becker nachrichtentechnik

WSCU-8X1R

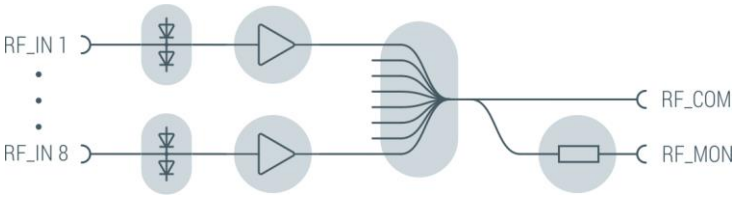
High Dynamic 8 Way Combiner 100 kHz ... 4000 MHz

Features

- 50 ohms technology
- high dynamic
- without loss in RF level
- high In-to-In isolation
- compact 19”, 1 U design

Applications

- combining of RF broadcast signals
- AM / FM / DAB / DVB-T / SDARS GNSS (GPS, Galileo, GLONASS, Beidou)
- product development and validation
- production



Scope

WSCU-8X1R is a high dynamic, 8 channel active wideband signal combiner in 50 Ohm technology. The frequency range extends from 100 kHz up to more than 4000 MHz. This allows the combination of different RF signal sources like signal generators together even in combination with live signals from antennas to one common signal mix at the output.
All 8 RF inputs are amplified using broadband low noise amplifiers with high dynamic ranges. As a result, the combined input signals are available at the common output without any loss in level.
All RF inputs and outputs have N female connectors.

Monitoring Port

WSCU-8X1R offers a monitoring port for maintenance purposes. Via this port the sum signal can be monitored without interruption in operation. Alternatively a test signal can be inserted to the sum signal.

Distribution Systems

WSCU-8X1R combines up to 8 signal sources to one common output in frequency domain. In combination with the wideband signal distribution units of the WSDU series, signal distributions with a high number of outputs can be realized. The signal transmission in the frequency domain minimizes cots for cables and cost for their installation.

Connecting Infotainment DUTs

For the direct connection of DUTs (Device Under Test) Becker Nachrichtentechnik offers Frequency De-Multiplexers with Fakra connectors. The De-Multiplexers of the FDMX Series are available in different variants with fixed DC loads or programmable current sinks for intensive tests of the phantom supply sources in the DUTs.

RF Specification

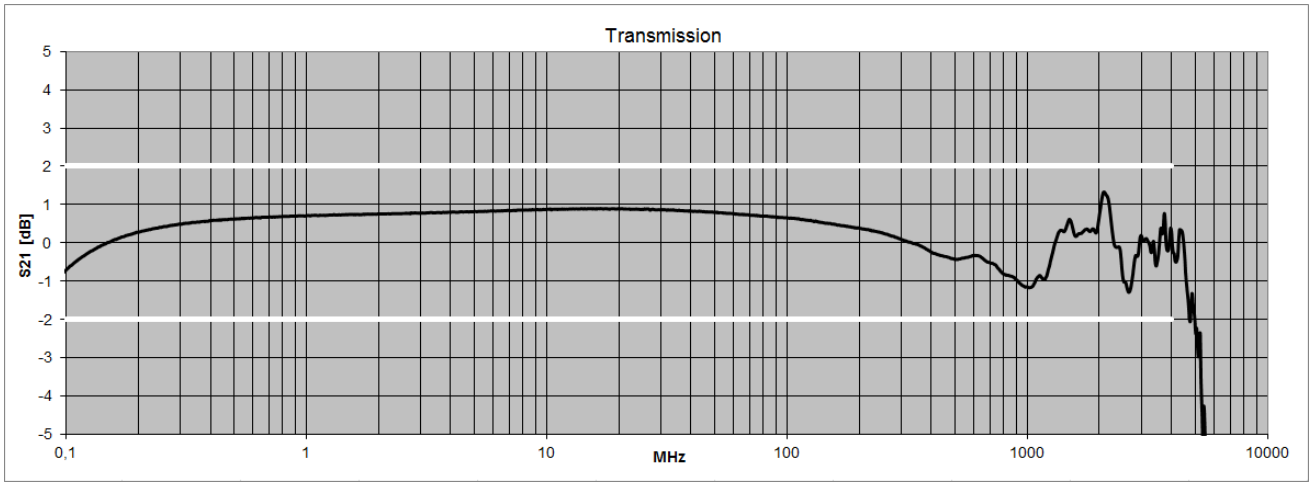
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
impedance	Z_{in} / Z_{out}		50		Ohm	
low frequency	f_{min}		50	100	kHz	
high frequency	f_{max}	4000	5000		MHz	
gain	S_{21}	-2	0	2	dB	
input return loss	S_{11}		-18	-10	dB	f ≤ 3500 MHz
	S_{11}		-10	-7	dB	f > 3500 MHz
output return loss	S_{22}		-18	-10	dB	f ≤ 3500 MHz
	S_{22}		-10	-7		f > 3500 MHz
reverse isolation	S_{12}		-68	-60	dB	
input isolation	S_{23}	24	29		dB	
1 dB compression	P_{1dB}	+5.0	+7.5		dBm	f ≤ 1500 MHz
	P_{1dB}	+3.0	+5.0		dBm	1500 MHz < f ≤ 2000 MHz
	P_{1dB}	+0.5	+1.5		dBm	2000 MHz < f ≤ 3000 MHz
	P_{1dB}	-2.0	0		dBm	f > 3000 MHz
2nd order intercept	OIP2[1]	+36	+42		dBm	f = 1000 MHz
	OIP2[1]	+35	+38		dBm	f = 2000 MHz
	OIP2[1]	+32	+34		dBm	f = 3000 MHz
3rd order intercept	OIP3[1]	+18	+19		dBm	f = 1000 MHz
	OIP3[1]	+14	+16		dBm	f = 2000 MHz
	OIP3[1]	+10	+12		dBm	f = 3000 MHz
noise figure	NF		15	17	dB	150 kHz ≤ f 3000 MHz
maximum input power	$P_{in\ max}$			+15	dBm	CW, no damage
monitoring coupling	S_{21}		-30		dB	monitoring output
maximum DC voltage	U_{DC}			20	V	all RF ports
ESD discharge resistor	R_{ESD}		4.7		kΩ	all RF ports
RF connectors			N female			

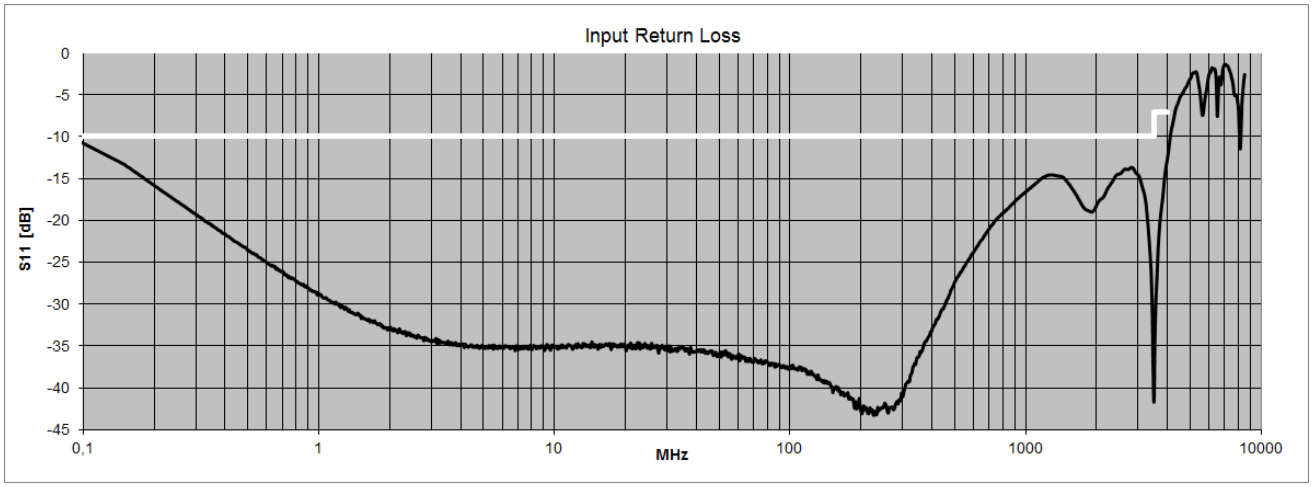
Note 1: two tone, Δf = 100 MHz, P_{in} 2 x -10 dBm. IP2 products are measured at 100 MHz (differential product)

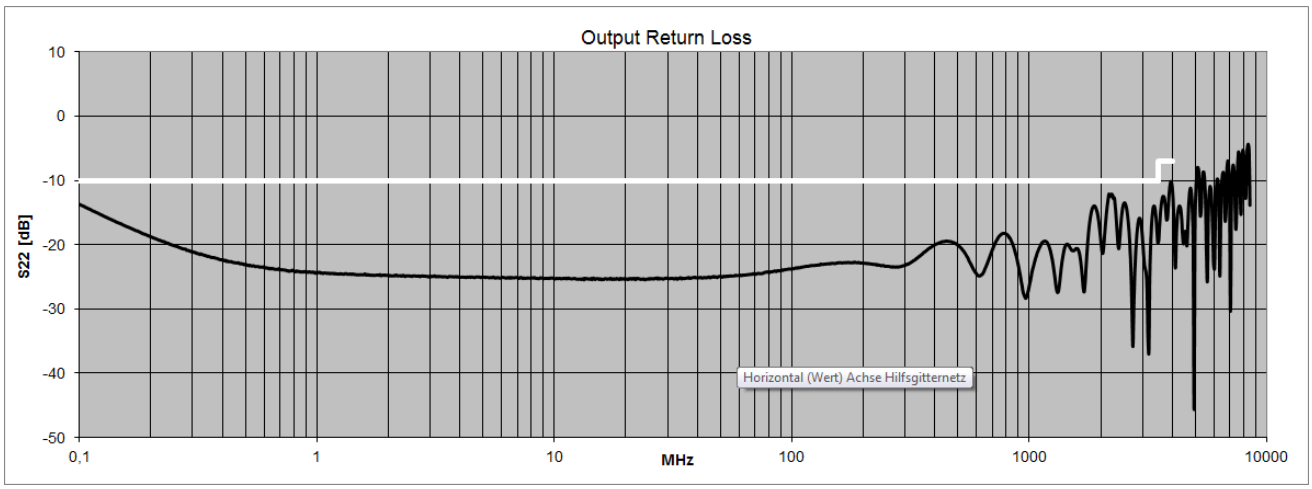
Common Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
power supply	U_{AC}	90	230	260	V	50 / 60 Hz AC
power consumption	P_{AC}		30	50	W	
Dimensions and weight						
dimensions	W x H x D	approx. 482 x 44 x 145			mm	19” 1 U, without connectors and handles
weight	m		2.9		kg	
Environment conditions						
operating temp. range	T_o	+5		+45	°C	
storage temp. range	T_s	-40		+70	°C	
Product conformity						
Electromagnetic compatibility	EU: in line with EMC directive (2014/30/EC)					applied harmonized standards: EN 61326-1 (for use in industrial environment), EN 61326-2-1, EN 55011 (class B), EN 61000-3-2, EN 61000-3-3
Electrical safety	EU: in line with low voltage directive (2014/35/EC)					applied harmonized standard: EN 61010-1
Ordering information	WSCU-8X1R		P/N: 1208.6102.1			

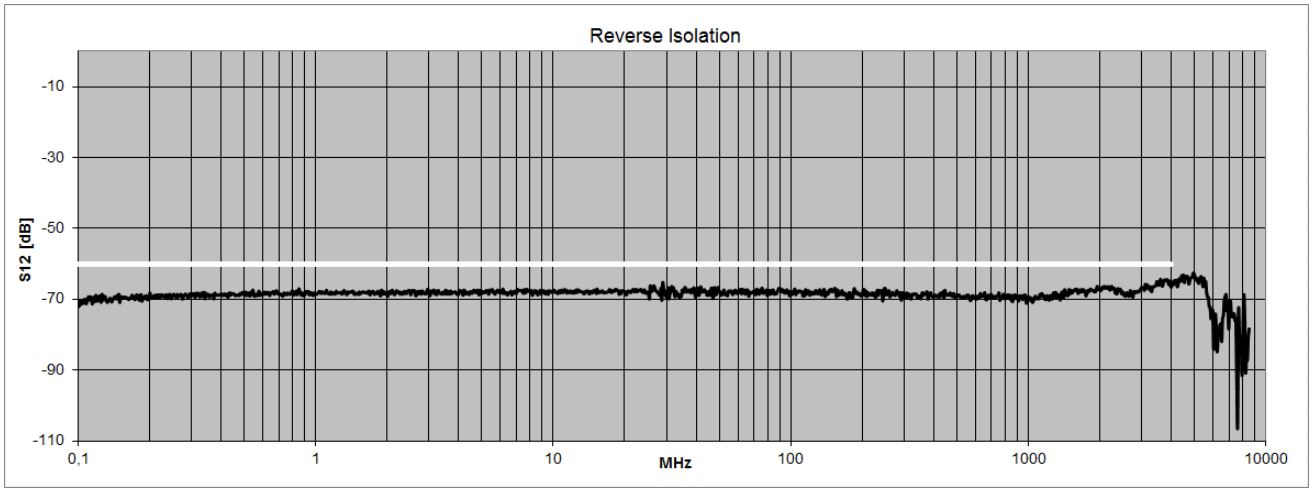
S-Parameters (typical responses)

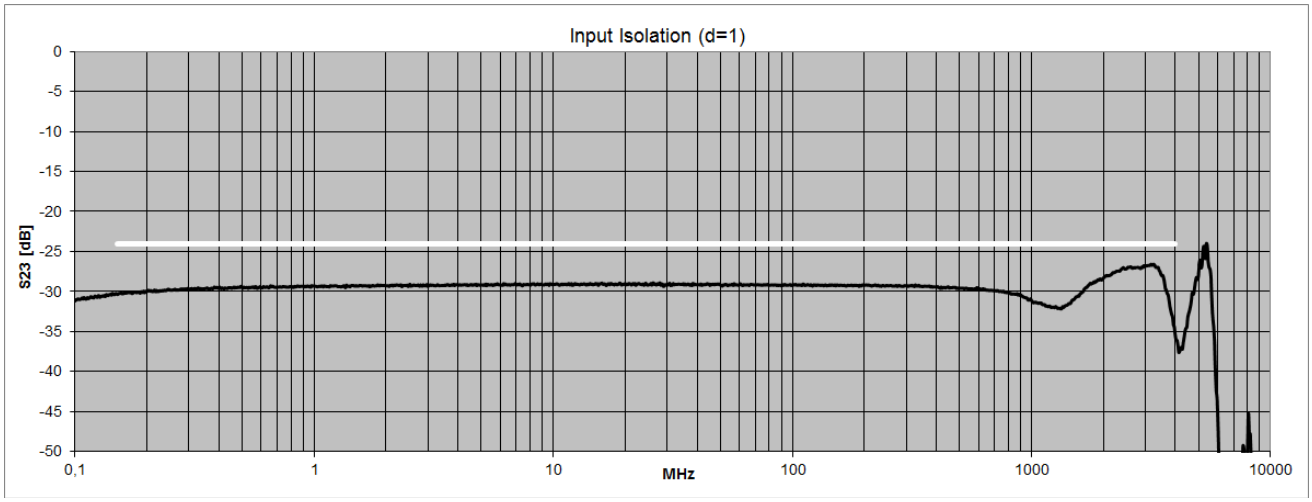




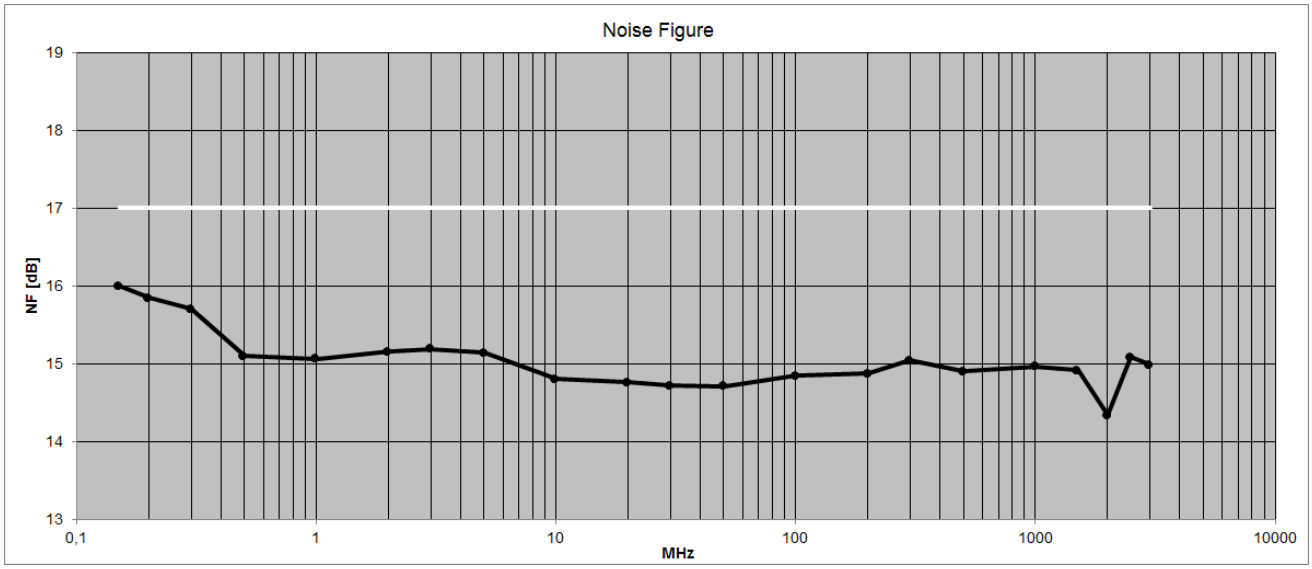


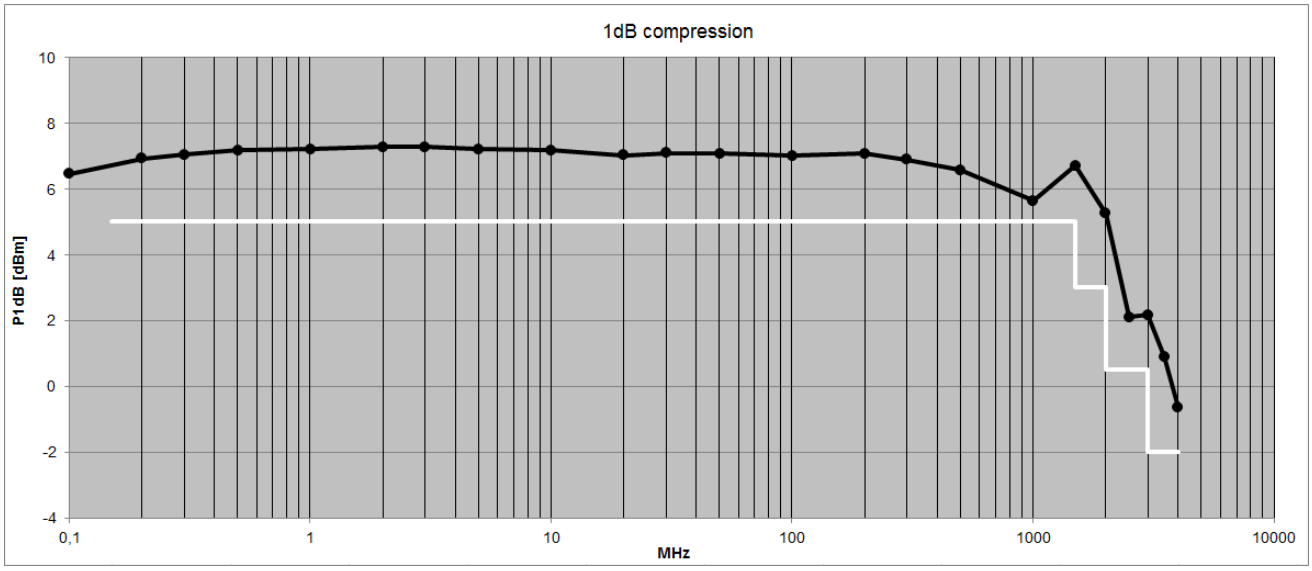
Isolations (typical responses)





Dynamic Range (typical responses)




1dB compression
P1dB [dBm]
10
8
6
4
2
0
-2
-4
0,1
1
10
100
1000
10000
MHz


3rd order intercept
OPIP3 [dBm]
30
25
20
15
10
5
0
0,1
1
10
100
1000
10000
MHz

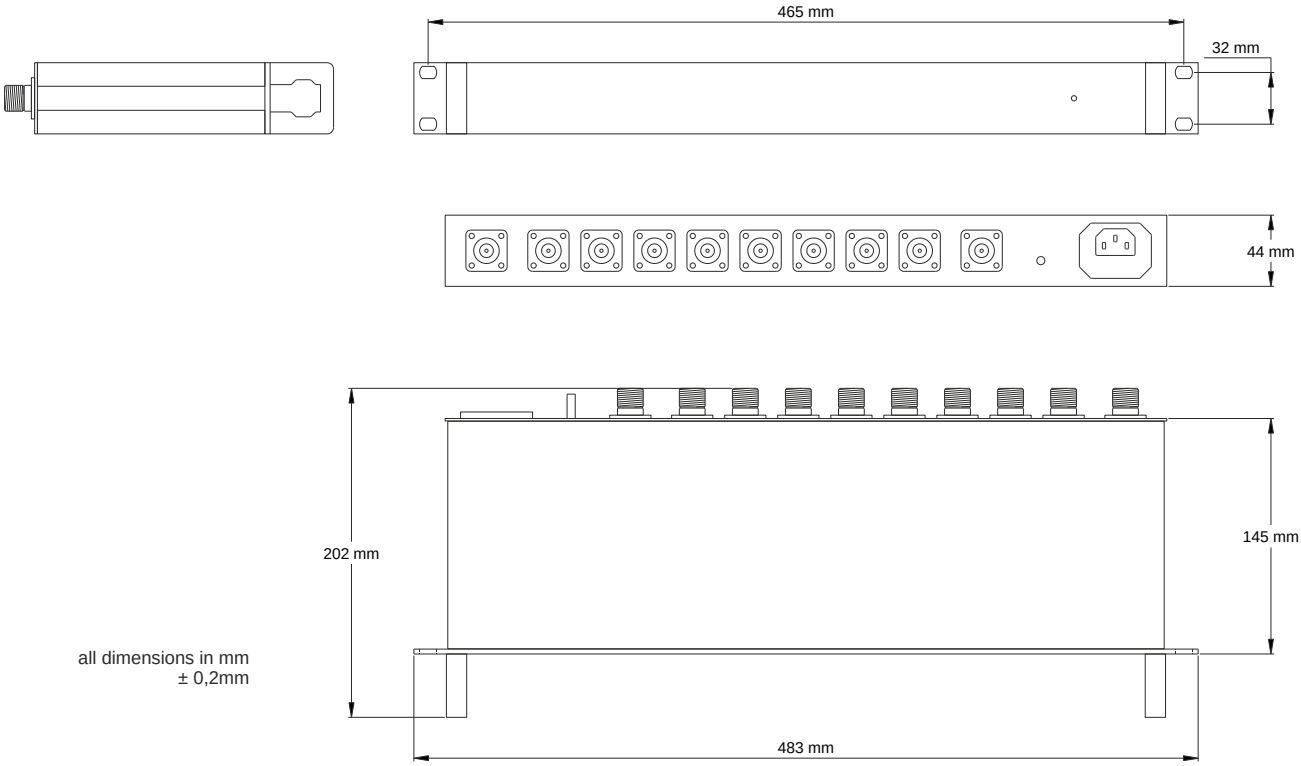

2nd order intercept
OPIP2 [dBm]
70
60
50
40
30
20
10
0
0,1
1
10
100
1000
10000
MHz

Appearances

Front View

Rear View

Dimensions



all dimensions in mm
± 0,2mm

Related Products

Product	Description	P/N
WSDU1X8R	High Dynamic 8 Way Multicoupler 100 kHz … 4000 MHz	1107.6102.1
WSDU1X8	High Dynamic 8 Way Multicoupler Module 100 kHz ... 4000 MHz	1202.6100.1
WSDU1X8A	8 Way High Dynamic Signal Conditioning Multicoupler 100 kHz…4000 MHz	1807.6300.1
MBAC	4 Channel Active Antenna Combiner for Broadcast and Navigation Signals. AM/FM, DAB, DVB-T, GNSS	1314.5102.1
FDMX	De-Multiplexer for Broadcast and Navigation Signals with Resistive DC Loads. Dual (AM/FM), DAB3/DAB-L, DVB-T, GNSS, SAT (SDARS)	1310.6003.1
FDMX-PT	De-Multiplexer for Broadcast and Navigation Signals with Programmable DC Loads 0 … 300 mA. Dual (AM/FM), DAB3/DAB-L, DVB-T, GNSS, SAT (SDARS)	1310.6003.2
FDMX2	De-Multiplexer for Broadcast and Navigation Signals with Resistive DC Loads. Dual (AM/FM/DAB3), DVB-T, GNSS, SAT (SDARS)	1809.6003.1
FDMX2-PT	De-Multiplexer for Broadcast and Navigation Signals with Programmable DC Loads 0 … 300 mA. Dual (AM/FM/DAB3), DVB-T, GNSS, SAT (SDARS)	1809.6003.2
FDML	Dual Port Adapter for AM/FM and DAB3 Broadcast Signals with Resistive DC Loads	1310.6103.2