

ComEx control and indicating station

Type 07-352*-*****



ComEx control and indicating station

Typ 07-352*-*****



Instruction notes

When working in potentially explosive areas, the safety of people and systems depends on compliance with the relevant safety regulations. Persons responsible for assembly and maintenance bear a special responsibility. A prerequisite for this is precise knowledge of the applicable rules and regulations.

The instructions summarise the most important safety measures and must be read by everyone working with the product in order to make sure that they are familiar with the correct handling of the product.

The instructions must be retained and must be available throughout the life of the product.

Description

ComEx is a flexible system that offers both standardised and customised local control and indicating station.

The standard enclosures, 1-fold (07-3521-.../ 07-3524-...), 2-fold (07-3522-.../07-3525-...) and 3-fold (07-3523-.../07-3526-...) can be combined with the various actuators, potentiometer, switch and light modules.

The types of actuators and modules which are installed in the ComEx control and indicating station can be identified by using the selection keys in the data sheet.

Explosion protection

Notified Body Number	CE 0044
Approved Body Number	2503
ATEX/UKEX Ex protection type	Ⓜ II 2G Ex db eb IIC T6 Gb Ⓜ II 2G Ex db ia IIC T6 Gb Ⓜ II 2D Ex tb IIIC T80 °C Db
ATEX/UKEX certificate number	CML 21ATEX31165X CML 22UKEX3259X
IECEX Ex protection type	Ⓜ db eb IIC T6 Gb Ⓜ db ia IIC T6 Gb Ⓜ tb IIIC T80 °C Db
IECEX certificate number	IECEX CML 21.0132X
CEC (UL Mark)	Ex db eb IIC Gb Class I, Division 2, Groups A, B, C, D
NEC (UL Mark)	Class I, Zone 1, AEx db eb IIC Gb Class I, Division 2, Groups A, B, C, D
Operating temperature	- Enclosure, Module: -55 °C to +85 °C - Actuators: -55 °C to +70 °C - Cable gland / blanking plug: up to +70 °C or +75 °C
Ambient temperature	Please see special conditions of use
Product printing	Standard: ATEX, UKEX, IECEX and UL marking Other markings on request

Type 07-3524-..., 07-3525-..., 07-3526-...

except equipped with module type 07-3322-1**0/****; Type 07-3525-...
except equipped with two modules Type 07-3322-1**0/**** or module type 07-3382-****/****, Type 07-3526-... except with three modules Type 07-3322-1**0/**** and except with module type 07-3322-1**0/**** and module type 07-3382-****/****

Technical data

Level of protection	Up to IP67 in acc. with EN 60529 and Nema 4X only with the following nominal torques: - Adapter 10 Nm - Threaded sleeve 10 Nm - Cable gland / blanking plug according to the manufacturer's specifications - Enclosure screws 1.2 Nm - Potential equalisation, external 5 Nm (may only be installed by Bartec) - Actuator (fastening nut) 2.8 - 3.4 Nm, may only be installed by Bartec
Terminals	0.75 mm ² - 2.5 mm ² /18 AWG - 12 AWG
Nominal torque of the screws	- Module clamps: 0.4 - 0.7 Nm - PE support: 0.4 - 0.7 Nm - Grounding plate: 0.4 - 0.7 Nm - Cable adapter: 0.4 - 0.7 Nm
Dimensions	Please see page 10.

Further technical data can be found in the documentation for the separately certified cable glands and dummy elements used.

Technical data

Type 07-3521-..., 07-3522-..., 07-3523-...	
Nominal values for installed switch module types 07-3322-1*0/**** and 07-3382-****/****:	
Rated insulation voltage, U_0/U	400/690 V
Rated insulation voltage U_i	400/690 V
Rated current ¹⁾	up to 16 A
¹⁾ The maximum permissible electrical power must not exceed the values according to the arrangement tables on pages 7, 8 and 9 for the corresponding maximum ambient temperatures and the configurations of the ComEx control and indicating station.	
Data for installed illuminated indicator modules of type 07-3352-11*0/**** and illuminated push button modules of type 07-3362-17*0/**** and 07-3362-18*0/** **	
Rated current, U	230 V
Operating voltage, U	250 V
Rated insulation voltage, U_i	300 V
Rated insulation voltage, U_0 (Indicator)	AC/DC 12 V to 230 V
Rated current (switch)	up to 1 A
Data for built-in illuminated push button modules of type 07-3362-11*0/**** and 07-3362-12*0/****:	
Rated current, U	30 V
Rated insulation voltage, U_i	30 V
Rated operating voltage, U_0 (indicator)	DC 12 V bis 30 V
Rated current (switch)	up to 0.25 A
Data for built-in potentiometer modules of type 07-3372-1D*0/****:	
Rated voltage, U	250 V
Rated insulation voltage, U_i	250 V
Rated power dissipation	up to 0.35 W @ $T_a \leq +60 \text{ }^\circ\text{C}$ 1 W @ $T_a \leq +40 \text{ }^\circ\text{C}$
Type 07-3524-..., 07-3525-..., 07-3526-...	
Specifications for built-in switch modules of type 07-3322-1*0/**** and 07-3382-****/****, illuminated indicator modules of type 07-3352-14*0/** ** and illuminated push button modules of type 07-3362-15*0/**** and 07-3362-16*0/****:	
Rated voltage, U	30 V
Rated insulation voltage, U_i	30 V
Rated operating voltage, U_0 (Indicator)	DC 12 V to 30 V
Intrinsically safe parameters, maximum values per circuit (EPL Ga)	
Max. input voltage (U_i)	30 V
Max. input current (I_i)	150 mA
Max. input power (P_i)	1 W
Internal inductance (L_i)	negligible
Internal capacitance (C_i)	- Indicator 37 nF - Switch negligible

Safety instructions

The ComEx control and indicating station may only be used within the specified temperature range.

Unprotected, incorrect installation may result in malfunctions or loss of explosion protection.

The connection and installation/disassembly of the ComEx control and indicating station must be carried out by qualified personnel who are authorised and trained to install electrical components in potentially explosive atmospheres.

Use in any areas other than those specified or modification of the product by anyone other than the manufacturer releases BARTEC from liability for defects and further liability.

When setting up or operating explosion-protected electrical systems, the relevant installation and operating regulations must be observed.

The generally applicable legal rules and other binding guidelines on occupational safety, accident prevention and environmental protection must be observed.

The ComEx control and indicating station may only be operated in a clean, undamaged condition. Any modifications and alterations are not permitted.

When using intrinsically safe devices, a corresponding barrier is mandatory. The relevant electrical limit values for "intrinsic safety" must be observed.

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.

Standards conformed to

Please see EU Declaration of Conformity.

Assembly, installation and commissioning

WARNING



Risk of serious injury due to incorrect procedures.

- Work on assembly, disassembly, installation and commissioning may only be carried out by authorised specialist personnel.
- Suitable tools shall be used.

Assembly/Disassembly

Prior to the assembly/disassembly, it must be ensured that the ComEx control and indicating station is in s condition (no cracks or damage).

Installation



NOTE The connection of the device must be carried out in accordance with the information in the applicable operating instructions for the built-in devices.

The applicable operating instructions can be downloaded from www.bartec.com or ordered directly from BARTEC GmbH.

The ComEx command and display devices must be installed stationary.

A maximum of two ComEx command and display devices can be connected with a sleeve that holds the enclosures together.

Specific Conditions of Use

The following conditions relate to safe installation and/or use of the equipment.

- The ComEx control and indicating station shall be installed, so it will be protected against electrostatic charging. The metal entry devices shall be grounded.
- The technical data of separately certified cable glands and blanking element acc. to manufacturer specifications shall be observed.
- The wiring internal to equipment which might come into contact with a conductive part shall be mechanically protected, secured, or routed to avoid insulation damage.
- The connection cables shall have a minimum service temperature below or equal to the minimum ambient temperature for the ComEx control and indicating station and a maximum service temperature above or equal to 80 °C.
- The maximum permissible currents must not exceed the values according to the arrangement tables corresponding maximum ambient temperatures and the configurations of the ComEx control and indicating station.
- Each terminal of the module is limited to one conductor per clamping unit.
- The values U_0 , I_0 , C_0 and L_0 of an approved Intrinsically Safe Apparatus connected to the ComEx control and indicating station must not exceed the permissible maximum values specified in IEC 60079-11 / EN 60079-11 and IEC 60079-25 / EN 60079-25, if applicable, for the zone(s) and group(s) of the corresponding hazardous areas of the location of the ComEx control and indicating station.

- The wiring internal to the equipment shall be carried out in such a way that a distance between the bare conducting parts of a cable lug mounted on the feed-through terminal for earthing and any other terminals is at least 10 mm.
- The ComEx control and indicating station type 07-3521-..., 07-3522-... or 07-3523-... must not be connected with a sleeve fixing to the ComEx control and indicating station type 07-3524-..., 07-3525-... or 07-3526-... equipped with conduit adapters
- The minimum ambient temperature for the ComEx control and indicating station shall be
 - above or equal to the minimum ambient temperature for the separately certified cable glands and blanking elements, but above or equal to -55 °C. The maximum ambient temperature for the ComEx control and indicating station shall be below or equal to 40 °C resp. 60 °C.
- The intrinsically safe circuits are galvanically isolated from each other in accordance with IEC / EN 60079-11.
- The user shall ensure that all wiring to intrinsically safe modules is installed in accordance with the requirements of IEC / EN 60079-14 Clause 16.

The cables must be connected carefully, i.e:

- The insulation must extend to the terminal.
- It must be ensured that the conductor is not damaged.
- All screws on the connection terminals, including those that are not in use, must be tightened securely.

All unused cable entries must be sealed with a certified plug.



NOTE Avoid any capacitive interference from parallel conductors and additional heat on the cable.

Special care must be taken when connecting the conductors:

- Remove approx. 6 mm of the conductors from the insulation for modules or 8 mm for PE support and earthing plate conductors.
- Prepare the ends of fine-stranded and stranded conductors: Crimp the wire end ferrules by using suitable crimping tools.

Connection cross-sections: 0.75 - 2.5 mm².

- Loosen the terminals.
- Insert the conductor.
- Tighten the terminals with a maximum torque of 0.4 - 0.7 Nm (0.3 - 0.5 lb.ft)

Commissioning

The following points must be observed before installation work may be commenced:

- The device is installed correctly
- The device is not damaged.
- The connection compartment is clean.
- The connection has been carried out correctly.
- The cables have been laid correctly.
- All screws are firmly tightened.



NOTE The spare parts, attachments or switching and lighting modules are listed in the data sheet.

Operation



DANGER

Death or risk of injury due to improper use.

- The ComEx control and indicating station may only be operated within the applicable technical limits (see page 1).

Transport and storage



NOTICE

Damage to the ComEx control and indicating station due to incorrect transport or incorrect storage.

- Transport and storage is permissible in original packaging only.

Maintenance and Troubleshooting



WARNING

Risk of serious injury due to incorrect procedure.

- Any maintenance and troubleshooting work may only be carried out by authorised specialist personnel.
- IEC/EN 60079-17 must be observed.

Maintenance

The operator of the ComEx control and indicating station must keep it in good condition, operate it properly, monitor it, clean it and check it regularly for any cracks and/or damage.

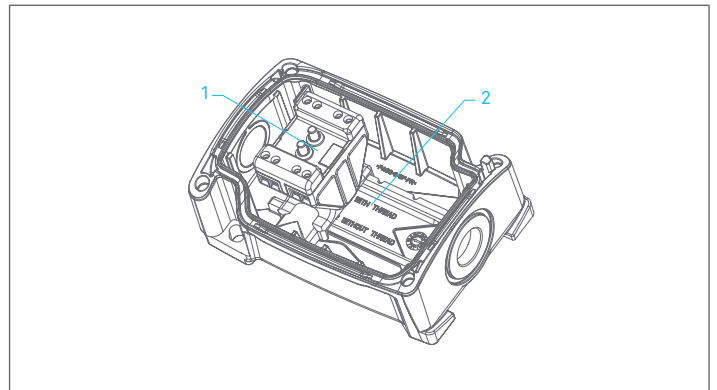
Fault Clearance

The ComEx control and indicating station is defective if it is cracked and/or damaged.

Damaged or defective control and display devices cannot be repaired. They must be replaced in accordance with this user manual.

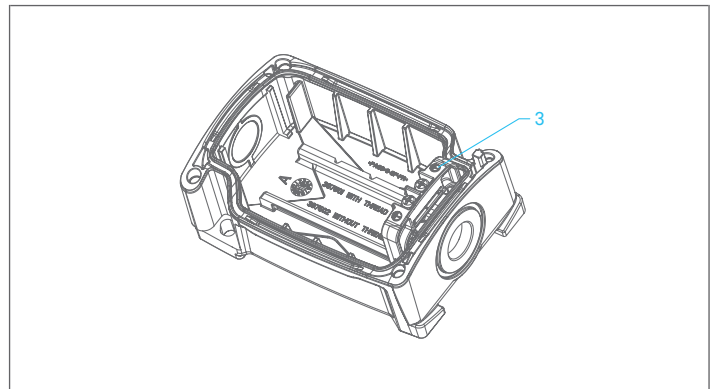
Replacing/installing any components

Built-in enclosure



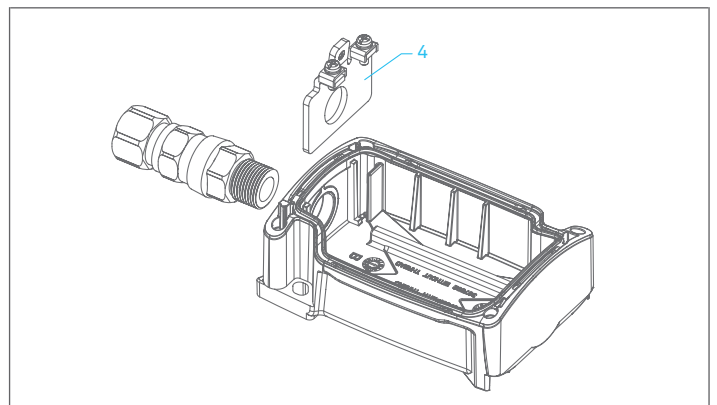
Snap the ComEx modules onto the mounting rail of the enclosure so that the detent lug is positioned in the recess of the mounting rail. Please see also the operating instructions for the individual modules.

PE carrier



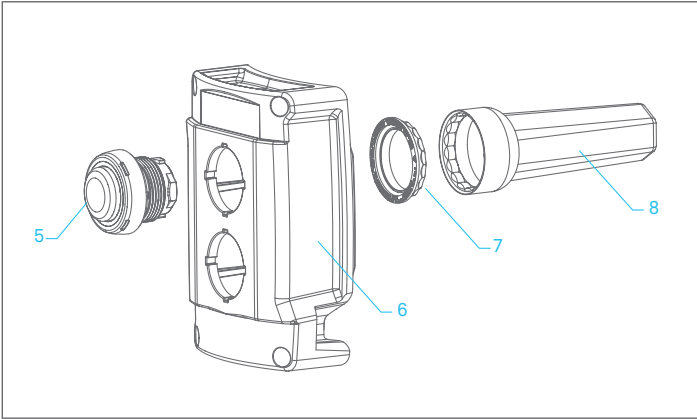
Insert the PE support (3) for the PE conductor connection either in the upper or lower area of the enclosure. Slide it onto the designated fins.

Grounding plate



Insert the grounding plate (4) for metal cable entries between the bar and the inner wall of the enclosure. The grounding plate is secured by screwing in the cable entry.

Actuator attachments



Accessories, spare parts

Please see the BARTEC catalogue.

Disposal

The components of the ComEx control and indicating station (actuating elements, modules and enclosure) contain metal, glass and plastic parts. Therefore, the legal requirements for the disposal of electronic waste must be observed (e.g. disposal by an approved disposal company).

Service address

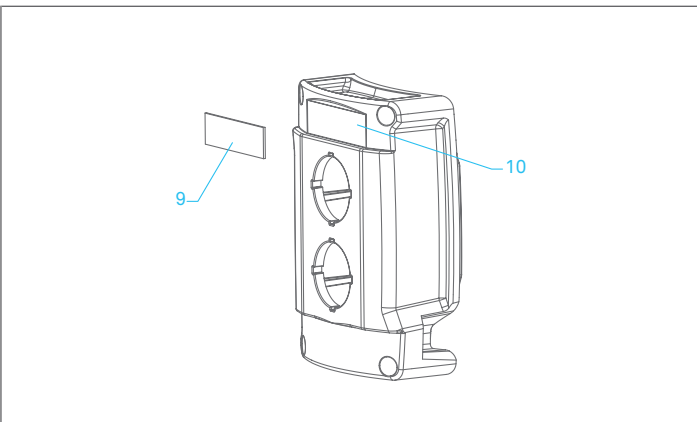
BARTEC GmbH
Max-Eyth-Str. 16
97980 Bad Mergentheim
Germany
Phone: +49 7931 597 0
info@bartec.com



NOTE The position of the ComEx modules must match the corresponding actuator attachment.

Insert the actuating attachments (5) with the locking lug into the recess in the enclosure cover (6) and screw it in place with the fastening nut (7). The assembly is carried out by using the nut spanner (8). Please also see the operating instructions for the actuator attachments, type 07-3400-****

Labelling plate



Engrave or manually label the labelling plates (9).
Glue the labelling plates into the recess provided in the enclosure cover (10).

Selection procedure for the implementation of permissible cabling combinations

ComEx stations in one enclosure (with one to three modules)

Ambient temperature	Maximum service temperature of cable glands	Maximum rated current [A] per core with core cross-section [mm ²]							Maximum total length of the cores in the enclosure [m]			Maximum number of wires (pcs.)
		≥ 0.75	≥ 1	≥ 1.5	≥ 2.5	AWG			One-3-fold enclosure	One-2-fold enclosure	One-1-fold enclosure	
						18	16	14				
≥ 40 °C	≥ 70 °C	7.9	9.1	11.3	14.7	8.3	10.5	13.4	1,44	0,96	0,48	4
		4.5	5.6	7.3		5.2	6.7		2,88	1,92	0,96	8
		2.8	3.6			3.3			5,76	3,84	1,92	16
		1.8							11,52	7,68	3,84	32
	≥ 75 °C	8.5	9.9	12.2	15.9	8.9	11.4	14.4	1,44	0,96	0,48	4
		4.9	6.1	7.9		5.7	7.2		2,88	1,92	0,96	8
		3.0	3.9			3.6			5,76	3,84	1,92	16
		2.0							11,52	7,68	3,84	32
≥ 60 °C	≥ 70 °C	4.6	5.4	6.6	8.6	4.8	6.2	7.8	1,44	0,96	0,48	4
		2.7	3.3	4.3		3.1	3.9		2,88	1,92	0,96	8
		1.6	2.1			1.9			5,76	3,84	1,92	16
		1.0							11,52	7,68	3,84	32
	≥ 75 °C	5.7	6.6	8.1	10.6	5.9	7.6	9.6	1,44	0,96	0,48	4
		3.3	4.0	5.3		3.8	4.8		2,88	1,92	0,96	8
		2.0	2.6			2.4			5,76	3,84	1,92	16
		1.3							11,52	7,68	3,84	32

Determination guide:

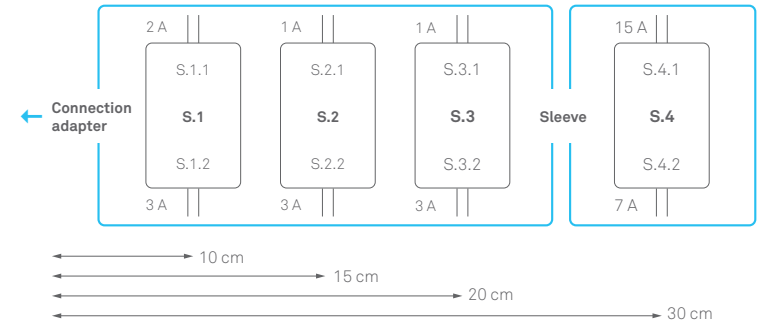
1. The conductor cross-sections are to be determined from the selection table for each circuit depending on the given rated currents.
2. The utilisation of the conductor length must be calculated. In order to do this, the maximum permissible conductor lengths must be determined from the selection table for each circuit, divided by the corresponding given conductor lengths and added together. If the utilisation exceeds 100%, the cables must be distributed between additional KLE. Alternatively cables with a larger cross-section must be selected.
3. The utilisation of the number of cables must be calculated per cable gland/flange sleeve. In order to do this, the maximum permissible number of cables must be determined from the selection table for each circuit, divided by the corresponding given number of cables and added together. If the utilisation per entry exceeds 100%, the cables must be distributed between additional entries. Alternatively, cables with a larger cross-section must be selected.

ComEx stations in two enclosures (with two to six modules)

Ambient temperature	Maximum service temperature of cable glands	Maximum rated current [A] per core with core cross-section [mm ²]							Maximum total length of the cores in the enclosure [m]					Maximum number of wires	
		≥ 0.75	≥ 1	≥ 1.5	≥ 2.5	AWG			Two 3-fold enclosure	One 3-fold and one 2-fold enclosure	Two 2-fold or one 3-fold and one 1-fold enclosure	One 2-fold and one 1-fold enclosure	Two 1-fold enclosure	Cable gland (pcs.)	Flange sleeve (pcs.)
						18	16	14							
≥ 40 °C	≥ 70 °C	7.5	8.8	11.0	14.7	7.9	10.2	13.2	3.6	3	2.4	1.8	1.2	4	6
		4.4	5.5	7.3		5.1	6.6		7.2	6	4.8	3.6	2.4	8	12
		2.7	3.6			3.3			14.4	12	9.6	7.2	4.8	16	24
		1.8							28.8	24	19.2	14.4	9.6	32	48
	≥ 75 °C	8.1	9.5	11.7	15.3	8.5	10.9	13.9	3.6	3	2.4	1.8	1.2	4	6
		4.7	5.8	7.6		5.4	6.9		7.2	6	4.8	3.6	2.4	8	12
		2.9	3.8			3.4			14.4	12	9.6	7.2	4.8	16	24
		1.9							28.8	24	19.2	14.4	9.6	32	48
≥ 60 °C	≥ 70 °C	4.4	5.1	6.4	8.6	4.6	6.0	7.8	3.6	3	2.4	1.8	1.2	4	6
		2.5	3.2	4.3		3.0	3.9		7.2	6	4.8	3.6	2.4	8	12
		1.6	2.1			1.9			14.4	12	9.6	7.2	4.8	16	24
		1.0							28.8	24	19.2	14.4	9.6	32	48
	≥ 75 °C	5.4	6.3	7.9	10.6	5.6	7.3	9.5	3.6	3	2.4	1.8	1.2	4	6
		3.1	3.9	5.1		3.6	4.7		7.2	6	4.8	3.6	2.4	8	12
		1.9	2.6			2.3			14.4	12	9.6	7.2	4.8	16	24
		1.3							28.8	24	19.2	14.4	9.6	32	48

Example 1: ComEx stations in an enclosure with three modules. The following is provided:

- Number of modules: 3;
- Enclosure size and quantity: one 3-fold enclosure;
- Highest ambient temperature $T_a = 40\text{ °C}$;
- Module No. / Circuit No. / Rated current / Number and length of cables:
 - S.1 / S.1.1 / 3 A / 2 x 10 cm;
 - S.1 / S.1.2 / 3 A / 2 x 10 cm;
 - S.2 / S.2.1 / 7 A / 2 x 15 cm;
 - S.2 / S.2.2 / 9 A / 2 x 15 cm;
 - S.3 / S.3.1 / 11 A / 2 x 20 cm;
 - S.3 / S.3.2 / 15 A / 2 x 20 cm.
- Introduction into the enclosure: KLE ($T_s \geq 75\text{ °C}$)
- Conductor cross-sections according to ISO



Selection table

ComEx stations in an enclosure (with one to three modules)																	
Maximum rated current per cable [A] with minimum cable cross-section [mm ²] and														maximum total length of the cables within the enclosure [m]			Maximum number of cables per entry [each]
$T_a \leq 40\text{ °C}$							$T_a \leq 60\text{ °C}$							One 3-fold enclosure	One 2-fold enclosure	One 1-fold enclosure	
2.5	1.5	1	0.75	"2.08 (14 AWG)"	"1.31 (16 AWG)"	"0.823 (18 AWG)"	2.5	1.5	1	0.75	"2.08 (14 AWG)"	"1.31 (16 AWG)"	"0.823 (18 AWG)"				
Stationen mit KLE																	
15.9	12.2	9.9	8.5	14.4	11.4	8.9	10.6	8.1	6.6	5.7	9.6	7.6	5.9	1.44	0.96	0.48	4
	8.0	6.1	5.0		7.2	5.7		5.3	4.1	3.3		4.8	3.8	2.88	1.92	0.96	8
		4.0	3.1			3.6			2.7	2.0			2.4	5.76	3.84	1.92	16
			2.0							1.3				11.52	7.68	3.84	32

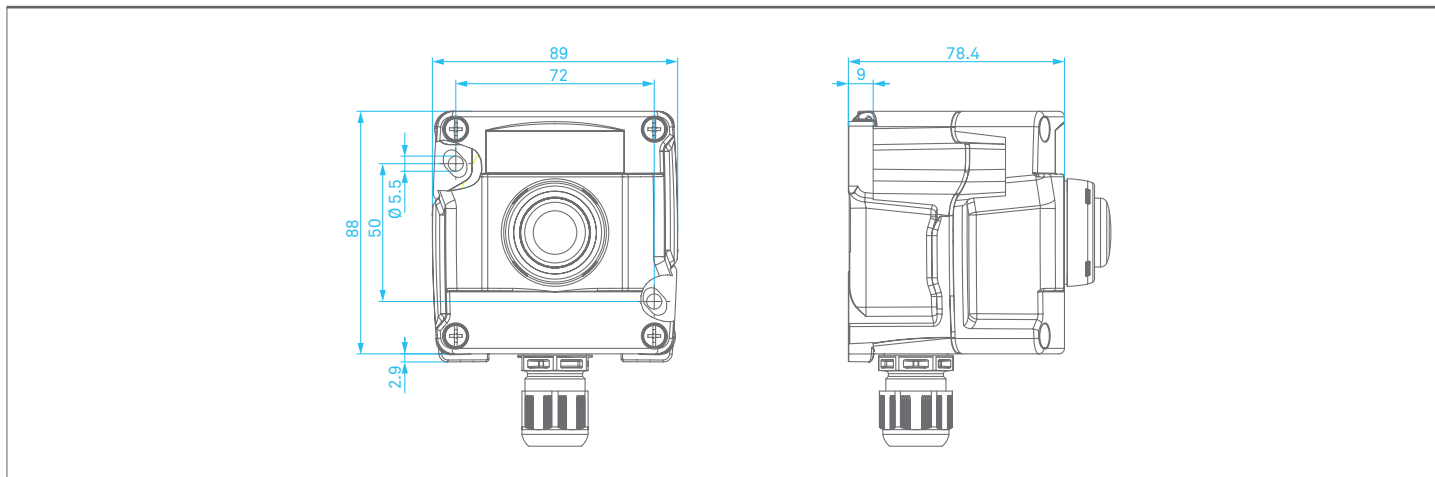
Arrangement

Enclosure	T_a [°C]	Module No.	Circuit No.	Rated current [A]	Cables			Utilisation of cables									
					Quantity [each]	Length [m]	Cross-section [mm ²]	Length [m]			Number per entry						
								provided	permissible	%	provided	permissible	KLE 1	KLE 2	KLE 3	KLE n	
One 3-fold enclosure	40	S.1	S.1.1	3	2	0.1	0.75	2 x 0.1	5.76	3.5%	2	16	12.5%				
			S.1.2	3	2	0.1	0.75	2 x 0.1	5.76	3.5%	2	16	12.5%				
		S.2	S.2.1	7	2	0.15	1.5	2 x 0.15	2.88	10.4%	2	8	25.0%				
			S.2.2	9	2	0.15	1	2 x 0.15	1.44	20.8%	2	4		50.0%		not required	not required
		S.3	S.3.1	11	2	0.2	1.5	2 x 0.2	1.44	27.8%	2	4		50.0%			
S.3	S.3.2	15	2	0.2	2.5	2 x 0.2	1.44	27.8%	2	4		50.0%					
Summe:								94%			100%		100%				

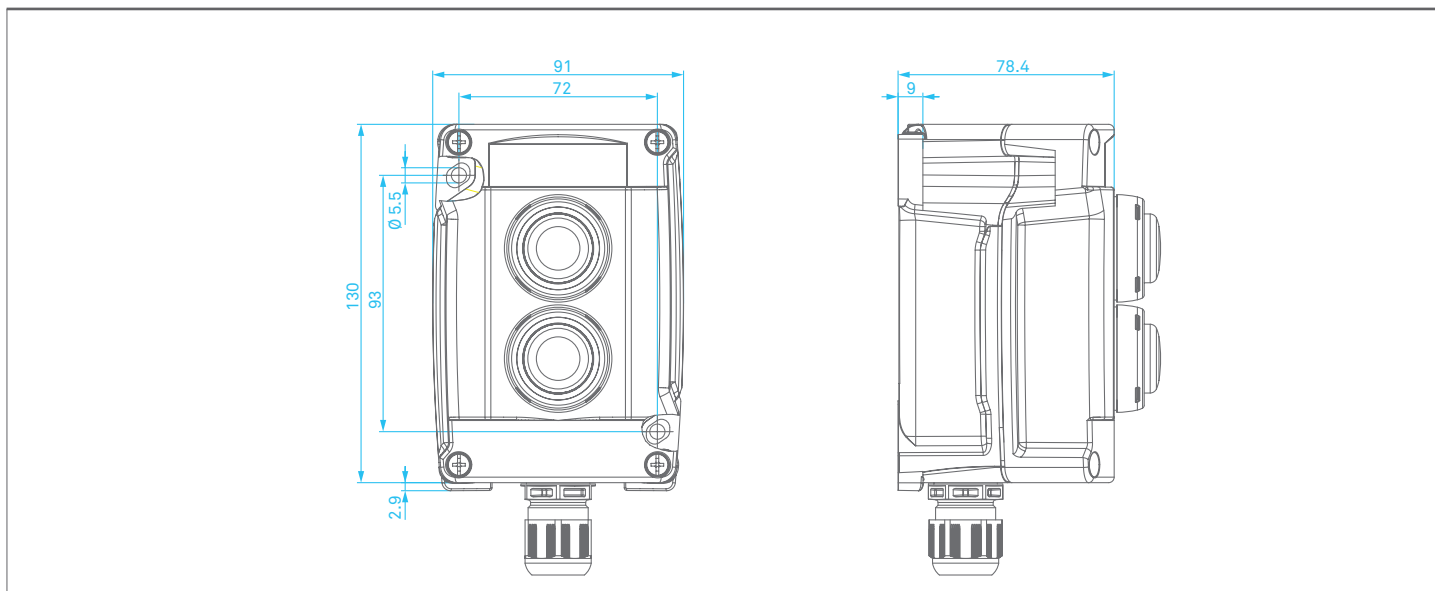
Note 1: e.g. 0.75 mm² is also possible for 7 A, however, with 1.5 mm² the maximum permissible length and number of cables is doubled.
 Note 2: For example, for circuit S.1.1 (current 3 A), up to 16 wires of 0.75 mm² per KLE may pass through and for example, for circuit S.2.1 (current 7 A up to 4 cables of 0.75 mm² or up to 8 cables of 1.5 mm² per KLE may also pass through.

Dimensions in mm

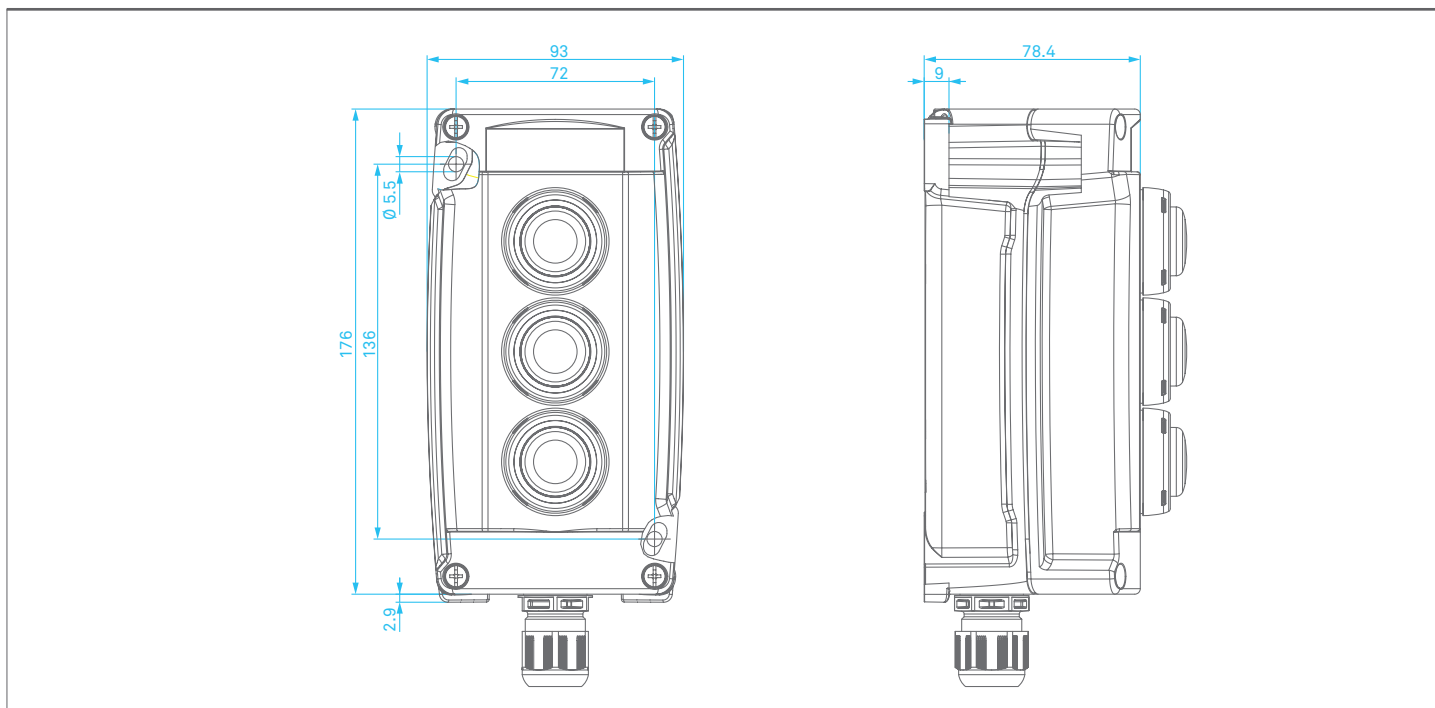
Enclosure, 1-fold



Enclosure, 2-fold



Enclosure, 3-fold



EU Konformitätserklärung
 EU Declaration of Conformity
 Déclaration UE de conformité
 N° 01-3520-7C0001



Wir	We	Nous
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BARTEC GmbH
 Max-Eyth-Straße 16
 97980 Bad Mergentheim
 Germany

erklären in alleiniger Verantwortung, dass das Produkt ComEx Befehls- und Anzeigegeräte	declare under our sole responsibility that the product ComEx Control and Indicating Station	attestons sous notre seule responsabilité que le produit Appareils de commande et de signalisation ComEx
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Typ 07-352* -*****

auf das sich diese Erklärung bezieht den Anforderungen der folgenden Richtlinien (RL) entspricht ATEX-Richtlinie 2014/34/EU EMV-Richtlinie 2014/30/EU RoHS-Richtlinie 2011/65/EU WEEE-Richtlinie 2012/19/EU und mit folgenden Normen oder normativen 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 WEEE-Directive 2012/19/EU and is in conformity with the following standards or other normative documents	se référant à cette attestation correspond aux dispositions des directives (D) suivantes Directive ATEX 2014/34/UE Directive CEM 2014/30/UE Directive RoHS 2011/65/UE Directive WEEE 2012/19/UE et est conforme aux normes ou documents normatifs ci-dessous
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EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015/A1:2018 EN 60079-11:2012 EN 60079-31:2014	EN 60529/A2:2013/AC:2019 EN 61000-6-2:2005 EN 61000-6-4:2007+A1:2011 EN IEC 63000:2018
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Verfahren der EU-Baumusterprüfung / Benannte Stelle	Procedure of EU-Type Examination / Notified Body	Procédure d'examen UE de type / Organisme Notifié
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CML 21ATEX31165X, Issue 0
 2776, CML B.V., Hoogoorddreef 15, 1101BA Amsterdam, NL



Bad Mergentheim, 26.01.2024

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