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 64/75	1:64 Distribution Amplifier; 700...2300 MHz; 75 Ohm, F (f)
Option 128/50	1:128 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f)
Option 128/50-75	1:128 Distribution Amplifier; 700...2300 MHz; 50 Ohm, SMA (f) - 75 Ohm, F (f)
Option 128/75	1:128 Distribution Amplifier; 700...2300 MHz; 75 Ohm, F (f)
Option 8/BNC	75 Ohm, BNC (f) instead of 75 Ohm F (f) for In- and Outputs (Only for 75 Ohm Distribution Options (Option n/75))

Combiner Options

Option 2*C4/50	2*4:1 Active Combiner; 700...2300 MHz; 50 Ohm, SMA (f)
Option 2*C4/75	2*4:1 Active Combiner; 700...2300 MHz; 75 Ohm, F (f)
Option C8/50	8:1 Active Combiner; 700...2300 MHz; 50 Ohm, SMA (f)
Option C8/75	8:1 Active Combiner; 700...2300 MHz; 75 Ohm, F (f)
Option C16/50	16:1 Active Combiner; 700...2300 MHz; 50 Ohm, SMA (f)
Option C16/75	16:1 Active Combiner; 700...2300 MHz; 75 Ohm, F (f)

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Technical specifications are subject to change