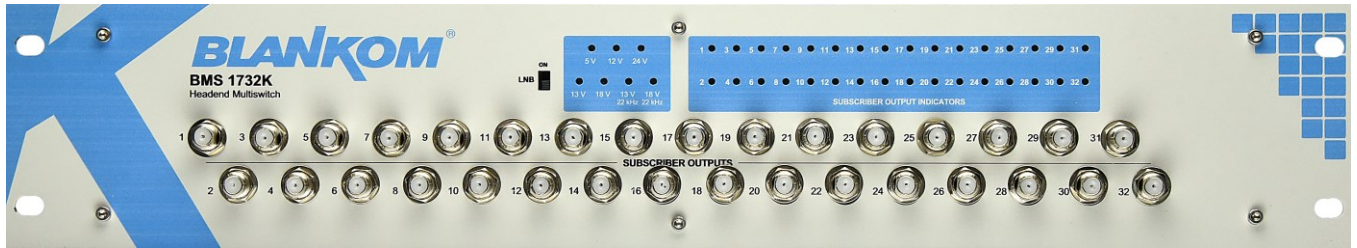


19" Multiswitch for 4x SAT + 1x Terrestrial



This 19" 2 RU rackmount Multiswitch -which can be cascaded- is designed for up to 4 SAT position Inputs (+ Terrestrial) from standard quattro LNB's or from optic-electric converters such as BFR-41 via 1 CWDM – Fibre in a Headend and distribute up to 32 RF outputs to the Headend receivers. **4-fibre solutions are coming soon...**



Rear view

Main Features

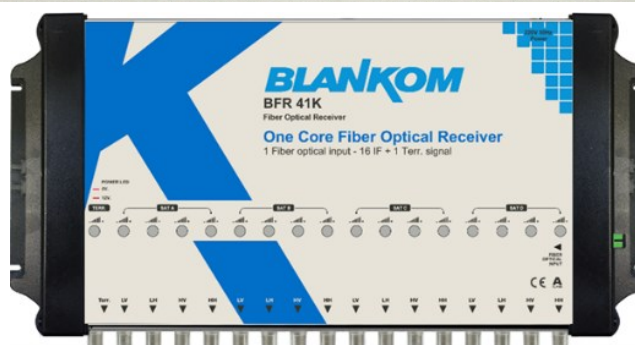
- Dual redundant internal high isolated industrial Power supplies
- Low power consumption, air circulation due to 2 separate fans
- Active TERR input (passive input available), LNB On/Off switch
- Tap loss 0,5dB , High isolation
- Quad & Quattro LNB compatible
- 950-2150MHz and 47-870MHz lossless sharp filter for each subscriber outputs
- Optimized RF design for the usage of DVB IPTV and Digital Headend
- Low signal resistant due to high gain through the receiver outputs
- Up to 8 consecutive cascading's possible
- LED indicators for each receiver output
- RF - output port protection up to 100 volts
- +4dB equalizer range for each RF output compensating slope
- Available for 2x SAT - positions = BMS-0932K

Technical Specifications

Inputs:	SAT / IF TERR	16 1
Receiver Outputs		32
Cascadable loop-through Outputs	SAT / IF TERR	16 1
TERR Gain		23...25dB
Selection of LNB / Polarity 13V, 18V, 13V+22KHz, 18V		
Frequency Range	SAT / IF TERR	950-2150MHz 47-870MHz
Tap-loss Subscriber Outputs	SAT / IF @ 950MHz SAT / IF @ 2150MHz TERR. Rec / Out 1-8 TERR. Rec / Out 9-16 TERR. Rec / Out 17-24 TERR. Rec / Out 24-36	+1dB±1 +1dB±1 -4dB±2 -4dB±2 -4dB±2 -4dB±2
Max. Input Level	SAT / IF TERR	98dBµV 88dBµV
Max. Output Level	SAT / IF IMA3 TERR	102dBµV 85dBµV
Return-loss	Input / Output	10dB / 14dB
Isolation	SAT-SAT SAT-TV	>33dB >37dB
Usable LNBS	Quad & Quattro	
Max. Current from Subscriber Output	41mA	
Max. Current from System	960mA	
Max. Current with LNB	920mA	
Operating Temperature	-85...+50°C	
Dimensions	320 x 320 x 90mm (2RU)	

Corresponding products:

BPF-41, optical Transmitter for 4x SAT + 1x terr. / BFR-41 opt. Receiver-converter:

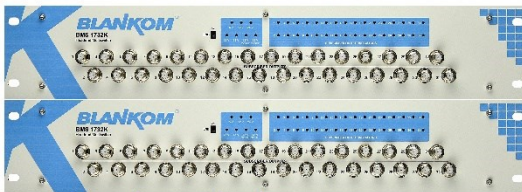


Application example:



1 Fibre optical distribution with a distance of 4km: BPF 41-2

BFR-41: Optical electrical converter



60 SAT-RF to the receiver-streamer + DVB-T

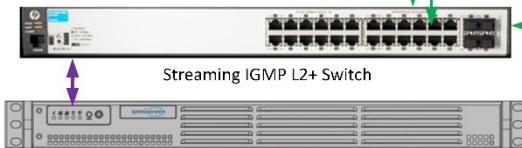
2 Chassis with each full +1 automatic seamless redundancy



2x FTA SAT Transponder -> Streaming to IPTV SPTS



16 FTA SAT Transponder + 2 TS Dual CAM decryption + 2 DVB-T2 -> Streaming to IPTV SPTS



Distribution Switch

...

System concept Headend System

Single Fibre-Optical SAT distribution for longer Distances between DISH farm and Headend station.

56 transponder FTA + 4 Transponders with CAM CI Modules, 4 dish + 1 terrestrial antenna supported by 19" Multiswitch

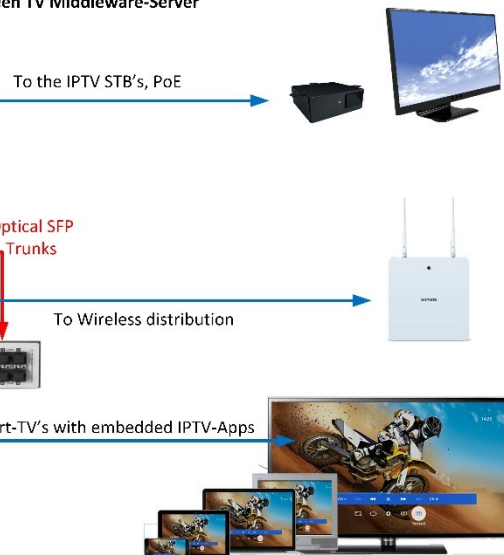


Up to 24 HDMI channels to encode and stream

1x EMU-8624



- BMS 1732K: 2x 17-32 Kaskade Max. 64 RF outputs
- Max to received Transponders + DVB-T = 64



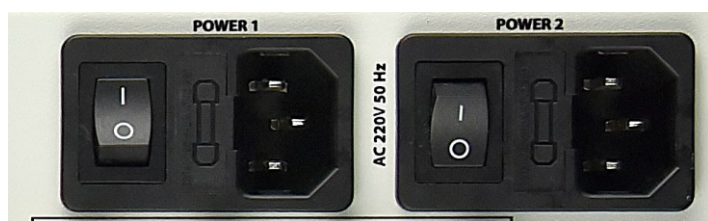
We strongly recommend the installation by technical skilled people.

All needed connection to the LNB's SAT-A...D as well as the cascading outputs are printed to the rear and front-panel so that a mismatching usually cannot be done. Please assure the grounding of every component (BMS, Coax cables as well as Antennas/dishes) to avoid voltage differences between every device. The grounding should also be fit to earth potential to secure them against lightning influences.

The BMS supports cascading to a following unit to double or even multiply the needed output numbers. (32 -> 64 -> 96...) A cascading of more than 7 units is not recommended because of the attenuations of each. The cascade units should disable the power

Before you connect the both power supplies to the power source by the power cords, please connect all coax-cables and the max. 4 LNB's or the optical – electrical fibre receiver to it.

Please take care about not making any Coax- shortages and check the cables before power connecting. The device runs with only one PSU connected. The 2nd PSU is in standby just in case the first one will fail – and will take over the power-loss job. So it is recommended not to connect them both to the same power-line and fuse system:



AC 220V 50Hz supplying please!

Both have one small fuses – just in case something happens... control these.



Remark: The LNB-powering can be switched OFF (default is = ON) by the front panel switch.

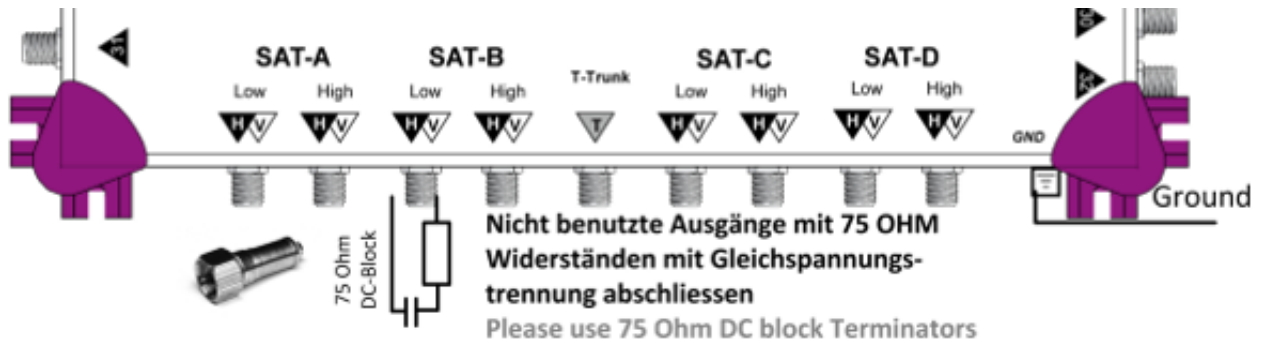
Connected optical receiver -> electrical changer installed before the unit in between LNB's and the SAT Inputs of the BMS-1732K -like our BFR-41 or similar- do not need the LNB powering ON – so you can switch it to OFF.

Active Terrestrial Input and distribution to every output:

The unit comes with an additional terrestrial Input F-Connector serving DVB-T/T2 frequencies to pass through to the output receiver ports. The terrestrial output depends of course from the amount of energy you provide into its Input. These needs to be carefully balanced and eventually before the switch input: Attenuated or amplify to raise best conditions for the pathway of the combined Terrestrial and satellite frequency range. As example for an active T-Version: 5dB difference which means the terrestrial output signal is 78% less (remember: 3dB = 50%) at the Multiswitch output by optimal Input values. So the signal quality -as a distribution component- to all the end user wall-outlets is much better by the active internal T-Amplifier- but need to be balanced to not overload it.

Important!

Trunk lines (cascade outputs) -if not in use- should always be terminated with 75Ohm incl. DC-Blocker !!! Example:



Now some parts in dual language:

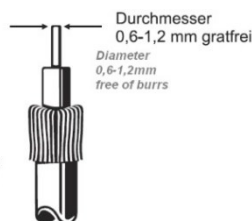
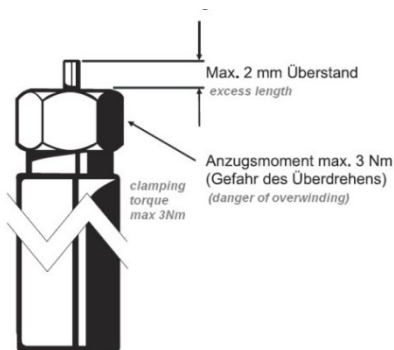
Installationshinweis für den F-Anschluss: / Installation guide for F-connectors:

Bitte installieren Sie die Anschlüsse gemäß dem Aufdruck

Please install according to the sticker on the Multiswitch

Hinweis: Elektrische Installationen sollten nur durch geschultes Fachpersonal vorgenommen werden!

Note: Electrical installations should only be done by well-educated and skilled technicians!



Die LNB-Anschlüsse sind entsprechend gekennzeichnet

The LNC-connectors are marked as:

HH= High-Band Horizontal (18V/22KHz)

LH = Low-Band Horizontal (13V/22KHz)

LV = Low-Band Vertical (13V / 0KHz)

HV= High-Band Vertical (18V / 0KHz)

Above are SAT-Inputs:



Below are outputs for cascading units.

We assume that your technician nows about DiSEqC

Elektronische Geräte gehören nicht in den Hausmüll, sondern müssen - gemäß Richtlinie 2002/96/EG DES EUROPÄISCHEN PARLAMENTS UND DES RATES vom 27. Januar 2003 über Elektro- und Elektronik-Altgeräte fachgerecht entsorgt werden. Bitte geben Sie dieses Gerät am Ende seiner Verwendung zur Entsorgung an den dafür vorgesehenen öffentlichen Sammelstellen ab.



Electronic equipment is not household waste - in accordance with directive 2002/96/EC OF THE EUROPEAN PARLIAMENT AND THE COUNCIL dated 27th January 2003 on used electrical and electronic equipment, it must be disposed of properly.

At the end of its service life, take this unit for disposal to an appropriate official collection point

Montage und Sicherheitshinweise / Installation and safety instructions

- Die beschriebenen Geräte dienen ausschließlich der Installation von Satelliten-Empfangsanlagen.
- *The equipment described is designed solely for the installation of satellite receiver systems.*
- Jegliche anderweitige Nutzung oder die Nichtbeachtung dieses Anwendungshinweises hat den Verlust der Gewährleistung bzw. Garantie zur Folge.
- *Any other use, or failure to comply with these instructions, will result in voiding of warranty cover.*
- Die Geräte dürfen nur in trockenen Innenräumen montiert werden. Nicht auf oder an leicht entzündlichen Materialien montieren.
- *The equipment may only be installed in dry indoor areas. Do not mount on or against highly combustible materials.*
- Die Geräte sind mit einer Potenzial-Ausgleichsleitung (Cu, mindestens 4 mm²) zu versehen.
- *The equipment must be provided with an earthing wire (Cu, at least 4 mm²).*
- Die Sicherheitsbestimmungen der jeweils aktuellen Normen EN 60728-11 und EN 60065 sind zu beachten.
- *The safety regulations set out in the current EN 60728-11 and EN 60065 standards must be complied with*
- Verbindungsstecker: HF-Stecker 75 Ohm (Serie F) nach EN 61169-24
- *Connector: HF plug 75 Ohm (series F) to EN 61169-24.*
- **Nicht benutzte Teilnehmerausgänge** sollten mit 75-Ohm Widerständen (z. B. EMK 03) abgeschlossen werden. (Verringerung der terrestrischen Signalwelligkeit)
- *Unused subscriber ports should be closed off by 75 Ohm resistors (e.g. EMK 03).*
- **Nicht benutzte Kaskadenausgänge** sind mit 75 Ohm Widerständen inkl. DC-Blocker abzuschließen. 75 Ohm Widerstände ohne Gleichspannungssperren können das Gerät beschädigen!
- *Unused trunk outputs must be terminated with 75Ohm resistors including DC Blocker. Otherwise the device may be inoperable or damaged.*
- Bitte überprüfen Sie die Anlage vor Inbetriebnahme auf evtl. Kurzschlüsse der Koaxial-Kabel. Es ist darauf zu achten, dass die Eingangspegel der SAT-Ebenen möglichst gleich hoch sind. Power-LEDs zeigen den Betrieb an. Falls die nicht leuchten, bitte die Stromzufuhr kontrollieren.
- *Please check the installation against shortage in coax cables and connectors before switching on. The input levels should be adjusted accordingly. Power-LED's showing operational mode. If this is not illuminated, please check the power source.*
- **Stromführendes Gerät**
- **Current-carrying unit**
- Nicht öffnen oder am Gerät manipulieren!
- *Do not open or tamper with the unit!*
- Bei Arbeiten an der Anlage immer die Netzstecker aus der Steckdose ziehen!
- *When working on the system always unplug the mains plug from the wall socket!*
- Auf ausreichenden Abstand achten! Nach allen Seiten mind. 5 cm!
- *Ensure adequate clearance! Min. 5 cm to all sides!*
- Nicht über Kopf montieren.
- *Do not install overhead.*
- Für die Geräte Kühlung muß freie Luftzirkulation möglich sein. Überhitzungsgefahr!
- *Free circulation of air must be possible to discharge the heat emitted by the unit. Risk of overheating!*
- Zulässige Umgebungstemperatur -20 bis +50°C
- *Permissible ambient temperature -20 to +50°C*

Wir empfehlen die Benutzung von Gleitschienen bevor der BMS im 19" Schrank installiert und angeschlossen wird.

We recommend using and installing 19" rails in your rack before you mount the BMS and install the F-connectors and cables.



Zur Beachtung / Important notes:

- Auf das Netzgerät dürfen keine mit Flüssigkeit gefüllten Gegenstände gestellt werden.
- *No liquid-filled items may be placed on top of the power supply unit.*
- Das Netzgerät darf nicht Tropf- oder Spritzwasser ausgesetzt sein.
- *The power supply unit must not be exposed to dripping or splashing water.*
- Der Netzstecker muss ohne Schwierigkeiten zugänglich und benutzbar sein.
- *The mains plug must be easily accessible and operable.*
- Das Gerät kann nur durch Ziehen des Netzsteckers vom Netz getrennt werden.
- *The only reliable method of disconnecting the unit from the mains is to unplug it.*
- Bei größerem Durchmesser des Kabel- Innenleiters als 1,2 mm bzw. Grat können die Gerätebuchsen zerstört werden.
- *If the inner cable conductor diameter is greater than 1.2 mm or in case of burr, the device sockets may be destroyed.*

Please use appropriate measurement equipment when installing and do not use coax length > 50m between Dish-Farm and the Multiswitch to secure signal quality and less slope.

Using a handy instrument from i.e. PROMAX or for the cheaper controlling an ALPSAT:



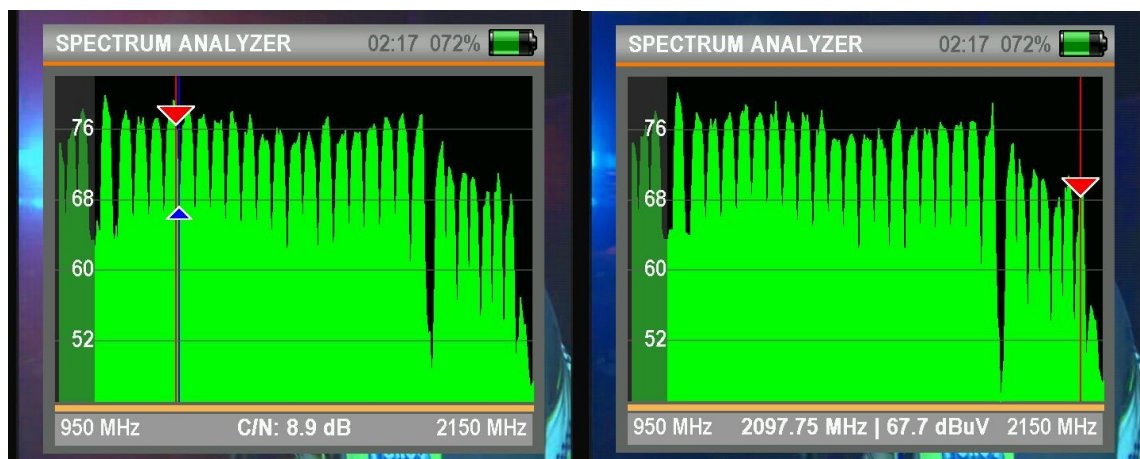
Professional



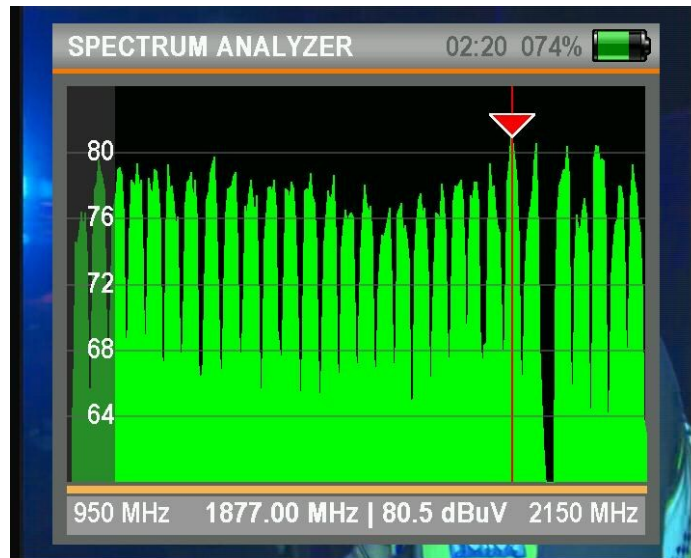
Semi-professional

and

Example Spectrums:



Left: C/N measuring. You see the SLOPE = higher attenuation on higher frequencies? Right: Level



Shown is a good quality output level of 80 dB μ V directly from a BLANKOM 32 -> 32 -Multiswitch cascaded output. The first 2 showing ASTRA Satellite high band while the 3rd shows Eutelsat Hotbird 13°E on DiSEqC SAT Pos. 2 with a better adjusted LNB at the dish(es). So your signal quality depends on: Dish direction and angles, LNB focus and angle and also its LNB-quality and the cable length and quality.

Annex: Table for Conversions of Power @ 75Ω

dBmV	dBμV	dBm 75Ω	mV _{RMS}	mW 75Ω
8	68	-40.75	2.51	8.4E-05
9	69	-39.75	2.82	1.1E-04
10	70	-38.75	3.16	1.3E-04
11	71	-37.75	3.55	1.7E-04
12	72	-36.75	3.98	2.1E-04
13	73	-35.75	4.47	2.7E-04
14	74	-34.75	5.01	3.3E-04
15	75	-33.75	5.62	4.2E-04
16	76	-32.75	6.31	5.3E-04
17	77	-31.75	7.08	6.7E-04
18	78	-30.75	7.94	8.4E-04
19	79	-29.75	8.91	1.1E-03
20	80	-28.75	10.00	1.3E-03
21	81	-27.75	11.22	1.7E-03
22	82	-26.75	12.59	2.1E-03
23	83	-25.75	14.13	2.7E-03
24	84	-24.75	15.85	3.3E-03
25	85	-23.75	17.78	4.2E-03
26	86	-22.75	19.95	5.3E-03
27	87	-21.75	22.39	6.7E-03
28	88	-20.75	25.12	8.4E-03
29	89	-19.75	28.18	0.011
30	90	-18.75	31.62	0.013
31	91	-17.75	35.48	0.017
32	92	-16.75	39.81	0.021
33	93	-15.75	44.67	0.027
34	94	-14.75	50.12	0.033
35	95	-13.75	56.23	0.042
36	96	-12.75	63.10	0.053
37	97	-11.75	70.79	0.067
38	98	-10.75	79.43	0.084
39	99	-9.75	89.13	0.106
40	100	-8.75	100.00	0.133
41	101	-7.75	112.20	0.168
42	102	-6.75	125.89	0.211
43	103	-5.75	141.25	0.266
44	104	-4.75	158.49	0.335

dBmV	dBμV	dBm 75Ω	mV_{RMS}	mW 75Ω
45	105	-3.75	177.83	0.422
46	106	-2.75	199.53	0.531
47	107	-1.75	223.87	0.668
48	108	-0.75	251.19	0.841
49	109	0.25	281.84	1.059
50	110	1.25	316.23	1.333
51	111	2.25	354.81	1.679
52	112	3.25	398.11	2.113
53	113	4.25	446.68	2.660
54	114	5.25	501.19	3.349
55	115	6.25	562.34	4.216
56	116	7.25	630.96	5.308
57	117	8.25	707.95	6.683
58	118	9.25	794.33	8.413
59	119	10.25	891.25	10.591
60	120	11.25	1000.00	13.333
61	121	12.25	1122.02	16.786
62	122	13.25	1258.93	21.132
63	123	14.25	1412.54	26.604
64	124	15.25	1584.89	33.492
65	125	16.25	1778.28	42.164
66	126	17.25	1995.26	53.081
67	127	18.25	2238.72	66.825
68	128	19.25	2511.89	84.128

IRENIS GmbH

Hauptstr. 29

31171 Nordstemmen- Germany

Phone: +49 5069 4809781

IRENIS technical hotline VoIP +49 5069 4399 -860 or -8601

Managing Director: Dipl.Ing. Murad ÖnoI

Commercial Register: HRB 206370 / District Court Hildesheim

BLANKOMWeb: www.blankom.de E-Mail: info@blankom.de*...Setting Signals*