

Passive Components



Products:

- DEV 03-0012** - Passive Module Chassis
- DEV 03-0042** - Passive Module Chassis Frame

- DEV 13-0012** - Passive 1:4 Splitter Module, 5...65 MHz, 75 Ohm, BNC (f)
- DEV 13-0013** - Passive 4:1 Combiner Module, 5...65 MHz, 75 Ohm, BNC (f)
- DEV 13-0014** - Passive 4:1 Combiner Module, 5...65 MHz, 75 Ohm, BNC (f)
- DEV 13-0032** - Passive 4:1 Combiner Module, CATV-Band, 75 Ohm, BNC (f)
- DEV 13-0033** - Passive 1:2 Splitter Module, L-Band, 75 Ohm, Precision F (f)
- DEV 13-0063** - Passive 1:4 Splitter Module, L-Band, 75 Ohm, Precision F (f)
- DEV 13-0089** - Passive 2:1 Combiner Module, CATV-Band, 75 Ohm, BNC (f)
- DEV 13-0096** - Passive 1:2 Splitter Module, L-Band, 50 Ohm, SMA (f)
- DEV 13-0130** - Passive 1:4 Splitter Module, CATV-Band, 75 Ohm, Precision F (f)
- DEV 13-0131** - Passive 2:2 Combiner/Splitter Module, CATV-Band, 75 Ohm, Precision F (f)
- DEV 13-0135** - Diplexer Module, CATV-Band, 75 Ohm, Precision F (f)
- DEV 13-0141** - Passive 1:4 Splitter Module, 50...100 MHz, 75 Ohm, BNC (f)
- DEV 13-0181** - Diplexer Module, CATV-Band, 75 Ohm, Precision F (f)

Features:

- Two different 3 RU module chassis which can be equipped individually with passive Modules

Application Areas:

- Satellite Ground Stations
- Cable Head End Stations
- Transmission Studios

Passive Components



Front DEV 03-0012



Front DEV 03-0042

The Situation

Signal distribution applications do require the splitting and combining of all kind of RF signals. Most of the equipment of a cable head end station for instance offers this functionality, but sometimes a single splitter or combiner is missing. A dedicated instrument for this purpose is costly and not efficient with respect to rack space.

DEV worked out a Solution

For different applications DEV Systemtechnik did develop quite a number of passive modules, which differ in their functionality (1:x splitter, x:1 combiner, x:y splitter/combiner etc.) and with respect to frequency range, impedance and connectors.

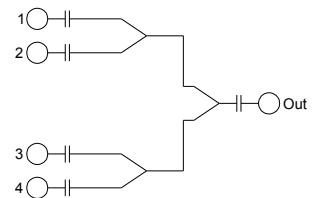
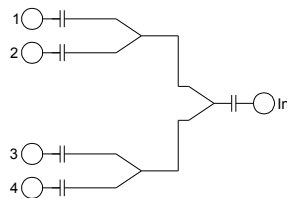
Consequently these modules are offered to combine them freely in a rack mountable passive chassis, according to the customer requirements.

The Technical Concept

Two different 3 RU chassis are available: the chassis frame DEV 03-0042 and the chassis DEV 03-0012. The latter has the advantage that all modules are protected from the top and the bottom side and it provides means to apply strain relieves for the RF cables which need to be connected to the rear side of the modules. DEV Systemtechnik offers numerous different passive modules which can be freely installed into the 3 RU chassis: 1:2 and 1:4 splitter modules are offered, as well as 2:1 and 4:1 combiner modules. Additionally two diplexer modules and a 2:2 splitter/combiner module are available.

The passive modules differ in the frequency range and in their impedance. The applied RF connector types are BNC, SMA or Precision F. Please refer to the following pages for a description of the functionality, the location of the connectors and the other technical data of the different passive modules.

Functionality of the different Modules



DEV 13-0012

Passive 1:4 Splitter Module

For the frequency range 5...65 MHz in 75 Ohm with BNC connectors.

The output ports are located at the front side of the module, the input port is located at the rear.

DEV 13-0013

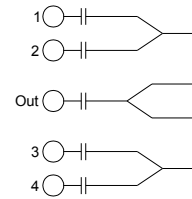
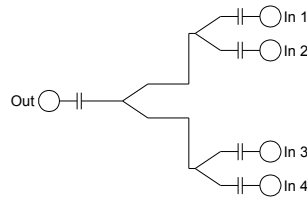
Passive 4:1 Combiner Module

For the frequency range 5...65 MHz in 75 Ohm with BNC connectors.

The input ports are located at the front side of the module, the output port is located at the rear.

Passive Components

Functionality of the different Modules (cont.)



DEV 13-0014

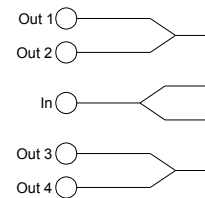
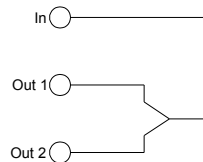
Passive 4:1 Combiner Module

For the frequency range 5...65 MHz in 75 Ohm with BNC connectors.
The output port is located at the front side of the module, the input ports are located at the rear.

DEV 13-0032

Passive 4:1 Combiner Module

For CATV-Band (47...862 MHz) applications in 75 Ohm with BNC connectors.
All ports are located at the front side of the module.



DEV 13-0033

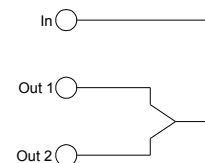
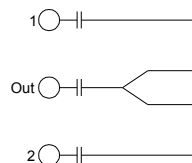
Passive 1:2 Splitter Card

For L-Band applications in 75 Ohm with Precision F connectors.
All ports are located at the front side of the module.

DEV 13-0063

Passive 1:4 Splitter Module

For L-Band applications in 75 Ohm with Precision F connectors.
All ports are located at the front side of the module.



DEV 13-0089

Passive 2:1 Combiner Module

For CATV-Band applications (47...862 MHz) in 75 Ohm with BNC connectors.
All ports are located at the front side of the module.

DEV 13-0096

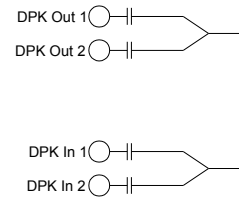
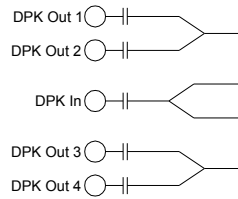
Passive 1:2 Splitter Module

For L-Band applications in 50 Ohm with SMA connectors.
All ports are located at the front side of the module.

Passive Components



Functionality of the different Modules (cont.)



DEV 13-0130

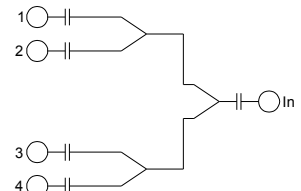
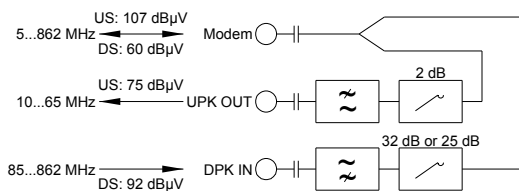
Passive 1:4 Splitter Module

For CATV-Band (47...862 MHz) applications in 75 Ohm with Precision F connectors. All ports are located at the front side of the module.

DEV 13-0131

Passive 2:2 Combiner/Splitter Module

For CATV-Band (47...862 MHz) applications in 75 Ohm with Precision F connectors. All ports are located at the front side of the module.



DEV 13-0135 and DEV 13-0181

Diplexer Modules

For CATV-Band (47...862 MHz) applications in 75 Ohm with Precision F connectors. All ports are located at the front side of the module. The difference between the two modules is the insertion loss for the downstream path.

DEV 13-0141

Passive 1:4 Splitter Module

For the frequency range 50...100 MHz in 75 Ohm with BNC connectors. The output ports are located at the front side of the module, the input port is located at the rear.

Technical Data

DEV 03-0012 Module Chassis DEV 03-0042 Module Chassis Frame

Capacity

Number of slots max. 21 modules (4 HP)

General Specifications

Housing	19" (483 mm), 3 RU (133 mm), depth: 242 mm (285 mm with handles) 45 mm (empty frame)	(DEV 03-0012) (DEV 03-0042)
Weight	~2,5 kg (empty chassis) ~0,5 kg (empty frame)	(DEV 03-0012) (DEV 03-0042)
Environmental conditions	ETS 300019 Part 1-3 Class 3.1	

Technical Data (cont.)

DEV 13-0012 Passive 1:4 Splitter Module, 5...65 MHz, 75 Ohm, BNC (f)
DEV 13-0013 Passive 4:1 Combiner Module, 5...65 MHz, 75 Ohm, BNC (f)
DEV 13-0014 Passive 4:1 Combiner Module, 5...65 MHz, 75 Ohm, BNC (f)
DEV 13-0141 Passive 1:4 Splitter Module, 50...100 MHz, 75 Ohm, BNC (f)

RF Specifications

Frequency range	5...65 MHz	(DEV13-0012, DEV 13-0013, DEV 13-0014)
	50...100 MHz	(DEV 13-0141)
Number of inputs, location	1, rear side 4, front side 4, rear side	(DEV 13-0012, DEV 13-0141) (DEV 13-0013) (DEV 13-0014)
Number of outputs, location	4, front side 1, rear side 1, front side	(DEV 13-0012, DEV 13-0141) (DEV 13-0013) (DEV 13-0014)
Number of inputs, location	1, front side	
Number of outputs, location	4, front side	
Impedance, connectors	75 Ohm, BNC (f)	
Damage level	+140 dB μ V	
Return loss	>18 dB	
Insertion loss	<8 dB	
Frequency response	\pm 0,1 dB	(entire band)
Isolation between output ports	>24 dB	

General Specifications

Housing	4 HP (20 mm), 3 RU (133 mm), depth 115 mm
Weight	~0,2 kg
Environmental conditions	ETS 300019 Part 1-3 Class 3.1

DEV 13-0032 Passive 4:1 Combiner Module, CATV-Band, 75 Ohm, BNC (f)
DEV 13-0089 Passive 2:1 Combiner Module, CATV-Band, 75 Ohm, BNC (f)

RF Specifications

Frequency range	47...862 MHz	
Number of inputs, location	4, front side 2, front side	(DEV 13-0032) (DEV 13-0089)
Number of outputs, location	1, front side	
Impedance, connectors	75 Ohm, BNC (f)	
Damage level	+140 dB μ V	
Return loss	>18 dB	
Insertion loss	<8 dB	
Frequency response	\pm 0,5 dB	(47...862 MHz)
Isolation between output ports	>24 dB	

General Specifications

Housing	4 HP (20 mm), 3 RU (133 mm), depth 85 mm
Weight	~0,2 kg
Environmental conditions	ETS 300019 Part 1-3 Class 3.1

Technical Data (cont.)**DEV 13-0033 Passive 1:2 Splitter Module, L-Band, 75 Ohm, Precision F (f)****DEV 13-0063 Passive 1:4 Splitter Module, L-Band, 75 Ohm, Precision F (f)****DEV 13-0096 Passive 1:2 Splitter Module, L-Band, 50 Ohm, SMA (f)****RF Specifications**

Frequency range	950...2150 MHz	
Number of inputs, location	1, front side	
Number of outputs, location	2, front side	(DEV 13-0033, DEV 13-0096)
	4, front side	(DEV 13-0063)
Impedance, connectors	50 Ohm, SMA (f)	(DEV 13-0096)
	75 Ohm, Precision F (f)	(DEV 13-0033, DEV 13-0063)
Return loss	>16 dB, typical 18 dB	
Insertion loss	8±1 dB	
Frequency response	±0,2 dB	(within any 36 MHz interval)
Isolation	>22 dB, typical 25 dB	

General Specifications

Housing	4 HP (20 mm), 3 RU (133 mm), depth 50 mm
Weight	~0,2 kg
Environmental conditions	ETS 300019 Part 1-3 Class 3.1

DEV 13-0130 Passive 1:4 Splitter Module, CATV-Band, 75 Ohm, Precision F (f)**DEV 13-0131 Passive 2:2 Combiner/Splitter Module, CATV-Band, 75 Ohm, Precision F (f)****RF Specifications**

Frequency range	47...862 MHz	
Number of inputs, location	1, front side	(DEV 13-0130)
	2, front side	(DEV 13-0131)
Number of outputs, location	4, front side	(DEV 13-0130)
	2, front side	(DEV 13-0131)
Impedance, connectors	75 Ohm, Precision F (f)	
Damage level	+140 dB μ V	
Nominal input level	99...101 dB μ V	(64QAM)
	105...107 dB μ V	(256QAM)
Nominal output level	92±1 dB μ V	(64QAM)
	98±1 dB μ V	(256QAM)
Return loss inputs	>18 dB	
Return loss outputs	>16 dB	
Insertion loss	<8 dB	
Frequency response	±1 dB	(47...862 MHz)
	±0,2 dB	(in any 8 MHz interval)
Isolation between output ports	>20 dB	(751...862 MHz)
	>24 dB	(unused ports not terminated)
	>26 dB	(unused ports terminated)

General Specifications

Housing	4 HP (20 mm), 3 RU (133 mm), depth 50 mm
Weight	~0,2 kg
Environmental conditions	ETS 300019 Part 1-3 Class 3.1

Technical Data (cont.)**DEV 13-0135 Diplexer Module, CATV-Band, 75 Ohm, Precision F (f)****DEV 13-0181 Diplexer Module, CATV-Band, 75 Ohm, Precision F (f)****RF Specifications**

Frequency range	10...65 MHz 5...862 MHz 85...862 MHz	(Upstream port UPK OUT) (Modem port) (Downstream port DPK IN)
Number of ports, location	3, front side	
Impedance, connectors	75 Ohm, Precision F (f)	
Nominal signal level	<120 dB μ V	
Nominal input level	108...110 dB μ V 92 \pm 1 dB μ V 98 \pm 1 dB μ V	(Modem port) (DPK IN, 64QAM) (DPK IN, 256QAM)
Nominal output level	74...75 dB μ V 56...60 dB μ V 62...66 dB μ V	(UPK OUT) (Modem port, 64QAM) (Modem port, 256QAM)
Return loss	>16 dB >16 dB >18 dB	(Upstream port UPK OUT) (Modem port) (Downstream port DPK IN)
Insertion loss	2 \pm 1 dB 32 \pm 1 dB or 25 \pm 1 dB	(5...65 MHz) (85...862 MHz, DEV 13-0135) (85...862 MHz, DEV 13-0181)
Isolation between output ports	>24 dB	
Stop band attenuation	>45 dB @ >65 MHz >45 dB @ <87 MHz	(Upstream port UPK OUT) (Downstream port DPK IN)

General Specifications

Housing	4 HP (20 mm), 3 RU (133 mm), depth 100 mm
Weight	~0,2 kg
Environmental conditions	ETS 300019 Part 1-3 Class 3.1

Order Information

DEV 03-0012	Passive Module Chassis
DEV 03-0042	Passive Module Chassis Frame
DEV 13-0012	Passive 1:4 Splitter Module, 5...65 MHz, 75 Ohm, BNC (f)
DEV 13-0013	Passive 4:1 Combiner Module, 5...65 MHz, 75 Ohm, BNC (f)
DEV 13-0014	Passive 4:1 Combiner Module, 5...65 MHz, 75 Ohm, BNC (f)
DEV 13-0032	Passive 4:1 Combiner Module, CATV-Band, 75 Ohm, BNC (f)
DEV 13-0033	Passive 1:2 Splitter Module, L-Band, 75 Ohm, Precision F (f)
DEV 13-0063	Passive 1:4 Splitter Module, L-Band, 75 Ohm, Precision F (f)
DEV 13-0089	Passive 2:1 Combiner Module, CATV-Band, 75 Ohm, BNC (f)
DEV 13-0096	Passive 1:2 Splitter Module, L-Band, 50 Ohm, SMA (f)
DEV 13-0130	Passive 1:4 Splitter Module, CATV-Band, 75 Ohm, Precision F (f)
DEV 13-0131	Passive 2:2 Combiner/Splitter Module, CATV-Band, 75 Ohm, Precision F (f)
DEV 13-0135	Diplexer Module, CATV-Band, 75 Ohm, Precision F (f)
DEV 13-0141	Passive 1:4 Splitter Module, 50...100 MHz, 75 Ohm, BNC (f)
DEV 13-0181	Diplexer Module, CATV-Band, 75 Ohm, Precision F (f)

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