

VoE-NETBox

Article-No.: 09V0001A



1 Product Description

The Gigabit Power over Ethernet switch, which is suitable for industrial applications, enables the common transmission of power and data according to IEEE 802.3at/802.3af via an Ethernet cable. Up to 30 W supply power per port is possible.

This means that termination devices such as WLAN or Bluetooth access points, IP phones or IP cameras can be connected quickly and inexpensively to the network, since the switch handles the power supply of the connected devices.

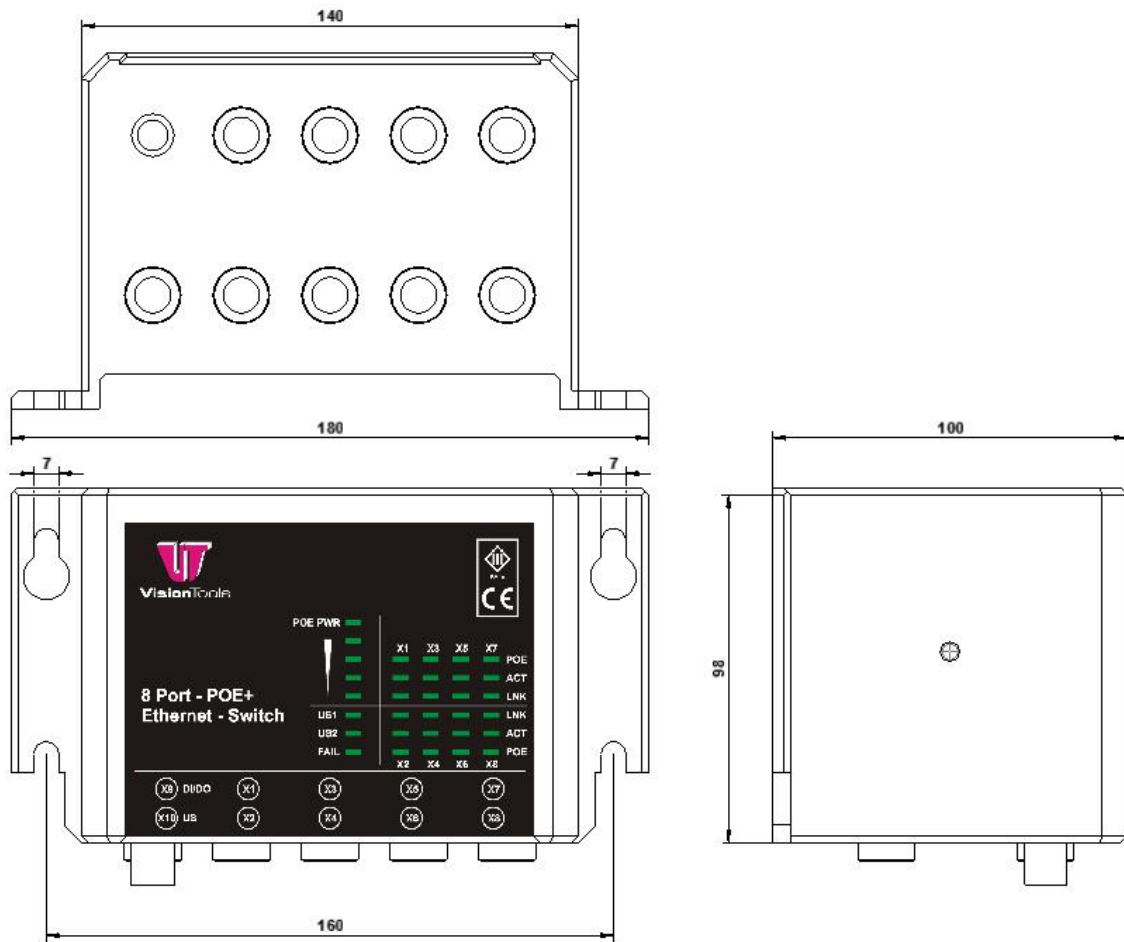
The device is a compact switch in a robust IP67 metal housing. It has eight 8-pos. M12 Ethernet connectors, which enable the supply of PoE/PoE+ devices and operation with speeds of 10/100/1000 Mbps. As it supports jumbo frames up to 9720 bytes, the switch is ideal for networking cameras.

A total power of 200 W is available for supplying up to eight PoE/PoE+ devices. The switch generates the 54 V DC required for Power over Ethernet according to IEEE 802.3at/802.3af from the 24 V module supply for the connected termination devices.

2 Technical Data

Designation	Typ.	Unit
Supply voltage	24 (M12/4pos. male connector T-Coded)	V DC
Residual ripple	3.6	V _{PP}
Supply voltage range	18.5 – 32	V DC
Typical current consumption	300 (at U _s = 24)	mA (V DC)
Max. current consumption	12 (Maximum, nominal load)	A
Power input	7.2 (8 x Gigabit whitout PD-load) max. 13.2 + max. 200 PD-load	W W
Weight	2300	g
Ethernet	10 / 100 / 1000 8 x M12/8pin female connector X-Coded IEE 802.3at/802.3af / 30 output on every port Jumbo frames up to 9720 LED information: Link, Act, PoE	Mbits/s W Bytes
Degree of protection	IP65	
Ambient temperature (operation)	-40 – 70 (non-condensing)	°C
Ambient temperature (storage/transport)	-40 – 70	°C
Permissible humidity (operation)	10 – 95	%
Permissible humidity (storage/transport)	10 – 95 (non-condensing)	%
Air pressure (operation)	86 – 108 (2000 above sea level)	kPa (m)
Air pressure (storage/transport)	66 – 108 (3500 above sea level)	kPa (m)
Other	CE-sign according to IEC 61000-6.2 interference immunity according to EN61000-6-2 interference immunity according to EN55011: 1998 + A1: 1999 + A2: 2002	

3 Dimensions (mm)

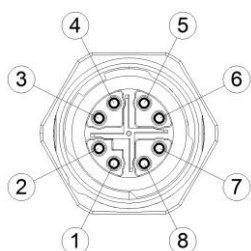


4 Pin Assignment

Caution!



For a connection between a PoE card and the VoE-NETBox, the network line from the PoE card must be connected to the **X8-Port** of the VoE-NETBox.

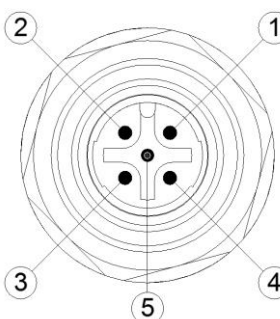


M12 Female-Connector 8pin
X-Coded

Pin	Signal
1	MX0+
2	MX0-
3	MX1+
4	MX1-
5	MX3+
6	MX3-
7	MX2-
8	MX2+

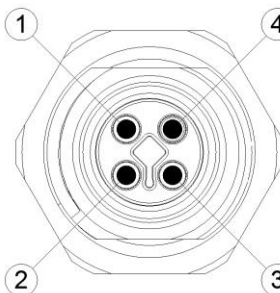
Signal contact / diagnostic socket

The device has two floating signal contacts. An error is indicated when the contact is opened. See chapter Overload response and reset.



M12 Male-Connector 5pin
A-Coded

Pin	Signal
1	Signal contact
2	DI
3	GND
4	Signal contact
5	—

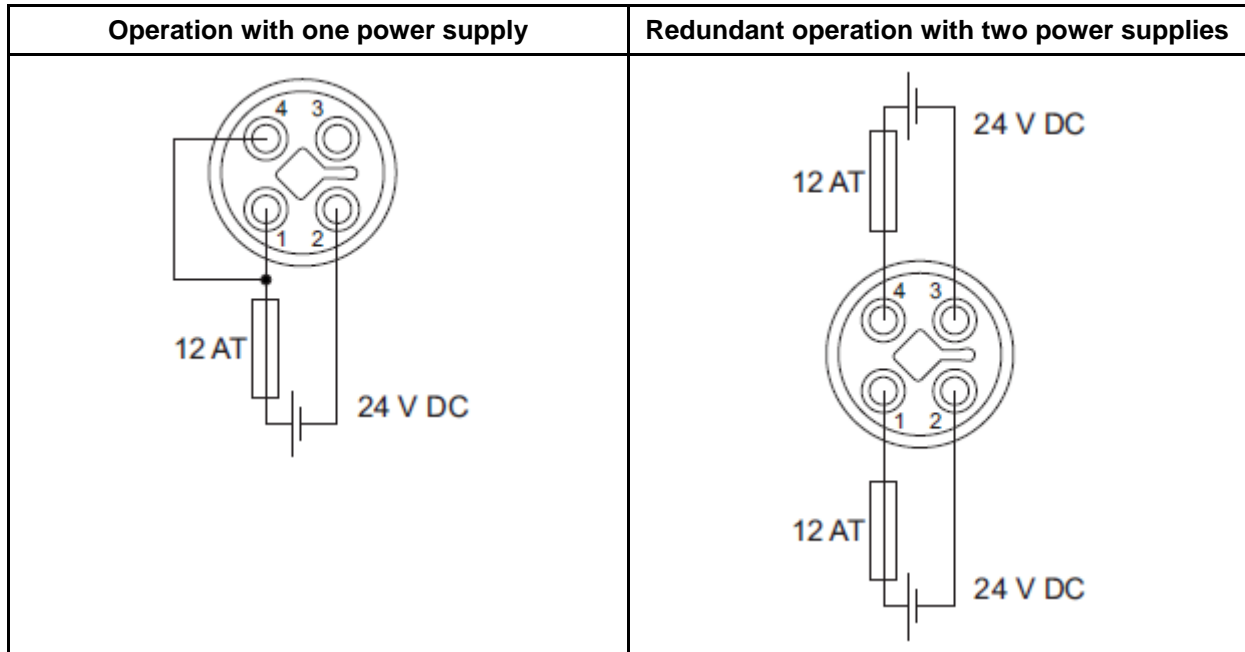


M12 Male-Connector 4pin
T-Coded

Pin	Signal
1	24 VDC
2	GND
3	GND
4	24 VDC

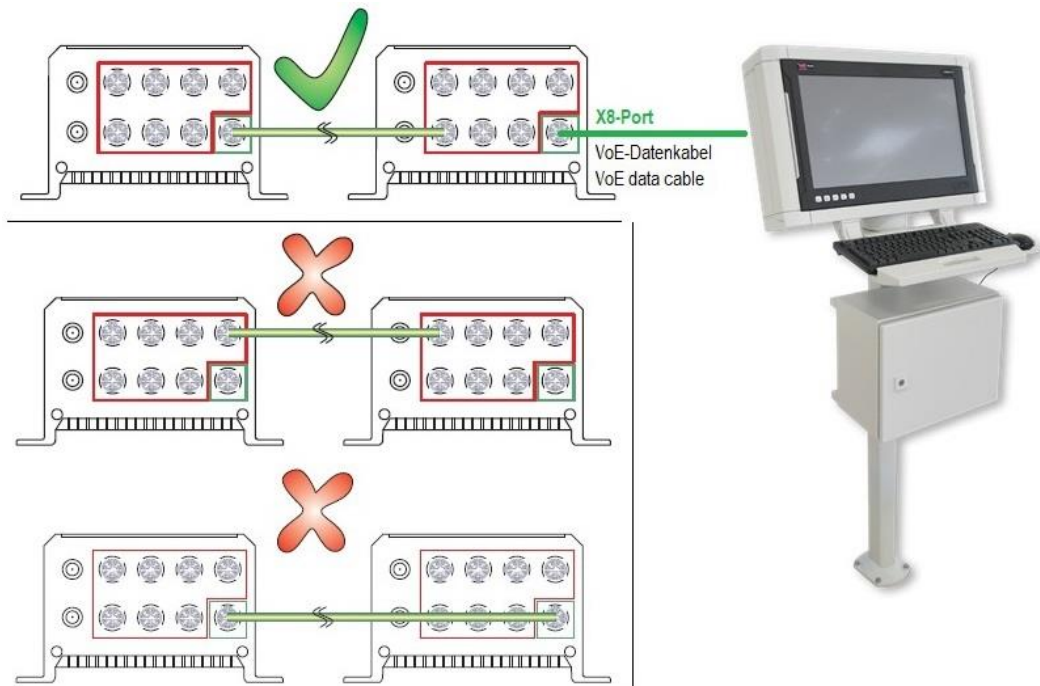
Connecting the supply voltage

Power is supplied via a 4-pos., T-coded M12 power connector, which is designed for a current load of up to 12 A per pin. The supply voltage range is 18.7 - 30.5 V DC (24 V DC nominal value); the supply voltage can be connected redundantly.



5 Cascading

For connecting two cascaded PoE switches, only use the following configuration: only connect ports 1 - 7 of switch 1 to port 8 of switch 2 or vice versa (see the following figure). Only connect a port from the area marked red to a port from the area marked green.



6 Status LEDs

Designation	Color	Status	Meaning
US1	green	on	Supply voltage 1 within the tolerance range
		off	Supply voltage 1 too low
US2	green	on	Supply voltage 2 within the tolerance range
		off	Supply voltage 2 too low
FAIL	red	Group indication signaling that the system power has been exceeded (>200 W) or an overload of one or more PDs or failure of the redundant power supply.	
		on	1st possibility: the current power consumption of all connected PDs was >200 W at some point 2nd possibility: an overload occurred at a PD 3rd possibility: two voltage sources were connected to the device and a supply voltage failed 4rd possibility: not all pins of the connector (M12/4pin T-coded) for the power supply have been connected.
		off	Since the last reset of the FAIL LED, the power consumption of all connected PDs has not exceeded 200 W or no PD overload has occurred during this time or the redundant supply has not failed
LNK (link P1 - P8)	green/orange	on (green)	Link with 10/100 Mbps active
		on (orange)	Link with 1000 Mbps active
		off	Link not active
ACT (Activity P1 - P8)	green	on (green)	Transmitting/receiving telegrams with 10/100/1000 Mbps
		off	Not transmitting/receiving telegrams
PoE (P1 - P8)	green	PoE state of the connected PD	
		flashing / 1x on every 2s	No PoE/PoE+-capable PD detected or detection and classification are currently being carried out
		on	PoE-capable PD (max. 15 W) has been detected
		flashing / 1x on every 2s	PoE+-capable PD (max. 30 W) has been detected
		flashing / 5 Hz	Port overloaded
		flashing / 2x flashing every 2s	Port is not being supplied with power 1st possible reason: the connection/supply of this PD would have factored in the safety margin of 15% of the maximum system power 2nd possible reason: the PD was switched off in order to bring the total system load below 200 W again
PoE	green/orange/red	Power bar to indicate the current power output	

Designation	Color	Status	Meaning
OUTPUT (P1 - P5)		P1 - P3 on (green)	The higher the current power output, the more LEDs that light up
		P4 on (orange)	Lights up as soon as the total power consumption of all connected PDs is greater than around 145 W
		P5 on (red)	Danger that the safety margin may be exceeded: Starts to light up as soon as it is no longer possible to connect a Class 1 PD (4 W), so as to ensure that the safety margin of 15% of the total power is maintained (around 166 W)

7 Overload response and reset

The diagnostic socket has a standard digital input (DI) and a relay output (N/O contact). The input and output are in the M12 connector integrated in the housing.

The relay opens the contact on the one hand as soon as the PoE power management system of the module finds itself in a PoE overload situation, i.e., as soon as the current total power consumption of all PDs rises above 200W. In this case, the PDs are switched off one at a time, starting with port 8, until the resulting system load is below 200 W again. The PoE status LEDs of the PDs deactivated by the management system flash twice every 2 seconds.

Another reason why the contact may be opened is the overload of one or more connected PDs. This happens, for example, in the event of an error (e.g., short circuit) at a PD. The PoE port where the error occurred is disconnected by the power management system. The PoE status LED of the corresponding port indicates this state by flashing at 5 Hz. The port can only be supplied again when the cause of the overload has been removed and the PD has been reconnected to the device.

In addition, both overload responses are also indicated by the activation of the FAIL LED, which remains active, regardless of whether the PoE port has been reset, until the signal is reset by a High signal at the digital input (e.g., by using a key switch). Provided there is no other error state at the PoE ports at that time, the N/O contact closes again and the FAIL LED goes out.

Method of operation of the PSE system

The maximum total PoE power of the system that can be managed is 200 W.

A newly connected powered device (PD) is only supplied with power if the currently calculated power consumption of all devices plus the worst case power consumption of the new PD (4 W, 7W, 15 W or 30 W depending on the classification) allows a power reserve of at least 15%.

As soon as the power consumption of the connected PDs exceeds the total power during operation, low-priority ports are switched off in order of priority until the resulting total power is no longer exceeded.

If the current power consumption exceeds the available total power by 10% or more, all lowpriority ports are instantly switched off.

PD = Powered Devices

8 Attachment

8.1 Declaration of conformity

EG-Konformitätserklärung

Original

Hersteller: Firmenname: VisionTools
Bildanalyse Systeme GmbH
Straße: Goethestraße 63
Ort: 68753 Waghäusel
Land: Deutschland

Bevollmächtigte Person, Name: Josef Djulic
für die Zusammenstellung der technischen Unterlagen: Funktion: Geschäftsführer

Produkt: „VoE – NETBox“
Artikel-Nr.: 09V0001A

Hiermit erklären wir, dass das nachfolgend bezeichnete Produkt aufgrund seiner Konzipierung und Bauart in der von uns in Verkehr gebrachten Ausführung den grundlegenden Sicherheits- und Gesundheitsanforderungen der nachfolgend aufgeführten EG-Richtlinien entspricht.

Angewandte Richtlinien:

- EMV-Richtlinie 2014/30/EU

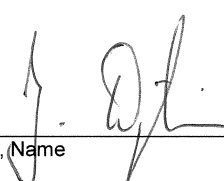
Angewandte harmonisierte Normen:

- DIN EN 61000-6-2; VDE 0839-6-2:2006-03
Elektromagnetische Verträglichkeit (EMV) - Störfestigkeit für Industriebereiche
- DIN EN 61000-6-4; VDE 0839-6-4:2011-09
Elektromagnetische Verträglichkeit (EMV) - Störaussendung für Industriebereiche

Hinweis:

Das Produkt ist keine Maschine im Sinne der Maschinenrichtlinie.

Waghäusel, den 22.07.2016



Vorname, Name