

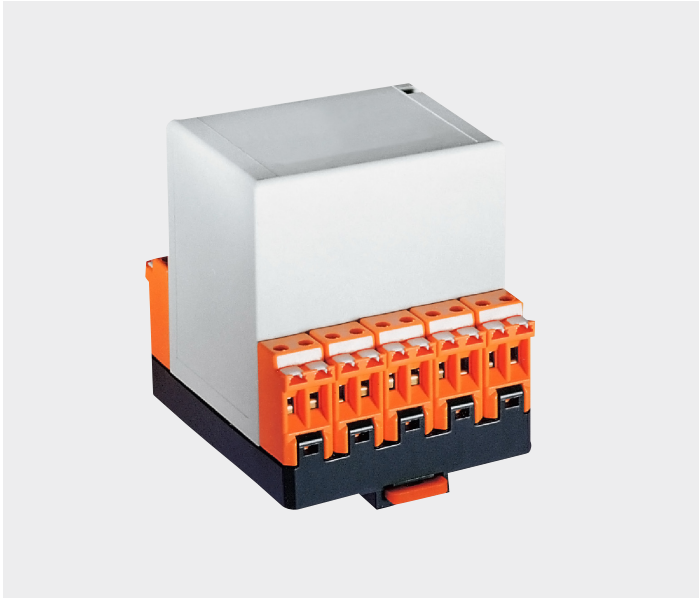
Ethernet switch

Switch - Ethernet Version



Control and regulation components MODEX

Ethernet switch Type 07-7311-97WE



Definition

The Ethernet switch forwards data packets between devices.
 The switch is suitable for Zone 1 and 21 hazardous areas.
 The electronics for the signal conversion are accommodated in the flameproof MODEX enclosure.

Configuration

The Ethernet PCB transmits all types of Ethernet data, including Profinet packets.

Order numbers

Ethernet switch	07-7311-97WE4000
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With applicable documents

- Declaration of EU conformity
- Test certificates

These documents must be retained!

Intended Use

The Ethernet switch is designed to meet the industrial requirements in hazardous (potentially explosive) areas.

Industrial Requirements of Zone 1

The modules are approved as “Ex d flameproof enclosures” with connecting terminals in “Ex e increased safety ex e”. Since the open connecting terminals are Ex e, the modules are given a partial certificate with the “U” marking.

Special note concerning the “U” marking

The modules must be installed in an enclosure that meets the requirements of a recognised type of protection in accordance EN/IEC 60079-0, min. protection type IP54. When installing in an enclosure with “increased safety ‘e’”, the clearance and creep age distances in Tables 1+2 in IEC/EN 60079-7 must be complied with.

Use in local control stations

Local control stations may generally be opened for testing and adjustment work.

Work may be carried out on intrinsically safe circuits if all non-intrinsically safe circuits have an internal cover which, when the enclosure is open, corresponds to at least the following protection class IP 30 when the enclosure is open.

Explosionsschutz

Marking ATEX	Ⓢ Zone 1/21
Certification	see bartec.com
Marking IECEx	Zone 1/21
Certification	see bartec.com
Marking CSA	Class I Zone 1
Certification	see bartec.com

Further approvals and test certificates can be found at bartec.com

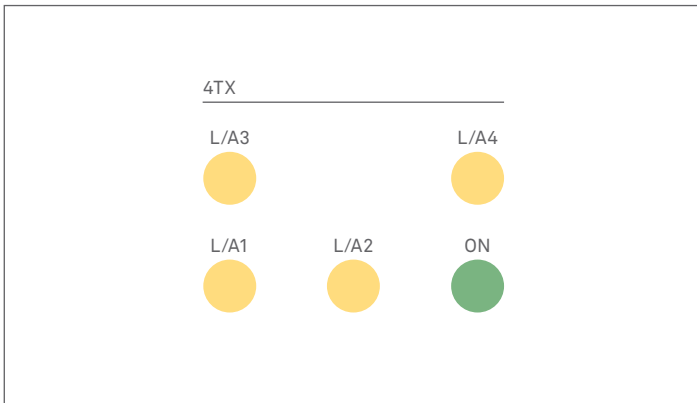
EU Conformity

RoHS Directive	2011/65/EU
Standards in accordance with EMC Directive 2014/30/EU	EN 61000-6-2:2005 EN 61000-6-4:2007 + A1:2011 EN 55011:2009 + A1:2010
Product labelling	0044
Product labelling installation	CE 0044

Technical Data

Physical characteristics	
Construction	flameproof clip-on enclosure
Enclosure material	high-quality thermoplastics
Protection class (EN/IEC 60529)	IP20 (minimum) IP66
Terminals	IP30
Electronic module	
Terminals with cover	
Attachment onto mounting rail (EN/IEC 60715)	TH 35 x 15 (7.5)
Operating	LED Green: Operation indicator (ON) Link / Activity (L/A): LED yellow: Connection existing LED yellow flashing: Data transmission
Electric connections	terminals 2.5 mm ² , fine-stranded
Terminal marking	inscription label
Terminal screws	M 2.5 x 0.45 mm
Terminal screw torque	0.4 Nm
Mounting position	any
Weight	approx. 600 g
Dimensions	94 x 91 x 75 mm

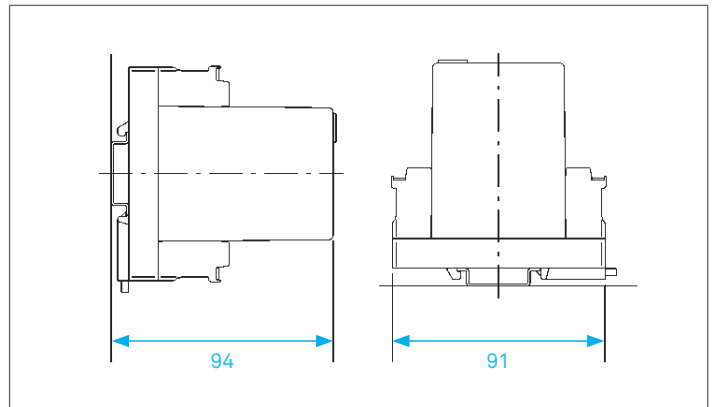
Ethernet



Technical Data

Ambient conditions	
Ambient temperature	-25 °C to +60 °C at T4
Storage/transport temperature	-40 °C to +60 °C
Relative air humidity	5 % to 95 % non-condensing
Vibration (EN 60068-2-6)	2 g/7 mm, 5-200 Hz in all 3 axes
Shock (EN 60068-2-27)	15 g, 11 ms in all 3 axes
Electrical Data	
Galvanic isolation	ethernet / power supply
Input/output	4 wire ethernet with screw terminals
Supply voltage	L+, L- DC 20 V to DC 30 V
Bit distortion	60 ns (max.)
Power consumption dissipation	max. 3.0 W
Signal delay	max. 4,5 µs/typ.
Current consumption	approx. 120 mA at DC 24 V
Terminating resistor	via jumpers

Dimensions / mounting positions



Marking

Particularly important points in these instructions are marked with a symbol:



DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.



WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



NOTICE is used to address practices not related to personal injury.



NOTE Important instructions and information on effective, economical and environmentally compatible handling.

Transport and storage



NOTICE

Damages due to improper storage!

- Observe storage and transport temperatures.
- Condensation can arise on components in a cold environment.
- Use the original packaging for transport/storage.

Installation



NOTICE

Damage due to improper handling!

- Assembly, disassembly, installation and commissioning may only be performed by qualified personnel who are authorized and trained to assemble electrical components in hazardous areas.



DANGER

Improper use, incorrect assembly and operation can endanger the explosion protection and can lead to and can lead to serious personal injury or damage to property.

The following special conditions must be heeded!

1. Do not install and commission components that have been stored in a cold environment. Take condensation into consideration!
2. The enclosure has been sealed in the factory. The enclosure must not be opened!
3. Before installation, check whether the components are in perfect condition.
4. No conversions or changes to the module may be made.
5. Only work on the module when it is voltage-free.
6. All screws and terminals must be tightened using a torque wrench, taking account of the recommended connection torque for screws and terminals of 0.4 Nm to 0.7 Nm. Suitable measures must be taken to ensure this.
7. Units must be mounted at a distance of 8 mm from the to the nearest unit.
8. Ensure the unit is dead (be aware of consumers with stored energy)
9. Cover any live neighbouring components.
10. The PA connection part must be connected with low impedance to the equipotential bonding conductor of the hazardous area.
11. Decommission the device in the event of a fault.

Installation

Installation and commissioning may only be carried out by qualified personnel who are authorized and trained to install electrical components in potentially explosive atmospheres.



DANGER

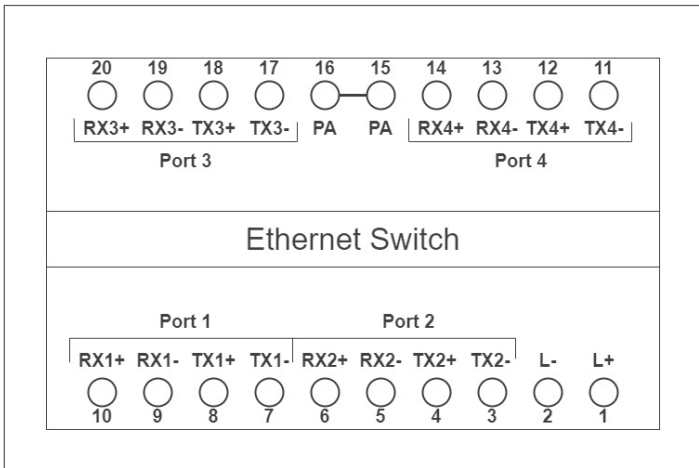
Exposed live parts. Danger to life due to electric shock!!

- Only work on the module when it is de-energised state.

Terminal connection

Terminal	Name
1	(+) DC 24 V Power supply
2	(-) DC 24 V Power supply
3	(Port 2) TX2-
4	(Port 2) TX2+
5	(Port 2) RX2-
6	(Port 2) RX2+
7	(Port 1) TX1-
8	(Port 1) TX1+
9	(Port 1) RX1-
10	(Port 1) RX1+
11	(Port 4) TX4-
12	(Port 4) TX4+
13	(Port 4) RX4-
14	(Port 4) RX4+
15	PA
16	PA
17	(Port 3) TX3-
18	(Port 3) TX3+
19	(Port 3) RX3-
20	(Port 3) RX3+

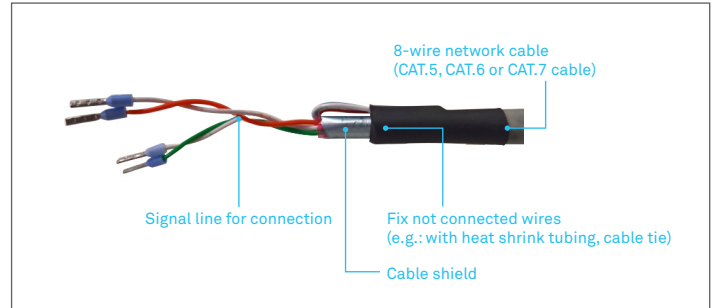
Wiring diagram / terminal assignment



The use of 4-core Industrial Ethernet / Profinet cables is recommended, because there are no unused wires after connecting.

Otherwise, the following must be observed:

Clip the cable shield into the shield clamp



Commissioning

Check before commissioning:

1. Has the module been installed correctly?
2. Is the enclosure undamaged?
3. Has the connection been carried out correctly?
4. Have you checked that the wiring is correct?
5. Does the module function correctly?
6. PA properly connected to equipotential bonding conductor.

Operation

After the final inspection has been carried out, the device can be put into operation.

DANGER

There is a danger to life if the device is not used as intended!

- Observe the special conditions for explosion protection.
- Operate only within the permitted temperature range.
- Connect PA properly to equipotential bonding conductor.
- In the event of bus failure (communication error), the outputs go into fail-safe mode (go to 0 and are switched off!).

Example: Connection Ethernet cables:

Terminal number Port 1	Terminal number Port 2	Signal designation	Cable CAT5/6/7 (assignment TIA568B) Core colors	Cable Industrial Ethernet/ Profinet Core colors
7	3	TX-	orange	orange
8	4	TX+	white/orange	yellow
9	5	RX-	green	blue
10	6	RX+	white/green	white

Troubleshooting

Troubleshooting during connection Establishment

1. Are the systems supplied with voltage?
2. Is the correct connection between the FO coupler and the terminal device ensured and has the correct interface been selected?
3. Are all screw terminals correctly tightened?
4. Is the transmission distance not too long?
5. Has the cable been laid correctly?

Maintenance, Inspection, Repair

Only authorised and qualified personnel may do any work on the control and regulating component.

Maintenance

If operated correctly in accordance with the installation instructions and ambient conditions, it does not require maintenance.

Inspection

Under EN/IEC 60079-17 and EN/IEC 60079-19 the owner/ managing operator of electric installations in hazardous areas is obliged to have these installations checked by a qualified electrician to ensure that they are in a proper condition.

Repair

The component cannot be repaired. Please contact BARTEC GmbH if you have any questions.

Disposal

The regulating and control components contain metallic and plastic parts and electronic parts.

NOTE

Our devices involve electrical equipment which is only intended for commercial use (so-called B2B equipment in accordance with the WEEE Directive).

The regulating and control components must be disposed of in accordance with national regulations.

Our customers may return any products procured from us to our company for disposal. The sender must bear the costs for shipping/packing.

Amendments to the Document

BARTEC GmbH reserves the right to change the contents of this document without notification. We assume no guarantee for the correctness of the information. In cases of doubt the German safety instructions apply because it is not possible to rule out errors during printing and translation. The „General Terms and Conditions of Business“ of the BARTEC Group moreover apply in the event of legal disputes.

The current version of data sheets, operating instructions, certificates and EC declarations of conformity can be downloaded from bartec.com or directly requested from BARTEC GmbH.

Order numbers

Ethernet switch	ST	07-7311-97WE4000
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Serviceadresse

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Konformitätsbescheinigung
Attestation of Conformity
Attestation de conformité



Nº 01-7311-7C0030-D

Wir	We	Nous
BARTEC GmbH Max-Eyth-Straße 16 97980 Bad Mergentheim Germany		
erklären in alleiniger Verantwortung, dass das Produkt Steuer- und Regel- Komponente	declare under our sole responsibility that the product Control Component	attestons sous notre seule responsabilité que le produit Composants de commande et de regulation

07-7311-**/******

auf das sich diese Erklärung bezieht den Anforderungen der folgen- den Richtlinien (RL) entspricht ATEX-Richtlinie 2014/34/EU EMV-Richtlinie 2014/30/EU RoHS-Richtlinie 2011/65/EU und mit folgenden Normen oder nor- mativen Dokumenten übereinstimmt	to which this declaration relates is in accordance with the provision of the following directives (D) ATEX-Directive 2014/34/EU EMC-Directive 2014/30/EU RoHS-Directive 2011/65/EU and is in conformity with the following standards or other normative documents	se référant à cette attestation correspond aux dispositions des direc- tives (D) suivantes Directive ATEX 2014/34/UE Directive CEM 2014/30/UE Directive RoHS 2011/65/UE et est conforme aux normes ou docu- ments normatifs ci-dessous
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EN 60079-0:2018

EN 60079-1:2014

EN 60079-7:2015/A1 :2018

EN 60079-11:2012

EN 61000-6-2:2005

EN 61000-6-4:2007 + A1:2011

EN 60529:1991/A2:2013/

AC:2019

Verfahren der EU-Baumuster- prüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
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PTB 97 ATEX 1068 U (*)

0102, PTB, Bundesallee 100, 38116 Braunschweig, DE

(*) Die Ex-Komponente ist Teil eines elektrischen Betriebsmittels oder eines Moduls, gekennzeichnet mit dem Symbol „U“, das nicht für sich allein verwendet werden darf und über dessen Einbau in elektrische Betriebsmittel oder Systeme zur Verwendung in explosionsgefährdeten Bereichen gesondert entschieden werden muss. Merkmale dieser Komponente sowie die Bedingungen für ihren Einbau in Geräte und Schutzsysteme siehe Betriebsanleitung der Komponente.	(*) The Ex-component is a part of an electrical apparatus or a module, marked with the symbol "U", which is not intended to be used alone and requires additional consideration when incorporated into electrical apparatus or systems for use in explosive atmospheres. Characteristics and how the component must be incorporated into equipment or protective systems see operation manual of the component.	(*) Le composant Ex est partie de matériel électrique ou de module, marquée du symbol « U », ne devant pas être utilisée seule et nécessitant une certification complémentaire lorsqu'elle est incorporée a un matériel électrique ou à un système pour atmosphères explosives. Les caractéristiques du composant ainsi que les conditions d'incorporation dans des appareils ou des systèmes de protection regarde voir l'instruction d'emploi du composant.
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Bad Mergentheim, 25.10.2022

i.V. Reiner Englert

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