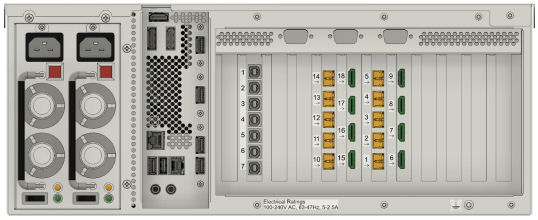
TRITEC® Multi Display Manager MDM-5



- **Up to 27 video inputs**
- **Supports UHD input signals**
- **Simultaneously support of up to six independent displays**
- **Real-time architecture with low latency**
- **Customer definable screen arrangements**
- **Hardware scaling with bilinear filter for best possible video quality**
- **High reliable design with redundancies & watch dog build for 24x7 operations**
- **On-Screen administration tool & API for remote control & Touch PanelPC support**
- **Multiple User KVM functionality fully integrated**
- **Hybrid Technology with 10G Fibre Ethernet and directly attached sources**
- **Virtual Inputs and Virtual Outputs via IP Streaming**

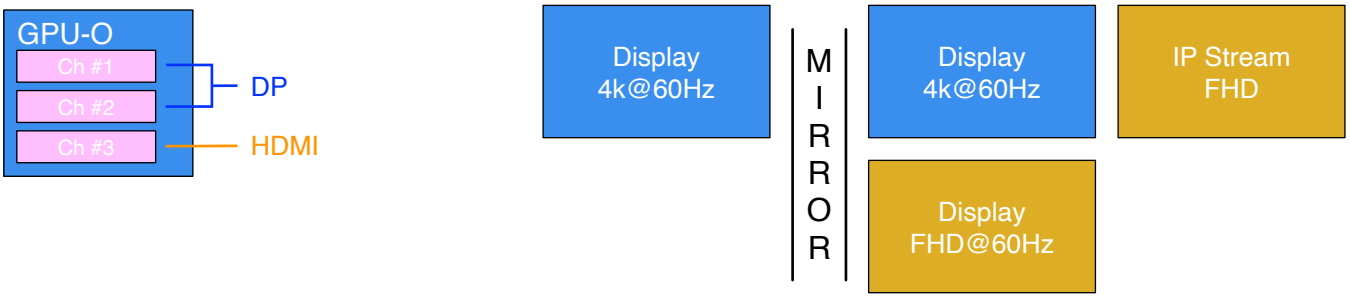
Overview

- MDM contains **all** system **functionality** in **one unit**
- Capability to collect, combine, and transmit up to **27** different video **sources** on up to **6x 8MP** QFHD@60Hz displays[1].
- **UHD input** signals with 550/594 MHz pixel clock.
- **Digital and analog** inputs are supported[2].
- 2-3 frames delay from input to display possible because of a **Real-time architecture**
- Customer **definable size**, **position** and **scale** of sources, **including overlapping**.
- Sources can be **cropped** on top, bottom, left or right.
- Signal can be **scaled** by a factor of 0.1 to 10.0.
- Signals can be **duplicated** to show the same input, cropped or sized.
- Sources can be **framed** (borders with selectable colours and thickness) and **named** (font, color, size and position definable)
- **Customer definable arrangement** sets that can be easily switched via Touch PanelPC, web-interface with iPad or similar device.
- Arrangements are storable at the system as well as external storage equipment.
- Switching between predefined arrangement sets is less then 500ms
- In **critical environments**, the MDM has a highly **reliable design**. No hard disk is used; Redundant Power Supply's; and Active Watch Dog are employed
- **Robust construction** and material methods employed for use in specialised Medical and Industrial disciplines **build for 24x7 operations**.
- **Status information** and Diagnostics accessible **via network.**
- **Customising** for OEM **partners** is available.

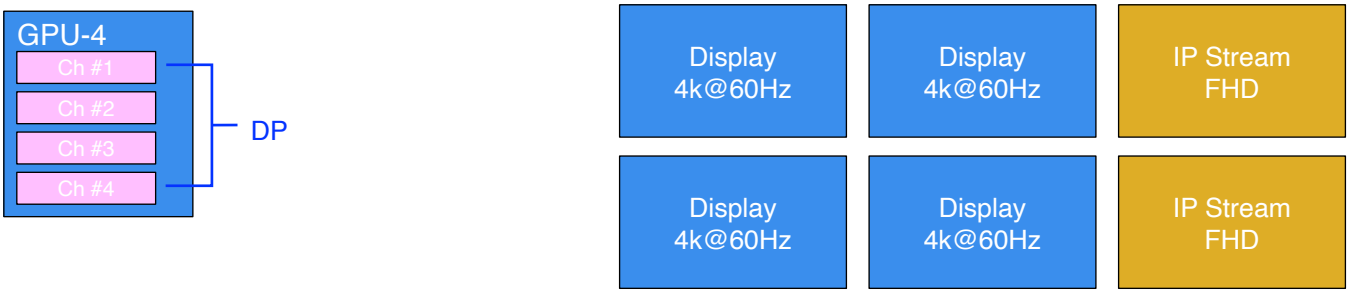
Models

MDM Model Type	Basic		Advanced		Professional
Formfactor	2U	4U	2U	4U	4U
	Standard features				
Output	GPU-O	GPU-O	GPU-4	GPU-4	GPU-6
- Connector	2x DP + 1x HDMI	2x DP + 1x HDMI	4x DP	4x DP	6x miniDP
- Max. out resolution per display	3840x2160px		5120x2880px		
- Max. extended output resolution	8192x4320px		16384x16384px		
- Display Arragement	1x independent display, 2x mirrored displays		4x independent displays		6x independent displays
- IP Streams (FHD)	WebRTC, RTSP	WebRTC, RTSP	WebRTC, RTSP	WebRTC, RTSP	WebRTC, RTSP
— # of streams	1	1	2	2	2
- Systembandwidth	TBA	TBA	TBA	TBA	TBA
- Output Licence (Legacy)	8 MP	8 MP	8 MP	8 MP	16 MP
- Output Licence (Dynamic)	1C	1C	1C	1C	2C
Input	MDI-7	MDI-7	MDI-7	MDI-7	MDI-7
Installed	1	1	1	1	2
Maximum # of MDI Boards (Maximum # of inputs)	1 (9)	3 (27)	2 (14)	3 (27)	3 (27)
Video IP Streams (Input)	Yes	Yes	Yes	Yes	Yes
# of streams (FHD)	4	4	4	4	4
Power Supply	non-redundant	non-redundant	non-redundant	non-redundant	redundant
	Optional upgrades				
Max. Output Licences (Legacy)	20 MP	20 MP	36MP	36MP	52 MP
Max. Output Licences (Dynamic)	4C	4C	6C	6C	8C
Input	MDI-10	MDI-10	MDI-10	MDI-10	MDI-10
Maximum # of Etherface per MDI-10 Input	5	5	5	5	5
KVM Controller (7 Ports)	Yes	Yes	Yes	Yes	Yes
Maximum #of KVM Boards	1	2	1	2	2
Redundant Power Supply	n/a	Yes	n/a	Yes	Standard
Power Break Out Board	n/a	Yes	n/a	Yes	Yes

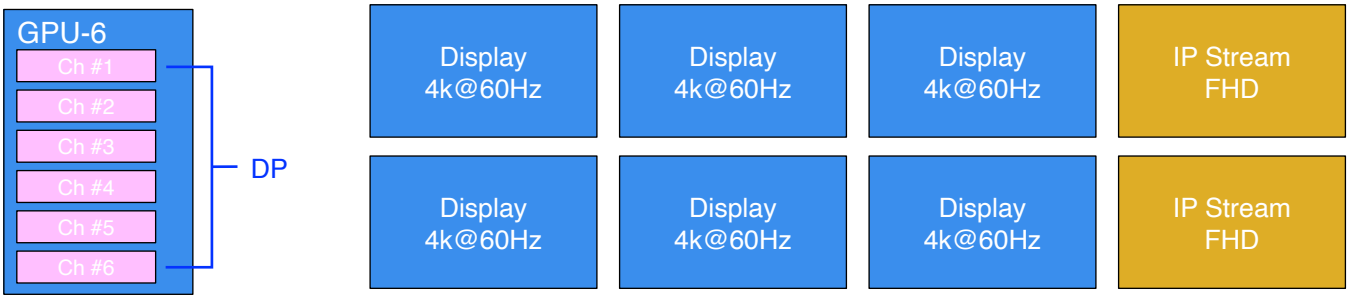
Basic [1,2,5]



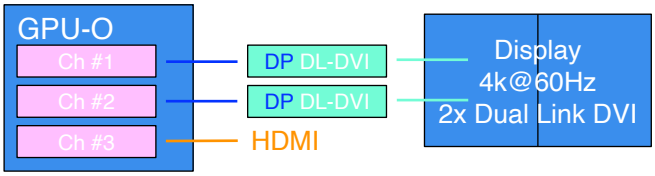
Advanced [1,3,4,5]



Professional [1,3,4,5]



Converter Option



- TRITEC DisplayPort to Dual-Link DVI Converter **allows I²C communication** between the MDM and the display.
- Two Dual-Link DVI **signals are combined** that the 8MP display is acting as **one panel**.
- Perfect solution for video management updates by **keeping older displays**.
- Works with **every type of MDM** from **generation three to five**.
- **No extra power supply**, as it is powered via USB port of the MDM.

(1) Resolutions of the shown output displays are the maximum, every lower resolution is possible too.
(2) Basic MDM can only fill one display independently, the other displays are working as a mirror of the first one only.
(3) Output displays with the same resolution are configurable not only as independent displays, but also as extended displays. The behaviour is like an extended desktop on a local PC and two attached monitors.
(4) Total number of different sources which can be shown simultaneously on the outputs depending of over all system bandwidth and input board bandwidth.
(5) Every MDM includes a number of licenses using output displays. The legacy mode counts the pixel volume in MP and allows the licensed area over all connected displays and streams. The dynamic mode is independent from any output resolution and only counts the connected displays and streams. A connector license is the equivalent to a 8MP license. An output stream needs the same license as a physical display. Additional licenses are necessary to enable more displays as the pre-defined. Order No. MDM-LIC-DISPLAY-8

Video Inputs

MDI Type	MDI-7	MDI-10	
# of Inputs	9	9	
ETHERFACE®-1	n/a	5	
HDMI (550/165 MHz)	1 / 4	up to 5 (594 MHz)	via ETHERFACE® [1]
SDI (12G, 6G, 3G…)	n/a	up to 5	
DisplayPort 1.2	n/a	up to 5	
DVI [HDMI] (165 MHz)	4	4	
KVM USB HID Function	via KMS Option	via ETHERFACE® [1]	
Videotiming			
- H-Display	min. 320px ↔ max. 4096px	min. 320px ↔ max. 1920px (4096px via Etherface)	
- V-Display	min. 200 Lines ↔ max. 2560 Lines	min. 200 Lines ↔ max. 1200 Lines (2560 via Etherface)	
- Pixel-Clock	min. 16 MHz ↔ max. 165/550 MHz	min. 16 MHz ↔ max. 165 MHz (594 MHz via Etherface)	
- H-Blank	min. 8px	min. 8px	
- V-Blank	min. 4 Lines	min. 4 Lines	
- Interlace	n/a, progressive timings only	via Etherface yes, other ports progressive timings only	
Analog	via ADIO Extension Device connected via DVI (HDMI Plug) Supported Signals: VGA, S-Video, Component, CVBS, DVI, HDMI 1.1, DP 1.1, SDI (3G SDI HD , SD, DVB-ASI. SMPTE 259M, 292M, 424M) up to 1920x1200@60Hz Download full specifications [https://www.tritec.de/adiodata]		
Bandwith	1200 Mpx/s		
Mixed Setup	MDI-7 and MDI-10 are combinable in a single system.		

[1] Download full specifications [https://www.tritec.de/etherfacedata]

Other Inputs / Outputs

Networking:	Ethernet	2x 10/100/1000Mbit/s
	Connector	RJ45
	Intended use	The local ethernet ports are only used for administration and streaming.
USB	4x USB to User Keyboard/Mouse, KVM Support 2x USB power for Display Port to Dual Link DVI Converter	
KMS Option	7 Port Keyboard/Mouse Switch module, USB to Host connection; Connector Type USB-B	

Power Supply

Type	2U non redundant 350W	4U non redundant 400W	4U redundant 400W
Input Voltage	90 - 264VAC	90 - 264VAC	90-140 VAC or 180-264 VAC
Input Frequency	47 to 63Hz	47 to 63Hz	47 to 63Hz
Inrush Current	20A max. @115VAC 40A max. @230VAC	20A max. @115VAC 40A max. @230VAC	40A max. @115VAC 80A max. @230VAC
Isolation	3100VAC	3100VAC	Input to output 1500VAC
Leakage Current	< 3.5 mA-rms @ 264VAC, 50 Hz.	< 1.5 mA @ 250VAC	< 3.5mA max.
Input Connector	EC320/C14	EC320/C14	IEC320/C14 per Module
Efficiency	>80%, 80 Plus Gold	>80%	>80%
Input Current	Max: 6A@115VAC; 3A @ 230VAC Typical: 3A@115VAC; 1.5A@230VAC	Max: 6A@115VAC; 3A @ 230VAC Typical: 3A@115VAC; 1.5A@230VAC	Max: 6A@115VAC / 3A @ 230VAC Typical: 3A@115VAC / 1.5A@230VAC
Power Switch	no power switch	Power switch at the back, no other hardware power off/on switch.	

Electrical Safety & EMC Specifications

Electrical Safety:	Power supply according to UL / IEC / EN 62368
EMC:	According to IEC CISPR 32 / EN 55032 + IEC / EN 61000-3-2 + IEC / EN 61000-3-3 (Emission) and IEC CISPR 35 / EN 55035 (Immunity)
Emission:	IEC CISPR 32 / EN 55032 Class B (Radiated & Conducted emissions) IEC / EN 61000-3-2 (Harmonic current emissions) IEC / EN 61000-3-3 (Voltage fluctuations and flicker) 2U: FCC Class A; 4U FCC Class B
Immunity:	IEC / EN 61000-4-2 (Electrostatic discharge) IEC / EN 61000-4-3 (Radiated immunity) IEC / EN 61000-4-4 (EFT/Burst) IEC / EN 61000-4-5 (Surges) IEC / EN 61000-4-6 (Conducted immunity) IEC / EN 61000-4-8 (Power frequency magnetic field) IEC / EN 61000-4-11 (Voltage dips and interruptions)
Marking	CE, UKCA, UL, BIS (India)

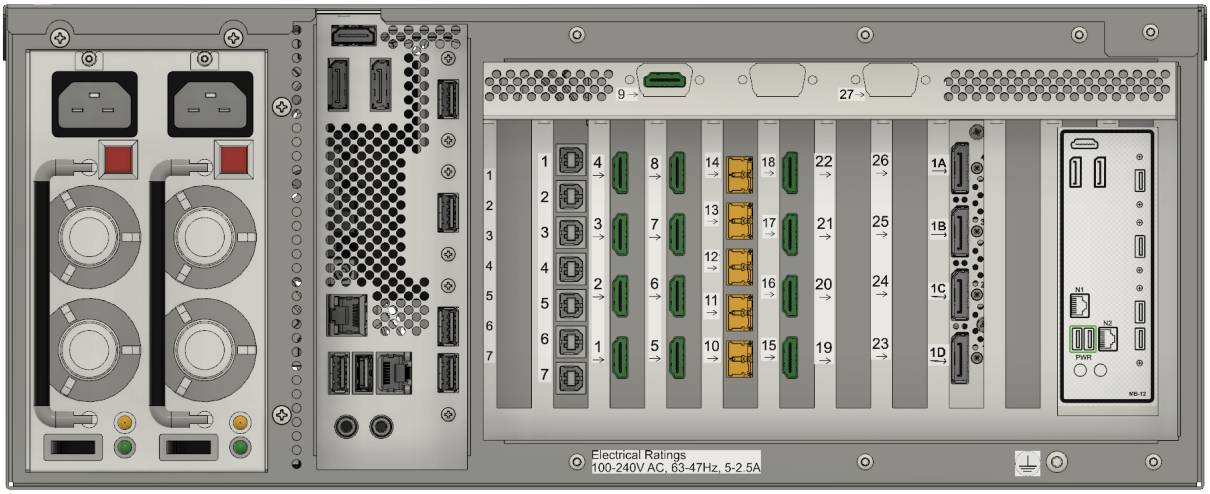
Environmental Specifications

Unpackaged Operating	Temperature 5°C according EN 60068-2-1 Temperature 40°C according EN 60068-2-2.
Unpackaged Operating Humidity	Damp heat, 25°C, 10 to 80% RH (non condensing) according EN 60068-2-38.
Unpackaged Operating Pressure	700-1060 hPa (525 -795 mmHg) or up to 3050m (10,000ft).
Packaged Non-Operating Temperature (Storage, Transportation)	Temperature -20°C according EN 60068-2-1 Temperature +70°C according EN 60068-2-2.
Packaged Non-Operating Humidity	+25°C 10 to 95% RH (non-condensing) according 60068-2-38.
Packaged Non-Operating Pressure	500 -1060 hPa (375 -795 mmHg) or up to 5,050m (18,000 ft).
Packaged Tests Continuous Shock	according EN 60068-2-29 and EN60721-3-2, class 2M2.
Package Drop Test	according EN 24180-2.
Degree of protection	IP 20

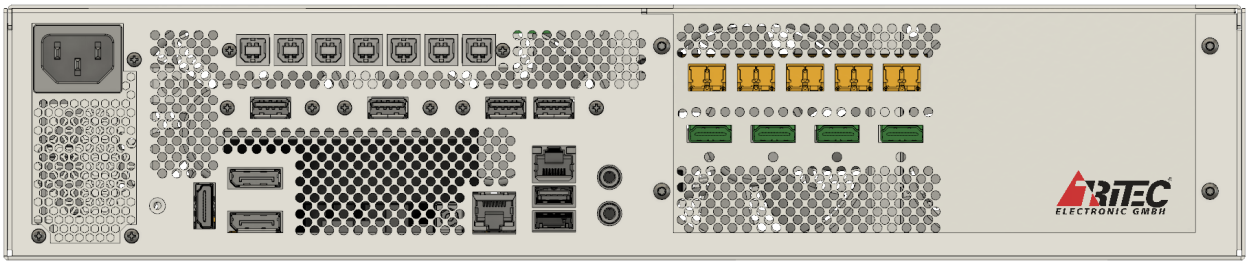
Dimensions

Model	MDM-5 2U	MDM-5 4U
Size unpacked (WxHxD)	428x88x300mm	483x177x450mm
Weight	8kg	20kg
Size packed (WxHxD)	510x330x410mm	800x460x800mm
Weight	12kg	25kg
Form factor	19“ 2U	19“ 4U

Views



MDM Advanced 4U with red. PSU, 7 Port KMS Board and 1x MDI-10 + 1x MDI-7 Input Board

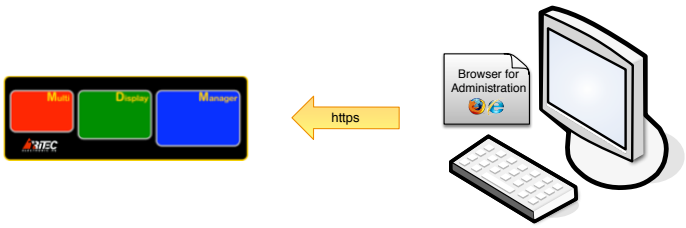


MDM Basic 2U 7 Port KMS Board and MDI-10 Input Board

The Multi Display Manager supports multiple ways of configure and control the device.

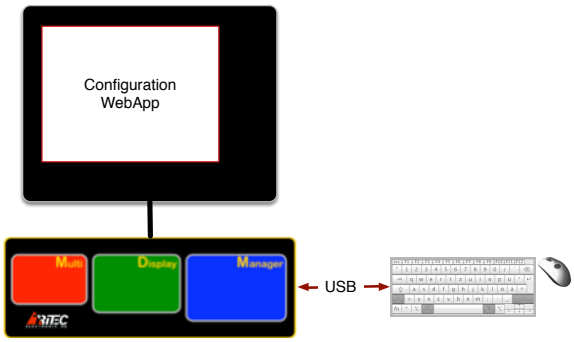
External Browser Interface

A full featured configuration WebApp is provided by the MDM by its internal LAN Interface.



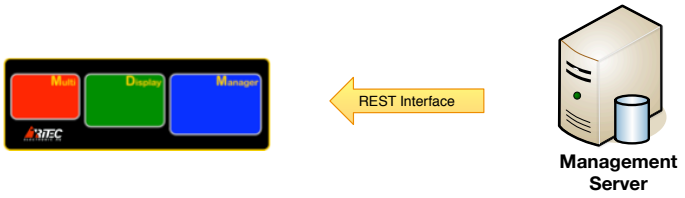
OnScreen Interface

The Multi Display Manager is able to show the configuration WebApp as a single window OnScreen. It is usable by connecting a Keyboard and Mouse beneath a display to the MDM



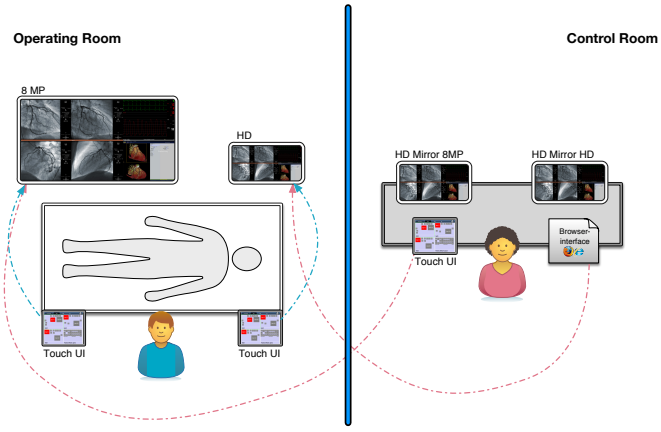
REST Interface

The REST Interface provides OEM partners to fully integrate the configuration of a MDM into their management environment. A well documented and standardized interface language keeping implementation efforts on a very low level.



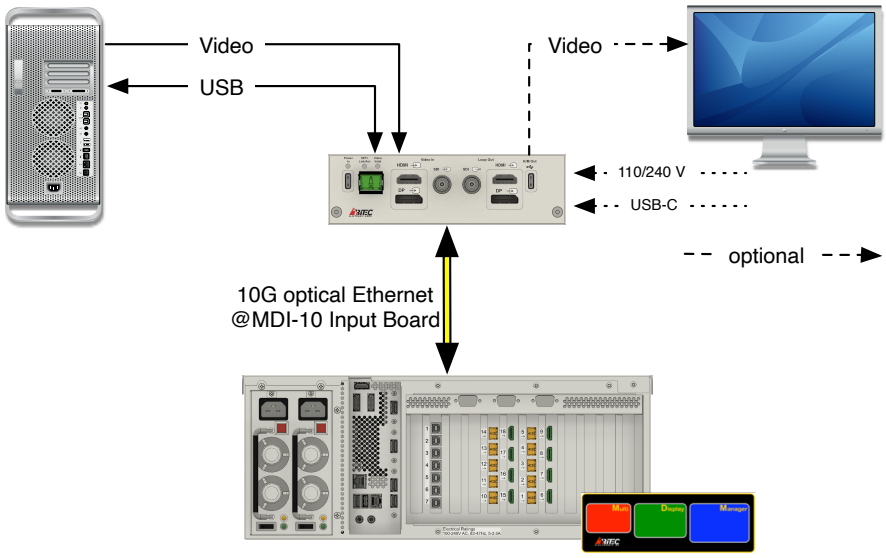
Touch Panel PC

The latest development is a network attached Touch PanelPC which is able to switch the layout of a display which is attached to a Multi Display Manager. It is possible to have multiple Touch Panel PC connected to one MDM.



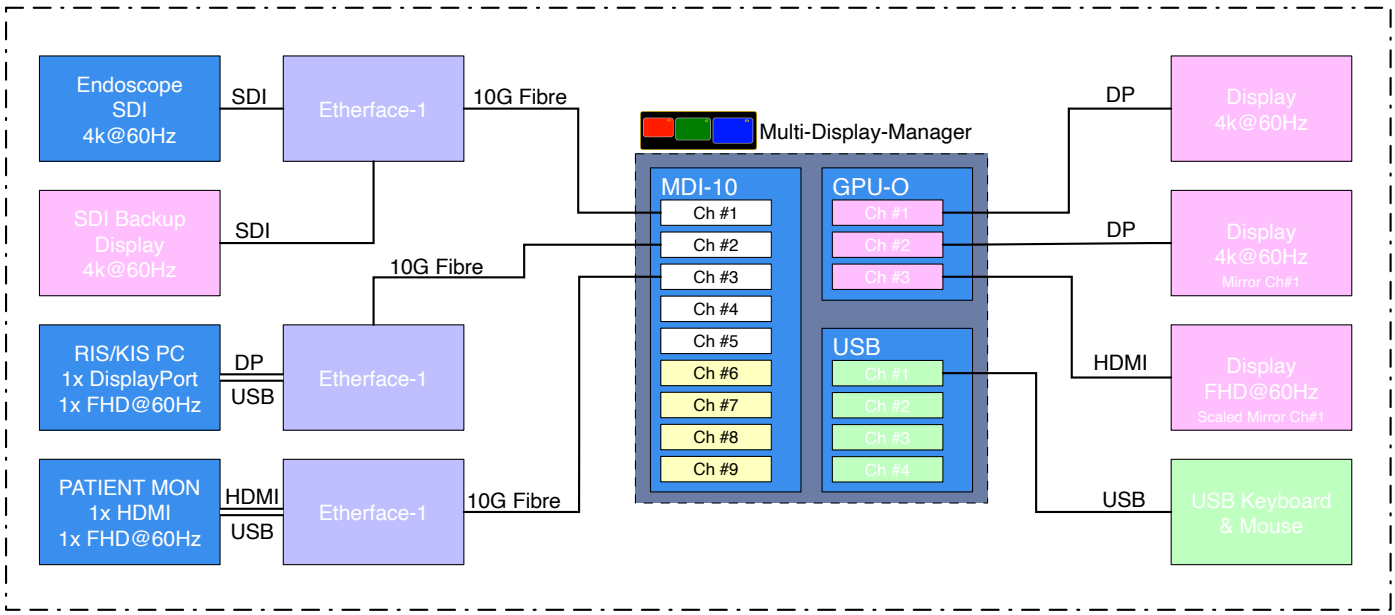
Etherface®-1 Extension Box

Video signal converter and 10G fibre optic transmitter. Optically isolated input for MDM with looped signal output.



Order Number	Optical Isolation	Output Connector	Mechanical	Power Supply	Picture	Dimensions (w/h/d) Weight
Etherface-1-TX	Yes	Front SFP+ 10G Ethernet	Desk	External via USB C to front		144mm/42mm/54mm 0.5 kg
Etherface-1-TX-S	Yes	Side SFP+ 10G Ethernet	Cable Duct; with optional Case as Wall Mount Option	Internal IEC 320/C8, connector at the same side as the SFP+ model		170mm/77mm/58mm 0.7 kg

Sample Setup „Basic“

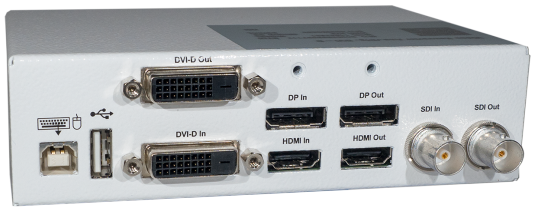


Full data sheet is available as download at our website. Check https://www.tritec.de/etherfacedata

ADIO-1 Extension Box

Video signal repeater and converter with one device only.

Order Number	Optical Isolation	Output Connector	Repeater Outputs	Inputs	Packaging list
ADIO-1H-AH	No	HDMI	yes	HDMI, VGA, analog	ADIO-1H TX Unit
ADIO-1H-AHDUS	No	HDMI	yes	DVI, DP, HDMI, VGA, analog, USB, SDI	ADIO-1H-AHDUS TX Unit
ADIO-1H-VHDS	No	HDMI	no	DVI, DP, HDMI, VGA, SDI	ADIO-1H-VHDS TX Unit
ADIO-1-PSU	Power supply				One power supply with adapter cable

ADIO-1H-VHDS	ADIO-1H-AHDUS
	
	

[Full data sheet is available as download at our website.](#) Check https://www.tritec.de/adiodata

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