

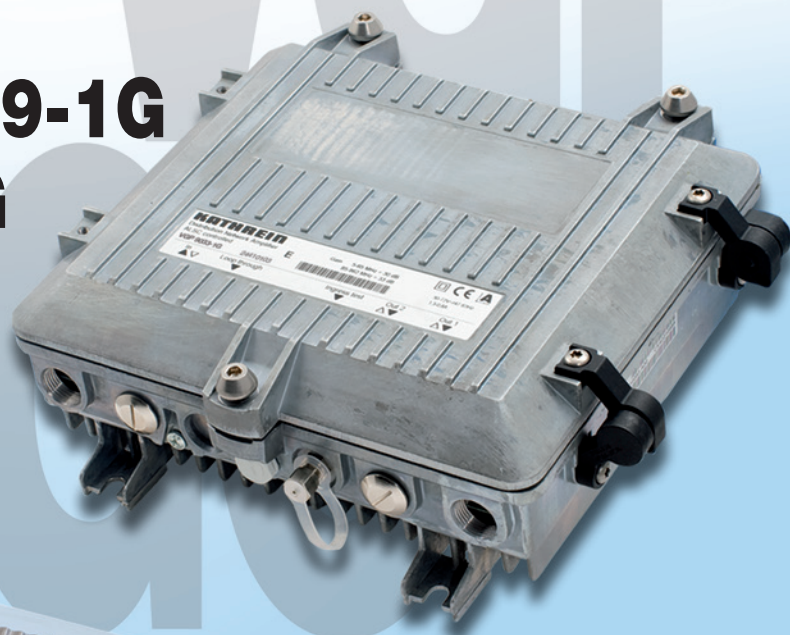
# Compact amplifiers

**VGP 9033-1G/9041**

**VGF 9030/9040**

**VGO 939-1G/VGF 939-1G**

**VOS 952-1G/953-1G**



**KATHREIN**

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# VGP 9033-1G/9041 VGF 9030/9040

## DESCRIPTION

### VGP 9033-1G/9041 – VGF 9030/9040

- Modern, monitorable compact amplifiers for interactive HFC networks
- Innovative operational concept: Using electronic tuning elements, set using HTE 10 hand-held unit (fewer plug-in cards and attenuation pads required, repeatable device settings)
- Integrated frequency-agile 2-pilot control in VGP 9033-1G/9041 enables quick commissioning:
  - Automatic levelling in the forward path, thus no need for time-consuming manual levelling
  - Automatic presetting of the return path is possible
- Remote configuration of all setting parameters via monitoring system (can be activated/deactivated)
- High gain (up to 40 dB), variable in interstage position
- Latest GaAs-MMIC technology
- Very high output levels at lowest intermodulation products, even for interstage operation
- Loop-through input (only for VGP 9033-1G/9041) and output splitter can be configured
- De-emphasis (inverse-equalisation) insert position
- Remote feeding: 7 A per input/output, local feeding: 10 A
- Insert position for monitoring transponder (HMS/DOCSIS)
- Test sockets on input/output and in return path amplifier
- Integrated return path amplifier, settable gain
- Ingress Control Switch
- Aluminium die-cast housing with PG 11 connections

### The compact amplifiers with electronic tuning elements – VGP 9033-1G/9041 and VGF 9030/9040

With the VGP 9033-1G/9041 and VGF 9030/9040 Kathrein offers a latest-generation compact amplifier series. A wide range of settings, electronic operation and excellent technical data – at an unbeatable price/performance ratio.

### "Plug-and-Play" redefined

Electronic setting of all important parameters, automatic levelling (only for VGP 9033-1G/9041) as well as remote configuration via HMS or DOCSIS monitoring ensure the shortest start-up and maintenance times. The copy function enables one to copy all settings and transfer them to another device at the press of a button. The absence of plug-in cards for gain and slope not only accelerates start-up, but also simplifies logistics and saves warehousing costs. Another advantage during modifications: new values are taken over without any interruptions. Multimedia services remain undisturbed.

### Start-up without a measuring instrument – it doesn't get any easier than this

Due to automatic levelling, the compact amplifiers VGP 9033/9041 can be put into operation with just a few steps:

- Simply enter the desired output level for the lower and upper pilot frequency and start levelling
- After a few seconds, the device automatically sets the desired values, whereby optimal technical data are continuously reached. Manual vernier adjustment is still possible at any time.
- Subsequently, automatic presetting can also be effected in the return path.
- For the next devices, levelling runs even more quickly. The copy function enables desired settings to be automatically incorporated.



# VGP 9033-1G/9041

## VGF 9030/9040

### DETAILS, ACCESSORIES, BLOCK DIAGRAM, DELIVERY STATUS

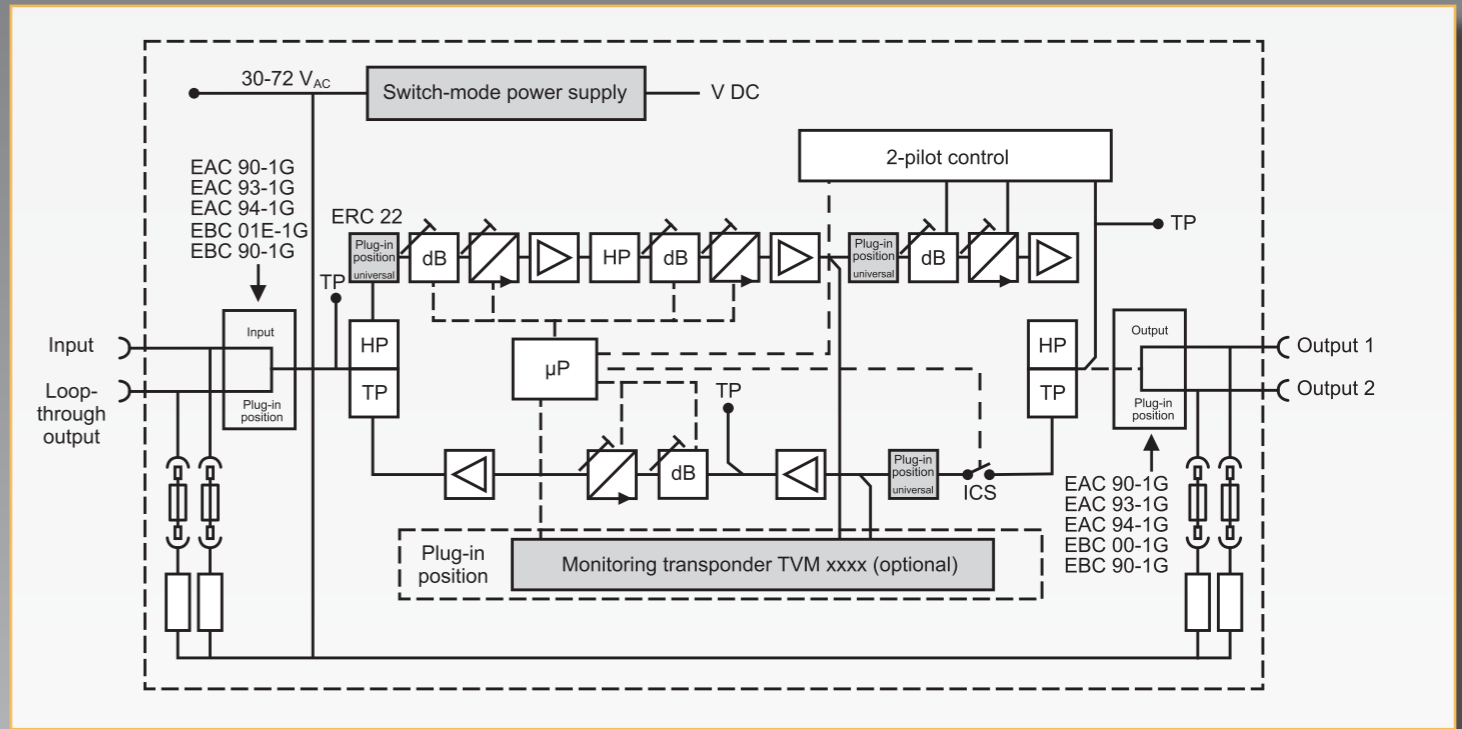
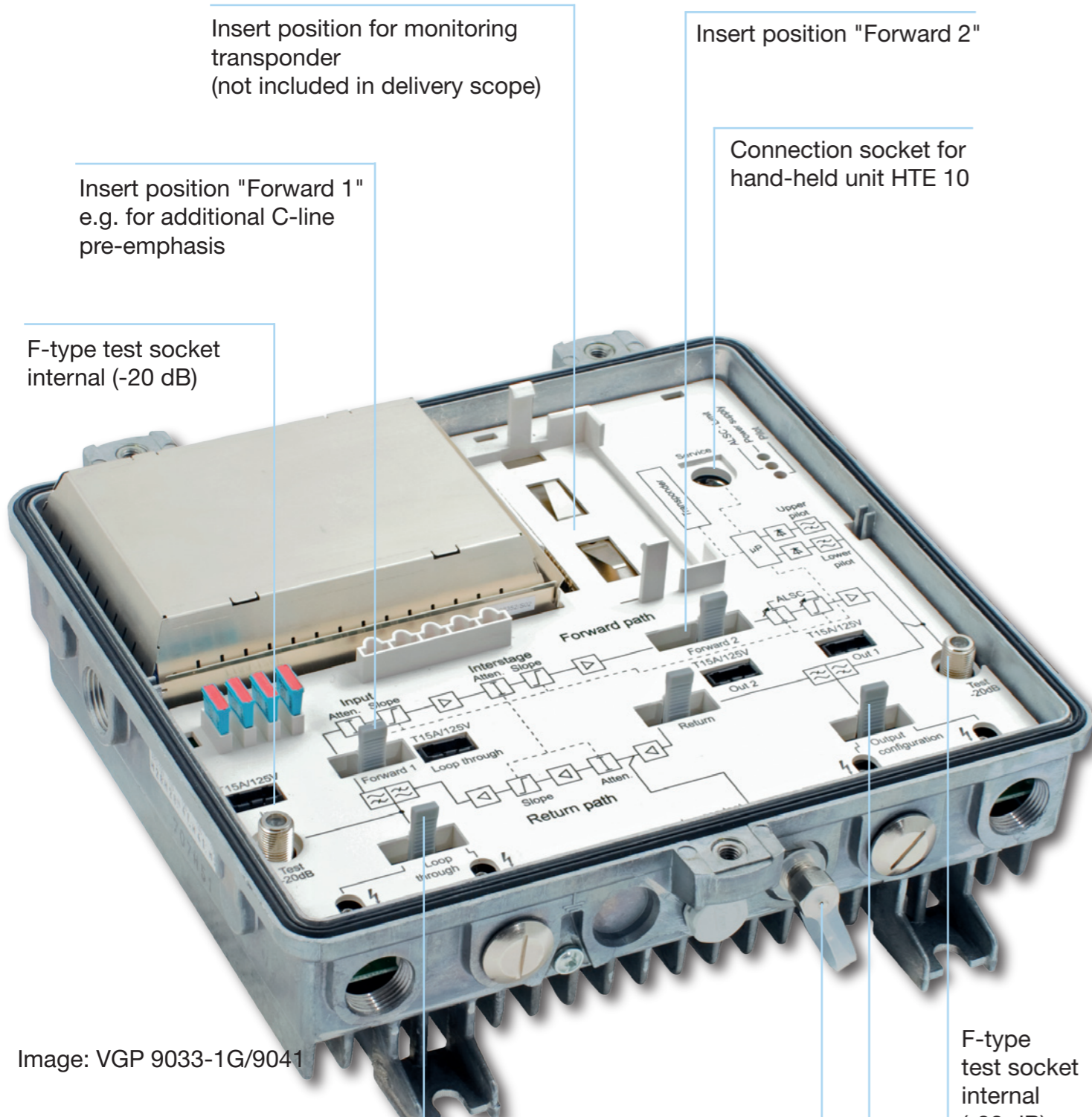


Image: VGP 9033-1G/9041

Image: VGP 9033-1G/9041

Input insert position

F-type broadband input for the return path with protective cap (-10 dB)

F-type test socket internal (-20 dB)

Output insert position

#### Delivery status

- Note: The input and output plug-in positions must each be equipped with a EBC/EAC xx for operation. The other plug-in positions are already equipped with null cards
- Input and output cable fittings not included in the delivery scope (see page 20)
- Please note that the VGF 9030/9040 does not include remote-feed fuses in its delivery scope (see page 20)

#### Accessories

- EBC 01E-1G (Order no. 24510121): Null card input
- EBC 00-1G (Order no. 24510119): Null card output, for operation with one output
- EBC 90-1G (Order no. 24510113): Splitter (2 outputs symmetrical)

- EAC 93-1G (Order no. 24510115): Tap (3/6 dB)
- EAC 90-1G (Order no. 24510116): Tap (1.5/10 dB)
- EAC 94-1G (Order no. 24510114): Tap (0.8/20 dB)
- ERC 22 (Order no. 24510085): C-line pre-emphasis equaliser for VGP 9041/VGF 9040
- ERZ 630 (Order no. 24510108): Equaliser 630 MHz
- ERS 800 (Order no. 24510109): System equaliser 862 MHz
- ERD 810 (Order no. 24510110): De-emphasis equaliser switchable, 862 MHz
- ERD 813 (Order no. 24510117): De-emphasis equaliser
- ERD 814 (Order no. 24510120): Attenuation pad
- TVM 850/H (Order no. 26210077): Monitoring transponder HMS (5-24 MHz), frequency-agile
- TVM 1000 (Order no. 26210086): Monitoring transponder DOCSIS
- FUN 15 (Order no. 25010017): FUN remote-feed fuse 15A/125 VDC
- HTE 10 (Order no. 25010005): Hand-held unit

For details see pages 16-20



# VGP 9033-1G/9041

## VGF 9030/9040

### DATA

#### Technical Data

Type		VGF 9030	VGF 9040	VGP 9033-1G	VGP 9041
Order no.		24410108	24410109	24410103	24410054
<b>FORWARD PATH</b>					
Frequency range	MHz	85-862	85-862	85-1000	85-862
Gain (at 1000 MHz)	dB	33	40	33	40
Return loss	dB	19-1.5 dB/oct.			
Frequency response (85-1000 MHz at 25 °C)	dB	± 0.5			
Max. output level according to CENELEC 1) - CTB > 60 dB	dBμV	114			
Max. output level to CENELEC 1) - CSO > 60 dB	dBμV	116			
Attenuation range, electronically settable in 0.5 dB steps <sup>5)</sup>	dB	0-16		0-15	0-16
Slope range, electronically settable in 0.5 dB steps <sup>5)</sup>	dB	0-20		0-15	0-20
Interstage attenuation, settable in 1 dB steps		-		0-5	-
Interstage pre-emphasis, electronically settable in 2.5 dB steps	dB	2-9		2.5-10	2-9
Noise figure at minimum pre-emphasis	dB	6		6.5	6
Adjustment range, sloped at 85 MHz	dB	-		± 2	
Adjustment range, parallel	dB	-		± 3	
Frequency range lower pilot Pu <sup>2)</sup>	MHz	85-230		85-230	82.5-230
Frequency range upper pilot Po <sup>2)</sup>	MHz	570-870		570-870 <sup>5)</sup>	
Pilot level (PAL/CW/QAM)	dBμV	83-112			
Hum modulation ratio at 7 A	dB	70		> 67	70
<b>RETURN PATH</b>					
Frequency range	MHz	5-65			
Gain	dB	30		28	30
Frequency response at 25 °C	dB	± 0.5		± 0.3	± 0.5
Input level density (CINR = 50 dB), at 28 dB gain <sup>6)</sup>	dBμV/Hz	-9			
Dynamic range: CINR > 50 dB, 5-65 MHz, at 28 dB gain <sup>6)</sup>	dB	21			
Dynamic range: CINR > 50 dB, 5-65 MHz, at 18 dB gain <sup>7)</sup>	dB	26			
Noise figure	dB	6			
Attenuation, switchable in 1 dB steps	dB	0-30			
Slope, switchable in 7 steps	dB	1-8			
ICS switch (attenuation switchable over EMS or HTE 10 hand-held unit)	dB	0/6/> 45			
Hum modulation ratio at 7 A/> 15 MHz	dB	60			
<b>GENERAL</b>					
Voltage supply	V <sub>AC</sub>	30-72			
Power consumption	W	21		23	
Max. remote feed current per connection	A	7			
Max. remote feed current in local feeding (power passing)	A	10			
RF connections		PG 11			
Housing protection category		IP 54		IP 67	
Ambient temperature range	°C	-20 to +55			
Screening factor		Conforms to CENELEC EN 50083-2			
Overvoltage protection acc. to IEC 60-2		2 kV (1.2/50 μs)			
Dimensions (W x H x D)	mm	240 x 95 x 240 <sup>3)</sup>			
<b>NETWORK MANAGEMENT (optional)</b>					
Monitorable/settable parameters		Operational voltage; current; temperature; electronic tuning elements; pilot setting and alarm; automatic levelling of forward path; automatic presetting of return path; return path gain; ICS switch; remote inventory data			

<sup>1)</sup> 9 dB slope    <sup>2)</sup> Set using HTE 10 hand-held unit    <sup>3)</sup> Width incl. hinges: 267 mm    <sup>4)</sup> As of device version Bxx from 570-870 MHz    <sup>5)</sup> For VGP 9033-1G in 1 dB steps

<sup>6)</sup> For VGF 90xx at 30 dB gain    <sup>7)</sup> For VGF 90xx at 20 dB gain

# VGO 939-1G/

## VGF 939-1G

### DESCRIPTION

#### VGO 939-1G/VGF 939-1G

- Latest GaAs-MMIC technology
- Innovative operational concept:
  - Settings via slide switches
  - Device settings can be reproduced exactly
  - Fewer plug-in cards and variable attenuators needed
- Integrated diplexers allow optimised data
- Very high output level at lowest intermodulation products (also for interstage attenuation)
- Pluggable loop-through output
- One or two output(s) configurable
- Built-in active return path with various setting possibilities
- Return path can also be operated passively
- 15 MHz high pass can be activated in the return path
- Ingress Control Switch (ICS)
- Monitorable with HMS or DOCSIS transponder (option)
- Insert position for additional functions in the forward path (e.g. de-emphasis)
- Bi-directional test socket on the amplifier input
- Directional coupler test socket on amplifier output and in return path
- Test signals can be coupled in for the return path
- LED as function indicator
- Highly efficient switched-mode power supply unit
- Advanced remote power concept in the VGF 939-1G:
  - Newly developed remote feed coils
  - Remote feed current: Max. 7 A per connection, local insertion max. 10 A totally
  - Remote feeding possibilities: By choice via all RF connections or local connector (power passing)
- Surge absorber on all RF connections and in switched-mode power supply unit
- Power management: Unused amplifier stage switch-off for reduced power consumption
- Die-cast housing with PG 11 connectors
- Easy connection of large cable fittings due to extended thread distance
- Outdoor operation possible, housing protection class: IP 54
- Test sockets: F-type connectors (internal)

#### The compact amplifier with slide switches – VGO 939-1G/VGF 939-1G

In addition to the devices with electronic setting, Kathrein offers yet another highly innovative compact amplifier platform. This particularly economical series requires no equaliser cards or attenuation pads. All adjustments can be easily carried out using slide switches.

#### Simple, yet effective

The required attenuation and slope values are set with a combination of several slide switches. The advantages are obvious. Besides saving plug-in cards, this allows exact reproduction of setting values without requiring a measuring instrument. Replacement of the device, for example, is thus much easier.

When slide switches are shifted, a virtually uninterrupted signal flow is guaranteed – multimedia services remain undisturbed.

#### Maximum reliability

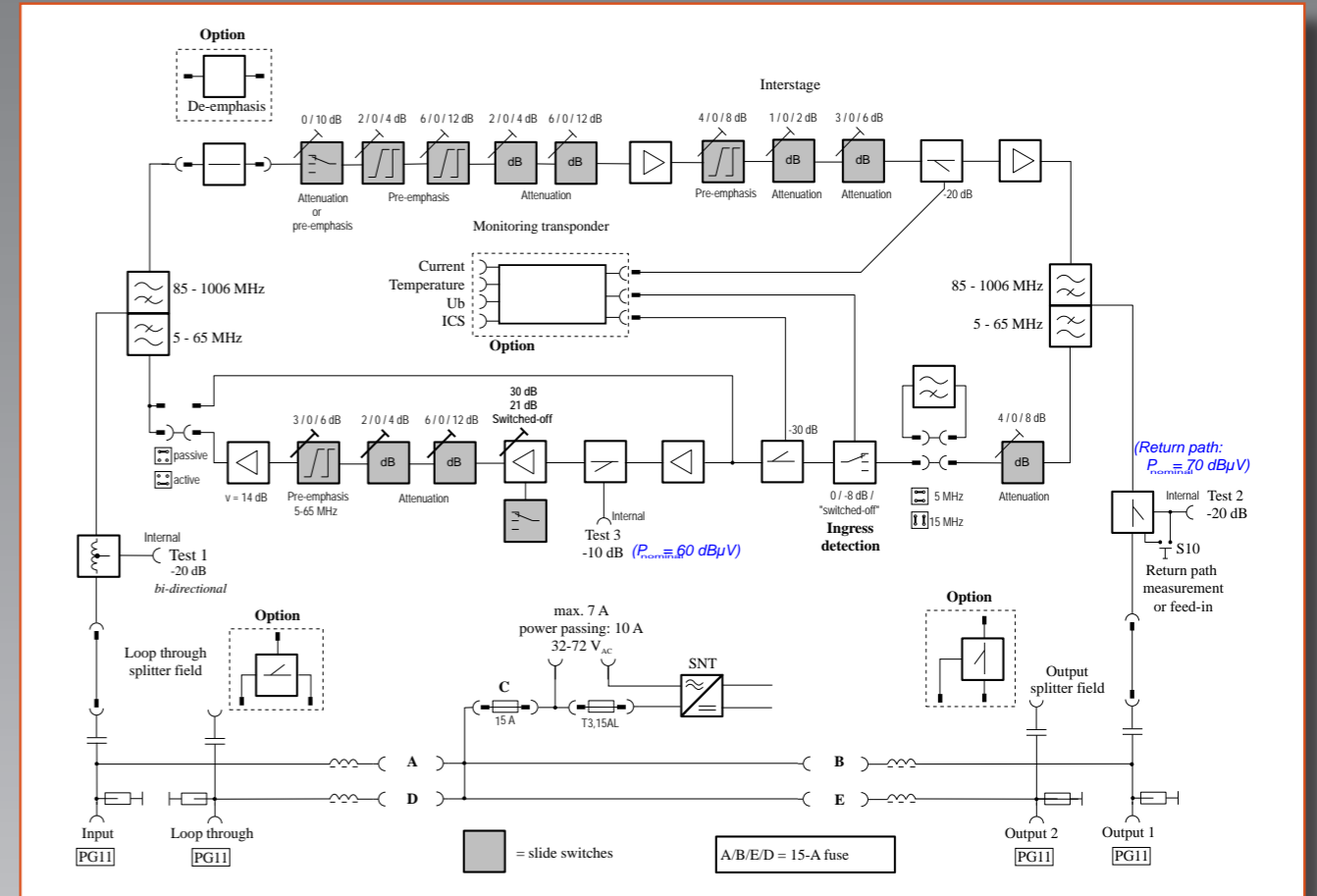
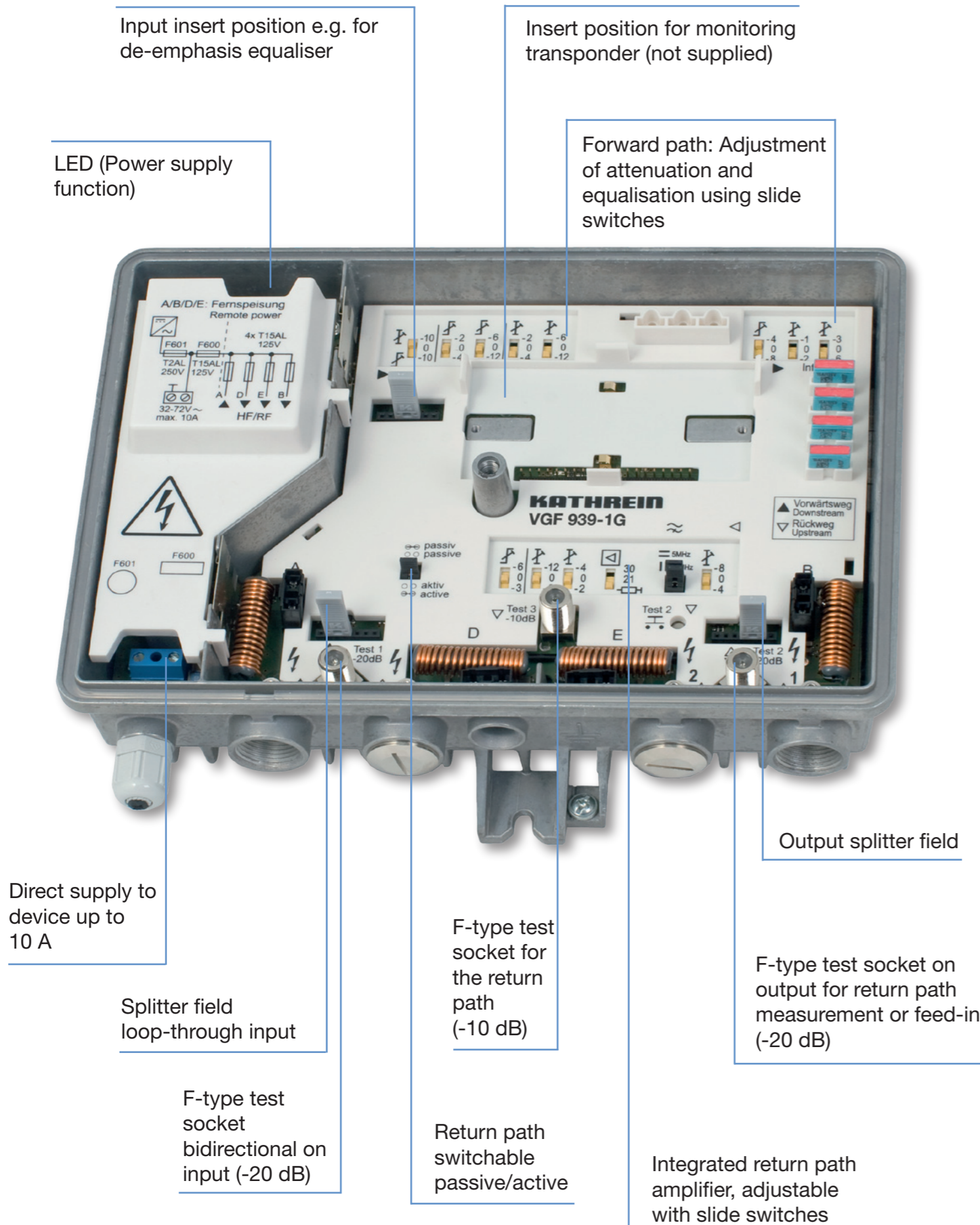
The implemented slide switches fulfil the highest demands regarding reliability and endurance. Dual gold-plated contact reeds, increased contact pressure and a separate catch spring ensure ultimate reliability of the switches, which have been proven and tested 100,000 times.





# VGO 939-1G/ VGF 939-1G

## DETAILS, ACCESSORIES, BLOCK DIAGRAM, DELIVERY STATUS



### Delivery status

- For operation with one input or output, no plug-in cards required
- All insert positions are fitted with 0-dB bridging plugs ex works
- Input and output cable fittings not included in the delivery scope (see page 20)

### Accessories

- EBC 90-1G (Order no. 24510113) Splitter (2 outputs symmetrical)
- EAC 93-1G (Order no. 24510115): Tap (3/6 dB)
- EAC 90-1G (Order no. 24510116): Tap (1.5/10 dB)
- EAC 94-1G (Order no. 24510114): Tap (0.8/20 dB)

- ERZ 940 (Order no. 24510059): De-emphasis equaliser (cable-analogue) 862 MHz, 7 dB fixed
- ERD 810 (Order no. 24510110): De-emphasis equaliser
- ERD 813 (Order no. 24510117): De-emphasis equaliser
- ERD 814 (Order no. 24510120): De-emphasis equaliser/attenuator
- ERZ 630 (Order no. 24510108): Equaliser 47-630 MHz, switchable in 2-dB steps from 2-18 dB
- ERS 800 (Order no. 24510109): System equaliser 862 MHz
- TVM 850/H (Order no. 26210077): Monitoring transponder HMS (5-42 MHz), frequency-agile
- TVM 1000 (Order no. 26210086): Monitoring transponder DOCSIS



# VGO 939-1G/ VGF 939-1G

## DATA

# VOS 952-1G/953-1G DESCRIPTION

### Technical Data

Type		VGO 939-1G	VGF 939-1G	Notes
Order no.		24410101	24410100	
		Locally fed	Remotely fed	
<b>FORWARD PATH</b>				
Frequency range	MHz	85-1000		
Gain	dB	40		
Gain setting range, interstage <sup>3)</sup>	dB	32-40		
Amplitude response	dB	±0.5		85-1000 MHz, at 25 °C
Amplitude response (additional, 862-1000 MHz)	dB	-0.5		at 25 °C
Attenuation setting range, on input <sup>3)</sup>	dB	0-26		
Pre-emphasis setting range, at input <sup>3)</sup> or interstage	dB	0-26 or 0/4/8		
Return loss, as of 40 MHz	dB	18-1.5/oct.		
Noise figure	dB	4		at 40 dB gain
Max. operational level: CENELEC raster <sup>1)</sup>	dB $\mu$ V	116/118		CTB: 60 dB/CSO: 60 dB (pre-emphasis 4 dB)
Hum modulation ratio	dB	-	60/70	AT 7 A, 5-65/85-1000 MHz
<b>RETURN PATH</b>				
Frequency range	MHz	5-65		
Gain (input stage bridged), active operation	dB	30 (21)		
Gain, passive operation	dB	-2		
Amplitude response	dB	0.5		
Attenuation setting range, at input or interstage <sup>3)</sup>	dB	0/4/8 or 0-16		
Pre-emphasis setting range, interstage	dB	0/3/6		
Ingress Control Switch (ICS)	dB	8/> 40		attenuated/switched-off
Max. output level at 30 and 21 dB gain	dB $\mu$ V	107/116		60 dB IMod2/IMod3 (EN 60728-3/50083-5)
Max. output level	dB $\mu$ V	120		According to KDG 1 TS 140 (full system load)
Input level density	dB $\mu$ V/Hz	-8		CINR at 50 dB (EN 60728-3/item 4.7)
Dynamic range at 30 dB gain (5-65 MHz) <sup>2)</sup>	dB	18		
Dynamic range at 21 dB gain (5-65 MHz) <sup>2)</sup>	dB	25		
Noise figure	dB	6		
<b>NETWORK MANAGEMENT</b>				
Monitorable parameters		Internal voltage supply, internal current drain, internal temperature, ICS switch		
<b>Test sockets</b>				
Test socket 1 (on amplifier input), bi-directional	dB	20		
Test socket 2 (on amplifier output), directional coupler	dB	20		Possibility to feed in return path signals (5-65 MHz); if button is kept pressed, the incoming return path signal can be measured
Test socket 3 (in return path amplifier), directional coupler	dB	10		Attenuation relative to return path input
<b>SWITCHED-MODE POWER SUPPLY</b>				
Nominal input voltage	V AC	230		32-72
Mains frequency range	Hz	50-60		
Max. remote feed current	A	-	7	per input or output
Max. remote feed current, local insertion	A	-	10	
Power consumption (without monitoring)	W	17.5		Return path amplifier active
<b>GENERAL</b>				
Classification according to KDG 1 TS 140		D(4.4)		
Ambient temperature range	°C	-20 to +55		data-conform operation
RF connections		PG 11		
Test sockets		F-type connector		
Housing protection class (to EN 60529)		IP 54		
Dimensions (W x H x D)	mm	238 x 86 x 189		
Packing unit/weight	pc./kg	1(10)/2.2		

<sup>1)</sup> CENELEC: 41 channels <sup>2)</sup> When the 15 MHz high pass is connected, the dynamic range increases by 3 dB <sup>3)</sup> Settable in 2-dB steps using slide switches

### VOS 952-1G/953-1G

- Latest GaAs-MMIC technology
- Innovative operational concept:
  - Settings via slide switches
  - Device settings can be reproduced exactly
  - Fewer plug-in cards and variable attenuators needed
- Very high output level at lowest intermodulation products
- Built-in active return path with various setting possibilities
- 15 MHz high pass can be activated in the return path
- Ingress Control Switch (ICS)
- Monitorable with HMS or DOCSIS (option)
- Insert position for additional functions in the forward path (e.g. de-emphasis)
- Bi-directional test socket on amplifier input with inductive coupling
- Directional coupler test socket on amplifier output and in return path
- Test signals can be coupled in for the return path
- Highly efficient switched-mode power supply unit
- VOS 952-1G - locally fed, F-type connectors
- VOS 953-1G - remotely fed (auto-supply), F-type sockets
- Surge absorbers on all RF connections and in switched-mode power supply unit
- Die-cast housing
- Test sockets: F-type sockets

### House connection amplifiers

The compact, price-optimised house connection amplifiers 952-1G and VOS 953-1G were designed for application in modern HFC networks. Great value was set upon a high dynamic range for Interstage operation as well as upon a cost-efficient operation concept with slide switches.

### Monitoring via DOCSIS transponder

If fitted with the optional monitoring transponder TVM 1000/H, the amplifiers VOS 952-1G/953-1G can be monitored via DOCSIS protocol. Monitoring with HMS Both amplifiers can be flexibly integrated into monitoring systems which operate with the widespread HMS protocol.

### Bridgeable duplex filter

Bridging plugs enable variation of the frequency range between 47-1000 MHz and 85-1000 MHz making it possible to carry out transmission in BAND I in the forward path (without return path).

### Flexible return path

In the latest generation, the return path can be operated either actively or passively.



# VOS 952-1G/953-1G

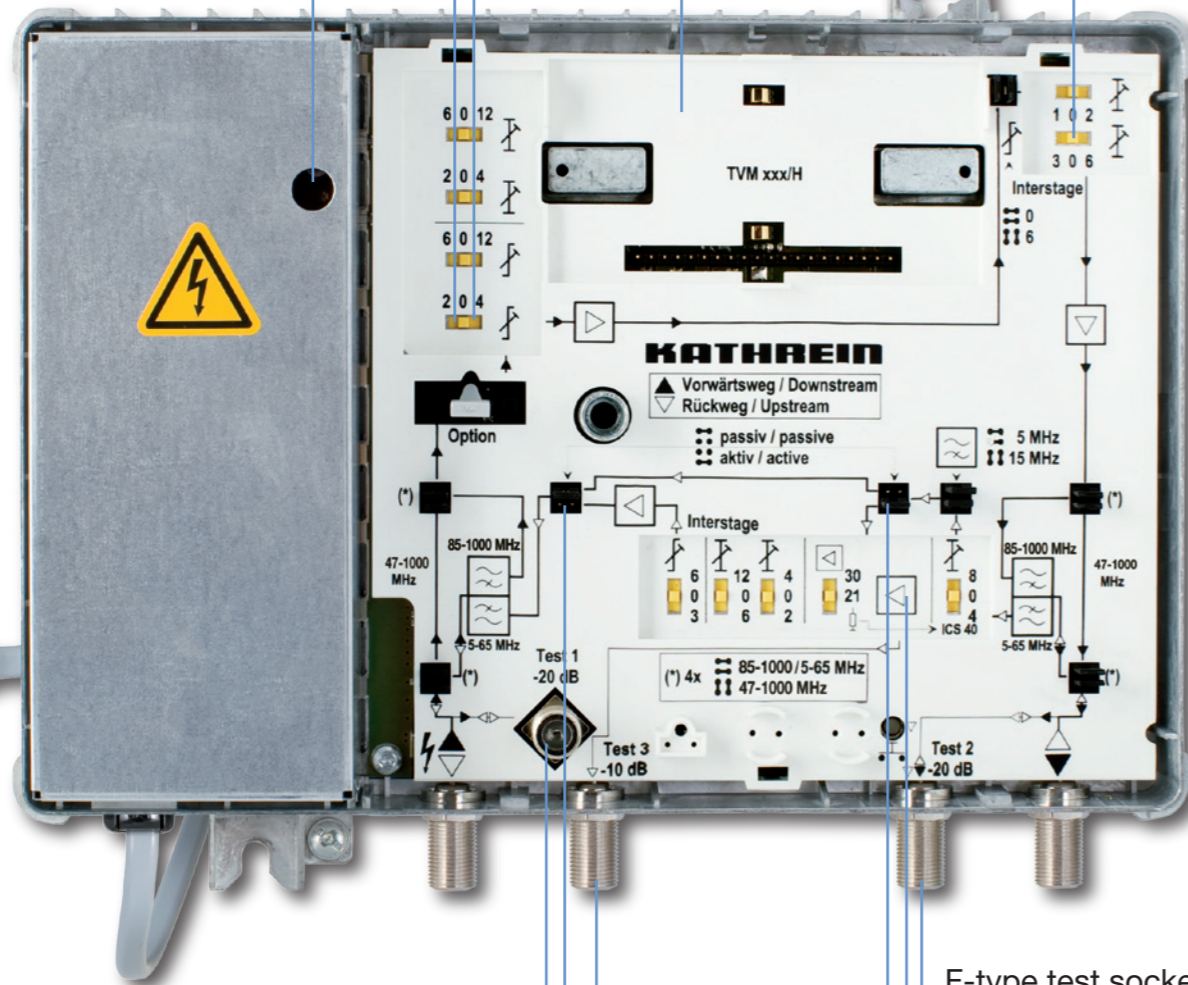
## DETAILS, ACCESSORIES, BLOCK DIAGRAM, DELIVERY STATUS

Input insert position e.g. for de-emphasis equaliser

Insert position for monitoring transponder (not included in delivery scope)

LED (Power supply function)

Forward path: Adjustment of attenuation and equalisation using slide switches



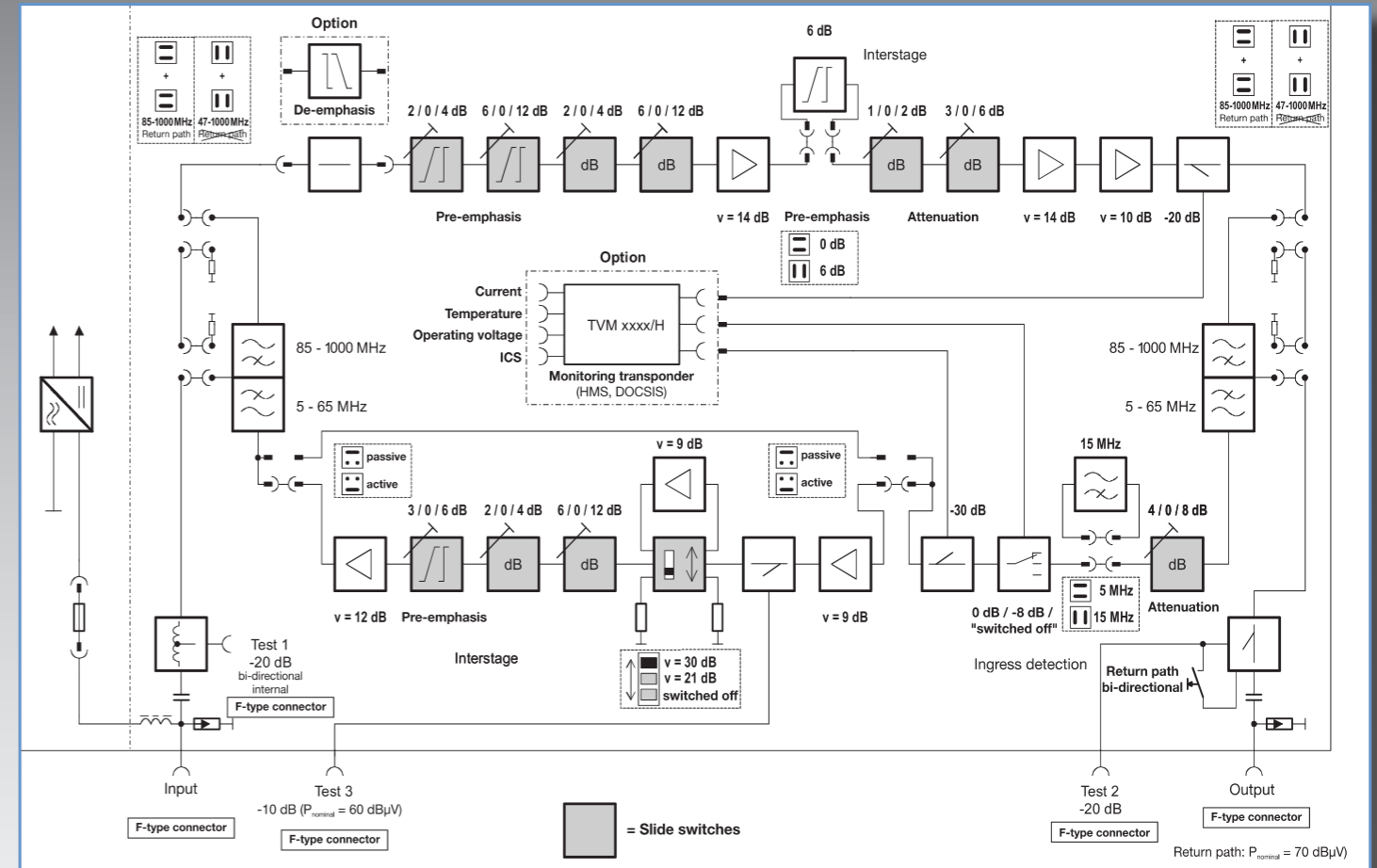
F-type test socket bidirectional on input (-20 dB)

F-type test socket for the return path (-10 dB)

Return path switchable passive/active

F-type test socket on output for return path measurement or feed-in (-20 dB)

Integrated return path amplifier, adjustable with slide switches



### Delivery status

- The insert position is fitted with a 0-dB bridging plug ex works

### Accessories

- ERZ 940 (Order no. 24510059): De-emphasis equaliser (cable-analogue) 862 MHz, 7 dB fixed
- ERZ 630 (Order no. 24510108): Equaliser 47-630 MHz, 2-18 dB in 2-dB steps
- ERS 800 (Order no. 24510109): System equaliser 862 MHz
- ERD 810 (Order no. 24510110): De-emphasis equaliser, switchable 3 dB
- TVM 850/H (Order no. 26210077): Monitoring transponder HMS protocol (frequency-agile)
- TVM 1000 (Order no. 26210086): Monitoring transponder DOCSIS protocol



# VOS 952-1G/953-1G

## Technical Data

Type		VOS 952-1G	VOS 953-1G	Notes
Order no.		24410098	24410099	
		Locally fed	Remotely fed	
<b>FORWARD PATH</b>				
Frequency range	MHz	47/85-1000	47/85-1000	
Gain <sup>1)</sup>	dB	40-32	40-32	Interstage gain setting
Amplitude response	dB	±0.5	±0.5	85-1000 MHz, at 25 °C
Amplitude response (additional, 862-1000 MHz)	dB	-0.5	-0.5	at 25 °C
Attenuation setting range	dB	0-16	0-16	On amplifier input
Pre-emphasis setting range	dB	0-16 and 0/6	0-16 and 0/6	On amplifier input and interstage
Noise figure	dB	4/5/5	4/5/5	At 40/36/32 dB gain
Max. operational level: CENELEC channel plan <sup>2)</sup>	dBμV	112/116	112/116	CTB: 60 dB/CSO: 60 dB (pre-emphasis 6 dB and gain 40 dB)
Hum modulation ratio	dB	-	>60/70	
<b>RETURN PATH</b>				
Frequency range	MHz	5-65	5-65	
Gain, switchable	dB	30/21	30/21	
Frequency response	dB	0.5	0.5	
Attenuation setting range	dB	0-16 / 0/4/8	0-16 / 0/4/8	On input/interstage
Pre-emphasis setting range	dB	0/3/6	0/3/6	Interstage
Ingress Control Switch (ICS)	dB	8/> 40	8/> 40	attenuated/switched-off
Max. output level at 30 and 21 dB gain	dBμV	107/116	107/116	60 dB IM2/IM3 (EN 60728-3/50083-5)
Maximum output level	dBμV	120	120	According to KDG 1 TS 140 (medium system load)
Input level density	dBμV/Hz	-10	-10	CINR at 50 dB (EN 60728-3/ item 4.7)
Dynamic range at 30 dB gain (5-65 MHz) <sup>3)</sup>	dB	17	17	
Dynamic range at 21 dB gain (5-65 MHz) <sup>3)</sup>	dB	25	25	
Noise figure	dB	5	5	
<b>NETWORK MANAGEMENT</b>				
Monitorable parameters		Internal supply voltage, internal current drain, temperature, ICS switch	Internal supply voltage, internal current drain, temperature, ICS switch	
<b>TEST SOCKETS</b>				
Test socket 1 (on amplifier input)	dB	20	20	5-862 MHz bi-directional, internal
Test socket 2 (on amplifier output)	dB	20	20	5-862 MHz with directional coupler, external - return path signals can be fed in (5-65 MHz); if push-button is kept pressed, the incoming return path signal can be measured
Test socket 3 (in return path)	dB	10	10	5-65 MHz with directional coupler, external

Type		VOS 952-1G	VOS 953-1G	Notes
Order no.		24410098	24410099	
		Locally fed	Remotely fed	
<b>SWITCHED-MODE POWER SUPPLY</b>				
Nominal input voltage	V AC	230	38-65	
Mains frequency range	Hz	50-60	50-60	
Power consumption	W	11	12	Return path amplifier active/ without monitoring
<b>GENERAL</b>				
Ambient temperature range	°C	-20 to +55	-20 to +55	
RF connections		F-type socket	F-type socket	
Test sockets		F-type socket	F-type socket	
Housing protection class (to EN 60529)		IP 54	IP 54	IP 54: Outdoor use in weather-proof cabinet
Dimensions (W x H x D)	mm	225 x 55 x 155	225 x 55 x 155	
Packing unit/weight	pc./kg	1(10)/1.8	1(10)/1.8	

<sup>1)</sup> Adjustable with 2 slide switches in 1 dB steps

<sup>2)</sup> CENELEC: 42 channels

<sup>3)</sup> When the 15 MHz high pass is connected, the dynamic range increases by 3 dB



# Accessories

## Monitoring transponder HMS protocol, frequency-agile

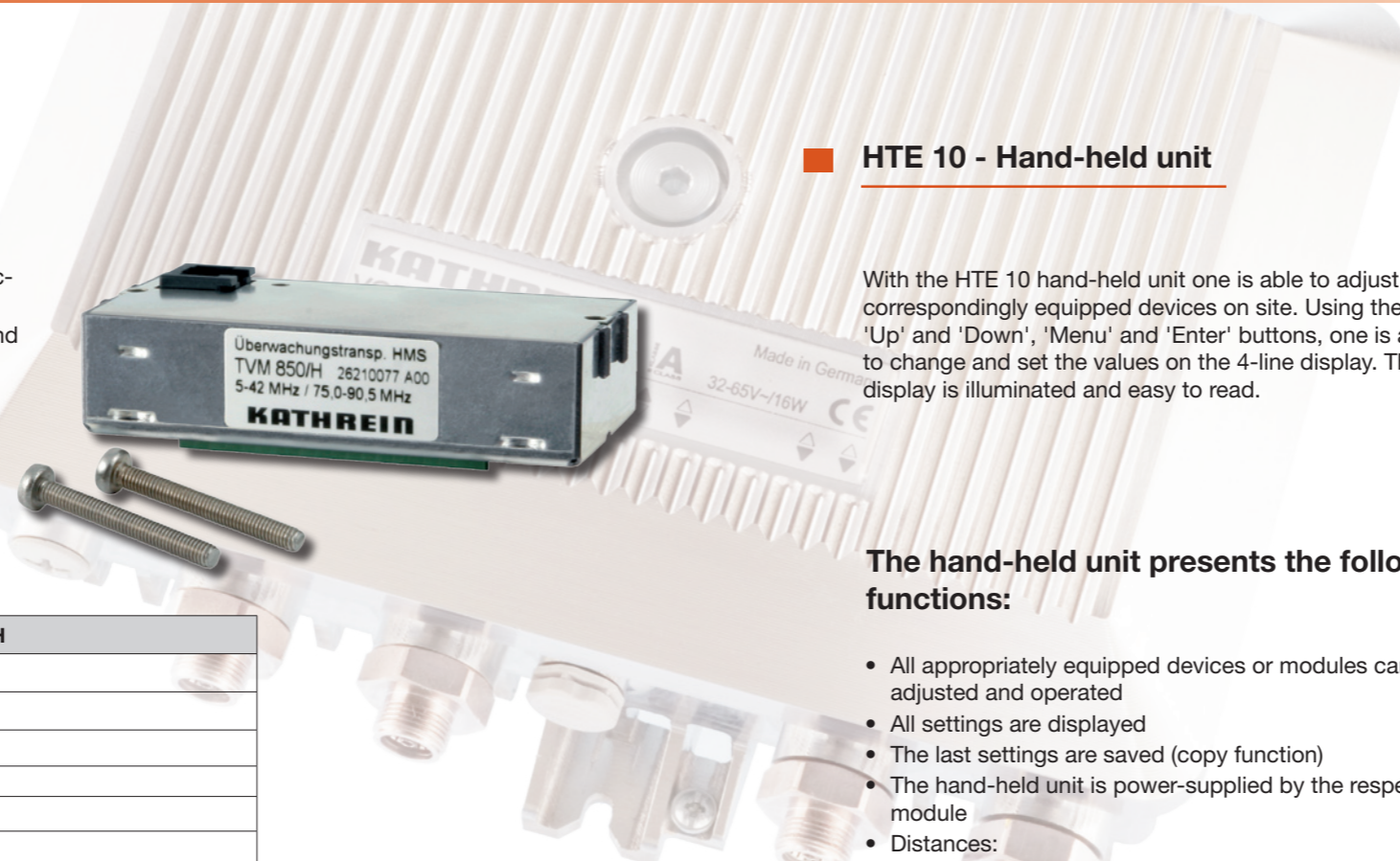
- Monitoring transponder for compact amplifiers, house connection amplifiers and optical compact receivers (see table)
- Monitors various parameters such as voltage, current drain and internal temperature
- Controls the Ingress Control switch in correspondingly equipped devices
- Transmission in the HMS protocol
- Frequency-agile in range 5-42 MHz

Type	TVM 850/H	
Order no.		26210077
Input frequency range	MHz	75-90.5
Input level range	dBµV	50-95
Output frequency range	MHz	5-42
Max. output level	dBµV	105
Power consumption	W	1
Transmission protocol		HMS
Suitable for	VGO 939, VGF 939, VGO 939-1G, VGF 939-1G, VOS 952/953, VOS 952-1G, VOS 953-1G, ORA 9022, ORA 9022-1G, ORA 920/921, VGP 9033, VGP 9033-1G, VGP 9041, VGF 9030/9040	

## TVM 1000 - Monitoring transponder DOCSIS/EuroDOCSIS, frequency-agile

- Monitoring transponder for compact/house connection amplifiers and optical compact receivers (see table)
- Monitors various parameters such as voltage, current drain and internal temperature
- Controls the Ingress Control switch in correspondingly equipped devices
- Transmission in DOCSIS or EuroDOCSIS protocol
- Frequency-agile in range 5-65 MHz and 90-862 MHz

Type	TVM 1000	
Order no.		26210086
Input frequency range	MHz	90-862
Input level range	dBµV	48-78
Output frequency range	MHz	5-65
Max. output level	dBµV	113-118
Power consumption	W	3.5
Transmission protocol		DOCSIS/EuroDOCSIS 2.0
Suitable for	VGO 939, VGO 939-1G, VGF 939, VGF 939-1G, VOS 952/953, VOS 952-1G, VOS 953-1G, ORA 9022, ORA 9022-1G, ORA 920/921, VGP 9033 as of version A03 (Nov. 2008), VGP 9033-1G, VGP 9041 as of version A02 (Nov. 2008), VGF 9030/9040	

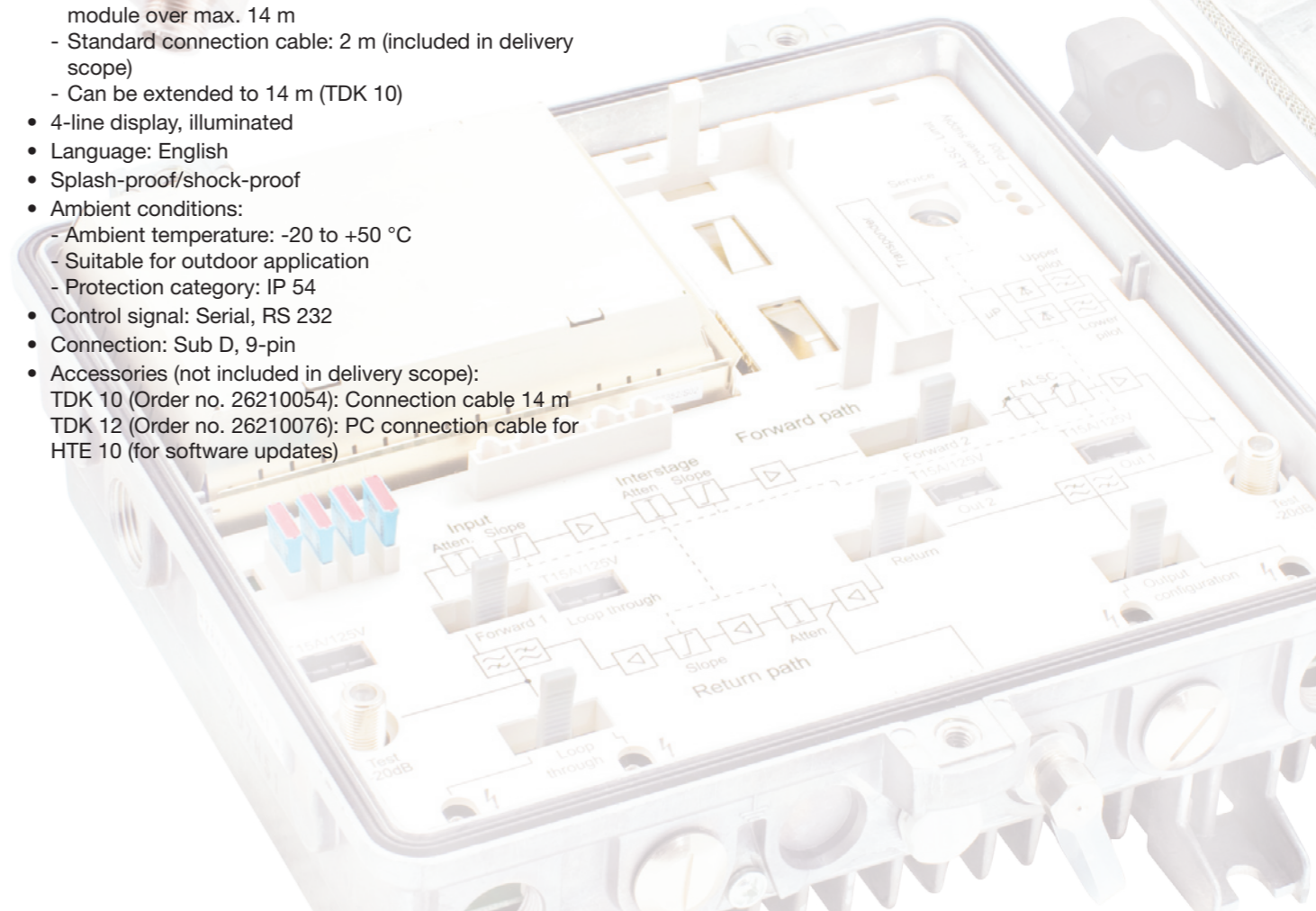
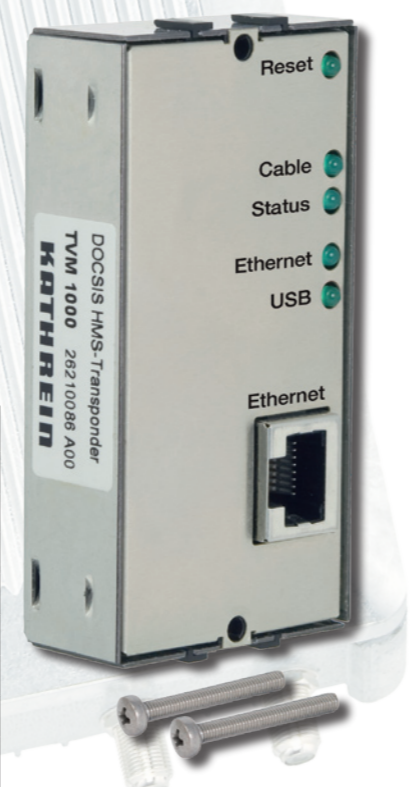


## HTE 10 - Hand-held unit

With the HTE 10 hand-held unit one is able to adjust correspondingly equipped devices on site. Using the 'Up' and 'Down', 'Menu' and 'Enter' buttons, one is able to change and set the values on the 4-line display. The display is illuminated and easy to read.

### The hand-held unit presents the following functions:

- All appropriately equipped devices or modules can be adjusted and operated
- All settings are displayed
- The last settings are saved (copy function)
- The hand-held unit is power-supplied by the respective module
- Distances:
  - Data transfer between HTE 10 and the device or module over max. 14 m
  - Standard connection cable: 2 m (included in delivery scope)
  - Can be extended to 14 m (TDK 10)
- 4-line display, illuminated
- Language: English
- Splash-proof/shock-proof
- Ambient conditions:
  - Ambient temperature: -20 to +50 °C
  - Suitable for outdoor application
  - Protection category: IP 54
- Control signal: Serial, RS 232
- Connection: Sub D, 9-pin
- Accessories (not included in delivery scope):
  - TDK 10 (Order no. 26210054): Connection cable 14 m
  - TDK 12 (Order no. 26210076): PC connection cable for HTE 10 (for software updates)





# Accessories

## EAC 90-1G, 93-1G, 94-1G – Tap-off cards

- Plug-in modules to extend the corresponding devices to two outputs
- When inserted in the amplifier's input section these modules can be used to configure a loop-through input



## EBC 90-1G – Splitter, 2-way



Type		EAC 90-1G	EAC 93-1G	EAC 94-1G	EBC 90-1G
Order no.		24510116	24510115	24510114	24510113
Frequency range	MHz	5-1000	5-1000	5-1000	5-1000
Through loss <sup>1)</sup> 5-610 MHz	dB	< 1.3	< 2.1	< 0.5	< 3.6
Through loss <sup>1)</sup> 610-862 MHz	dB	< 1.3	< 2.3	< 0.6	< 3.8
Through loss <sup>1)</sup> 862-1000 MHz		< 1.5	< 2.6	< 0.9	< 3.9
Tap loss	dB	10	6	20	Like through loss
Decoupling 5-65 MHz	dB	> 28	> 23	> 38	> 28
Decoupling as of 65-610 MHz	dB	> 26	> 23	> 33	> 22
Decoupling as of 610-862 MHz		> 24	> 23	> 30	> 20
Decoupling as of 862-1000 MHz		> 22	> 20	> 28	> 18

<sup>1)</sup> The through loss is the signal loss between the unit's output and output 1 when the insert is inserted in the output section insertion point or between the unit's input and the tap output when the insert is inserted in the unit's input configuration section

## EBC 00-1G and EBC 01E-1G – Null cards (output, input)

- Plug-in modules for operation of the VGP 90xx distribution network amplifiers with one input or output
- EBC 01E-1G: For operation on the input insert position
- EBC 00-1G: For operation on the output insert position



Type		EBC 01E-1G	EBC 00-1G
Order no.		24510121	24510119
Frequency range	MHz	5-1000	5-1000
Through loss <sup>1)</sup>	dB	< 0.5	< 0.5

<sup>1)</sup> The through loss is the signal loss between the unit's output and output 1 when the insert is inserted in the output section insertion point or between the unit's input and the tap output when the insert is inserted in the unit's input section (input configuration section)

## ERC 22 - C-line pre-emphasis equaliser

- Generates pre-emphasis based on the C-line specifications of Kabel Deutschland
- For use in the amplifiers VGP 9041/VGF 9040
- Application in the universal input insert position ("Forward 1")



Type		ERC 22
Order no.		24510085
Transmission range	MHz	50-862
Nominal impedance	$\Omega$	75
Pre-emphasis		For C-lines
Basic loss (at 862 MHz)	dB	1
Return loss	dB	23 -1/oct.

# Accessories

## ERZ 940 – De-emphasis equaliser

- Cable-analogue 7 dB



Type		ERZ 940
Order no.		24510059
Transmission range	MHz	47-862
Nominal impedance	$\Omega$	75
De-emphasis	dB	7 ± 1
Basic loss (at 47 MHz)	dB	0.3
Return loss	dB	20-3

## ERZ 630 – Equaliser

- Equaliser 47-630 MHz
- Switchable in 2-dB steps from 2-18 dB (cable equivalent)

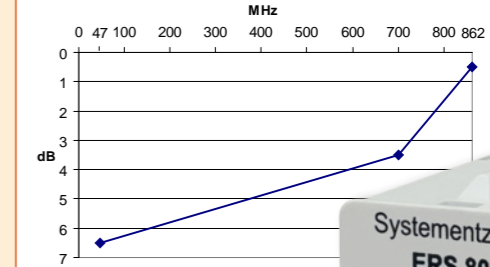


Type		ERZ 630
Order no.		24510108
Transmission range	MHz	47-630
Nominal impedance	$\Omega$	75
Basic loss (at 47/630)	dB	0.5/1.5
Equalisation, adjustable in 2-dB steps	dB	2-18

## ERS 800 – System equaliser

- System equaliser for use in special applications
- Characteristics:
  - Cable-equivalent pre-emphasis in the range 47-700 MHz: 3 dB (at 47-862 MHz: 4 dB)
  - Cable-equivalent pre-emphasis in the range 700-862 MHz: 3 dB (equivalent to additional emphasis in the range 700-862 MHz by 2 dB)

Principal frequency response curve ERS 800



Type		ERS 800
Order no.		24510109
Transmission range	MHz	47-862
Nominal impedance	$\Omega$	75
Cable-equivalent pre-emphasis, 47-700/(equivalent to 47-862) MHz:	dB	3/(4)
Cable-equivalent pre-emphasis in the range 700-862 MHz	dB	3
Basic loss (at 862 MHz)	dB	0.5
Return loss	dB	> 15



# Accessories

## De-emphasis equalisers/attenuators

<b>ERD 810</b>	24510110
<b>ERD 813</b>	24510117
<b>ERD 814</b>	24510120



- Cable simulation switchable:
  - Cable-equivalent de-emphasis 85-862 MHz: Switchable 3, 6 and 9 dB
  - KDG de-emphasis 470-862 MHz: Switchable 0, 4 and 8 dB
- Both de-emphases can be used in combination
- Available types:
  - ERD 810: De-emphasis equaliser, switchable, 862 MHz
  - ERD 813: Cable-equivalent de-emphasis 6 dB <sup>1)</sup>
  - ERD 814: 6 dB attenuation

<sup>1)</sup> In reference to 85-862 MHz

Type		ERD 810	ERD 813	ERD 814
Order no.		24510110	24510117	24510120
Transmission range	MHz	85-862	85-1000	
Nominal impedance	Ω	75		
Attenuation (linear)	dB		1	6
Return loss	dB	20 -1.5/octave		
De-emphasis	dB	3	7	
KDG de-emphasis 470-862 MHz: switchable	dB	0/4/8		
Cable equivalent de-emphasis 85-862 MHz, switchable	dB	3/6/9		
Basic attenuation (at 85 MHz)	dB	0.5		

## F-type cable fittings

<b>EMK 104</b>	273195
<b>EMK 105</b>	273196
<b>EMK 106</b>	273197



EMK 106

- Cable fitting
  - EMK 104: F-type cable fitting for LCM 33 cable
  - EMK 105: F-type cable fitting for LCM 50 cable
  - EMK 106: F-type cable fitting for LCM 96 cable

## Remote-feed fuse

<b>FUN 15</b>	25010017
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- 15 A/125 V<sub>DC</sub>

## PG 11 connectors

<b>EMP 26</b>	275281
<b>EMP 28</b>	275283
<b>EMP 29</b>	275284
<b>EMP 34</b>	275289
<b>EMP 35</b>	275300
<b>EMU 29</b>	273243



EMP 26

- Plugs:
  - EMP 26: Plug for cables LCD 90/95/99/110/111
  - EMP 28: Plug for cables LCM 14/17
- Cable fitting:
  - EMP 29: Cable fitting for cable LCM 33
- Adapters:
  - EMP 34: PG 11 to IEC socket with M14 external thread
  - EMP 35: PG 11 to F-type socket (female)
  - EMU 29: PG 11 adapter ring to 5/8"

The products described must only be installed by qualified specialists. Please consult the provided instruction manuals for the safety instructions that are to be considered during use.

We are pleased to advise you: