

INSTALLATION INSTRUCTION

Switch Disconnecter Fuse Slimline XRG2/3



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04	Busbar overview
06	Manual operation
07	Motor operation
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Use of symbols



Hazardous voltage

Warns about a situation where a hazardous voltage may cause physical injury to a person or damage to equipment.



Caution

Provides important information or warns about a situation that may have a detrimental effect on equipment.



General warning

Warns about a situation where something other than electrical equipment may cause physical injury to a person or damage to equipment.



Information

Provides important information about the equipment.



Tools

Shows the needed tools for mounting or fastening.

Receiving, handling and storage



Warning

HAZARD OF EQUIPMENT OVERTURNING

When moving with a fork lift, do not remove the shipping package until the device is in its final location.

Failure to follow this instruction will result in personal injury or equipment damage.

Receiving and handling

Upon receipt, carefully inspect the switch for damage that may have occurred during transit. If damage is evident, or there is visible indication of rough handling, immediately file a damage claim with the transportation company, and notify your local ABB sales office.

Do not remove the shipping package until ready to install the switch.

Storage

If the unit will not be placed into service immediately, store the switch on its original package in a clean, dry location. To prevent condensation, maintain a uniform temperature. Store the unit in a heated building, allowing adequate air circulation and protection from dirt and moisture. Storing the unit outdoors could cause harmful condensation inside the switch enclosure.

Read these safety instructions carefully before using this product!



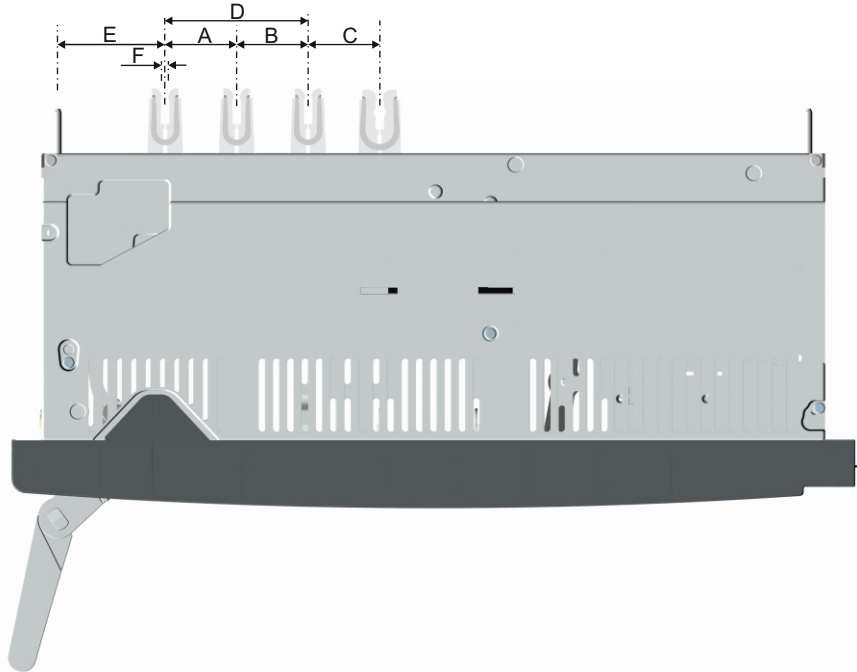
Danger

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Apply appropriate personal protective equipment and follow safe electrical work practices.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Before performing visual inspections, tests, or maintenance on the equipment, disconnect all sources of electric power. Assume that all circuits are live unless they are completely deenergized, tested, grounded, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Turn off switch before removing or making load side connections.
- Always use a properly rated voltage sensing device at all line and load to confirm switch is off.
- Turn off power supplying switch before doing any other work on or inside switch.

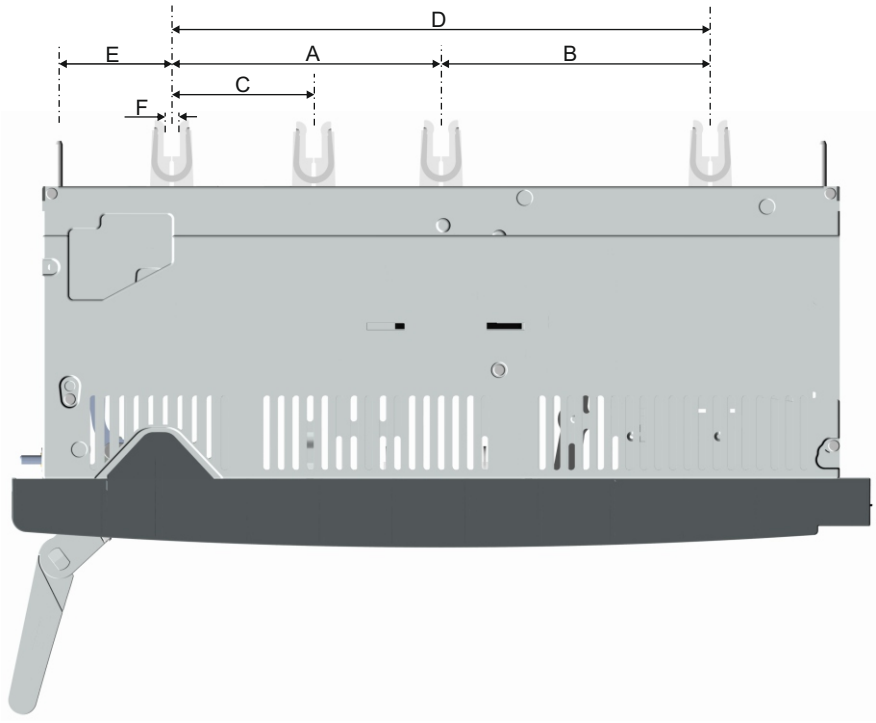
Failure to follow these instructions could result in death or serious injury.

Busbar overview



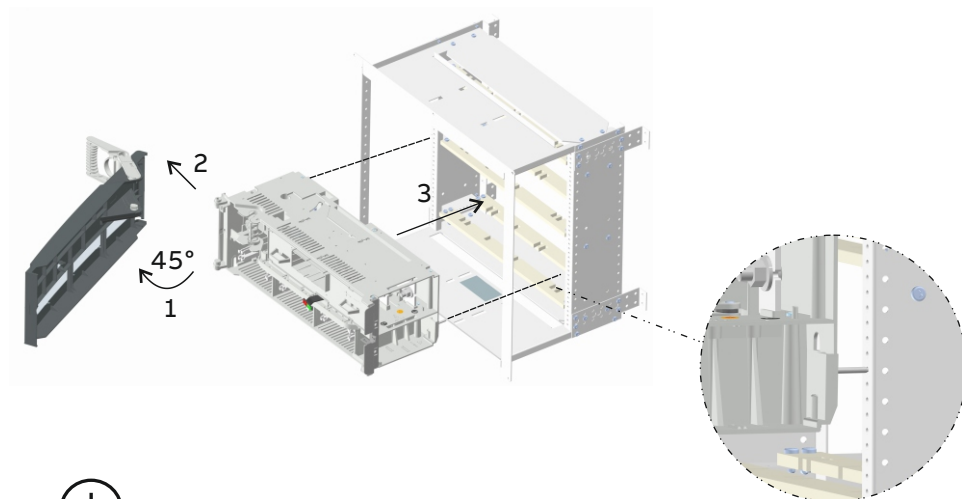
	A	B	C	D	E	F
50/5-2p	-	-	-	100	75	5
50/5-3p	50	50	-	-	75	5
50/5-4p	50	50	50	-	75	5
50/10-2p	-	-	-	100	75	10
50/10-3p	50	50	-	-	75	10
50/10-4p	50	50	50	-	75	10

Busbar overview

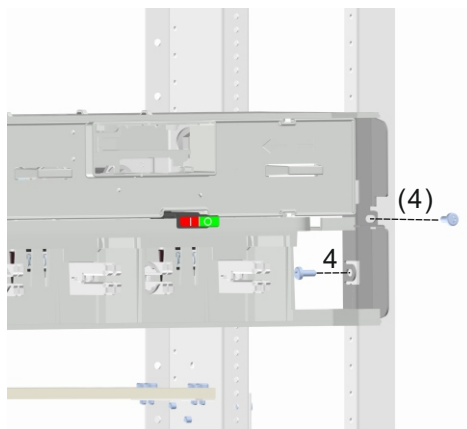
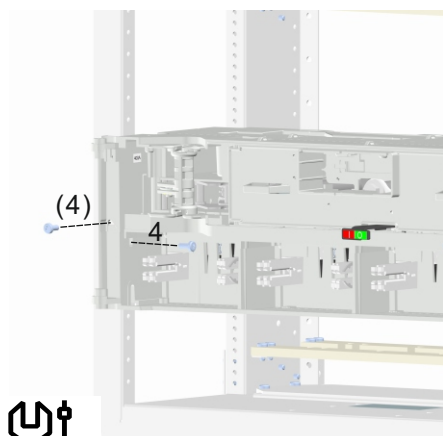


	A	B	C	D	E	F
185/10-2p	-	-	-	370	77.5	10
185/10-3p	185	185	-	-	77.5	10
185/10-4p	185	185	97.5	-	77.5	10

Manual operation

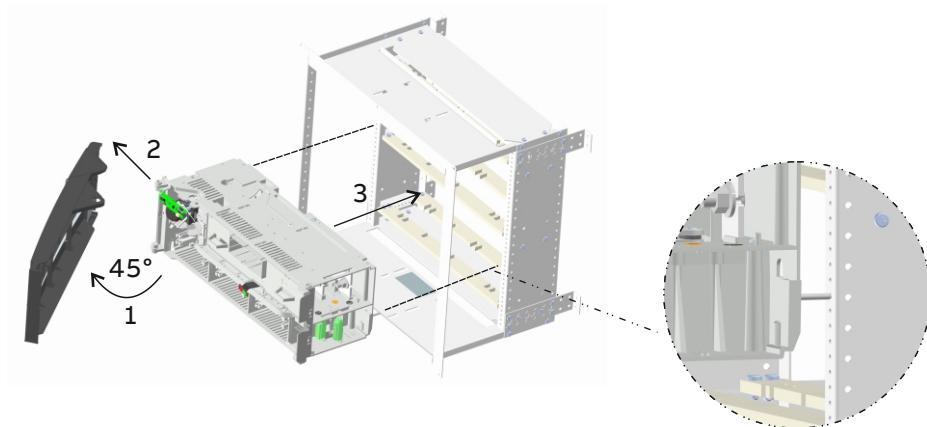


XRG contact is inserted into the busbar with quick push of hands after the left and right positioning pins inserted into holes of the bracket.

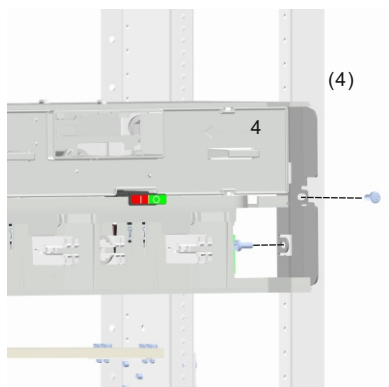
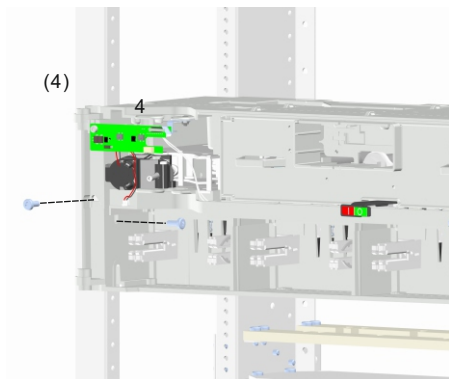


M6 thread forming screw (not included)

Motor operation



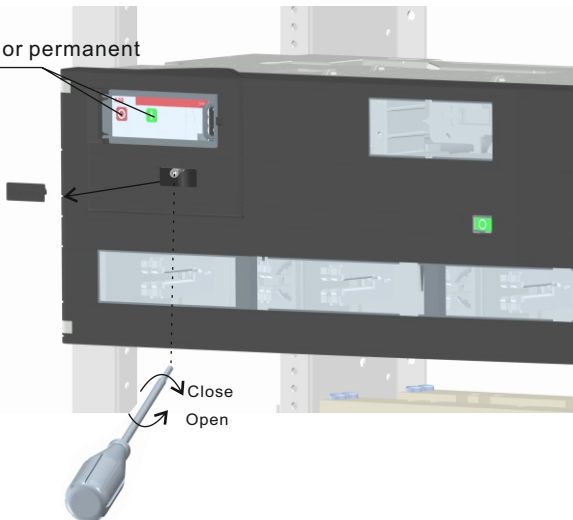
XRG contact is inserted into the busbar with quick push of hands after the left and right positioning pins inserted into holes of the bracket.



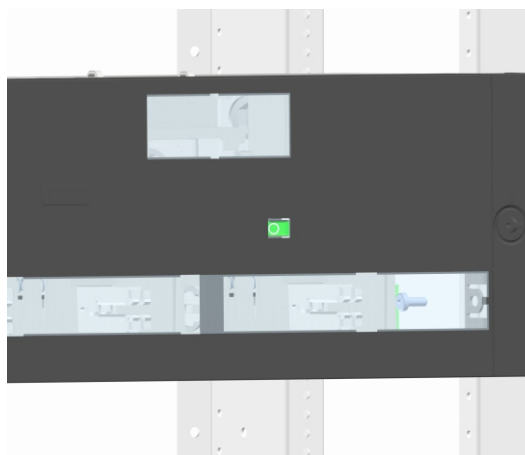
Pos. 4 - M6 thread forming screw (not included)

Motor operation

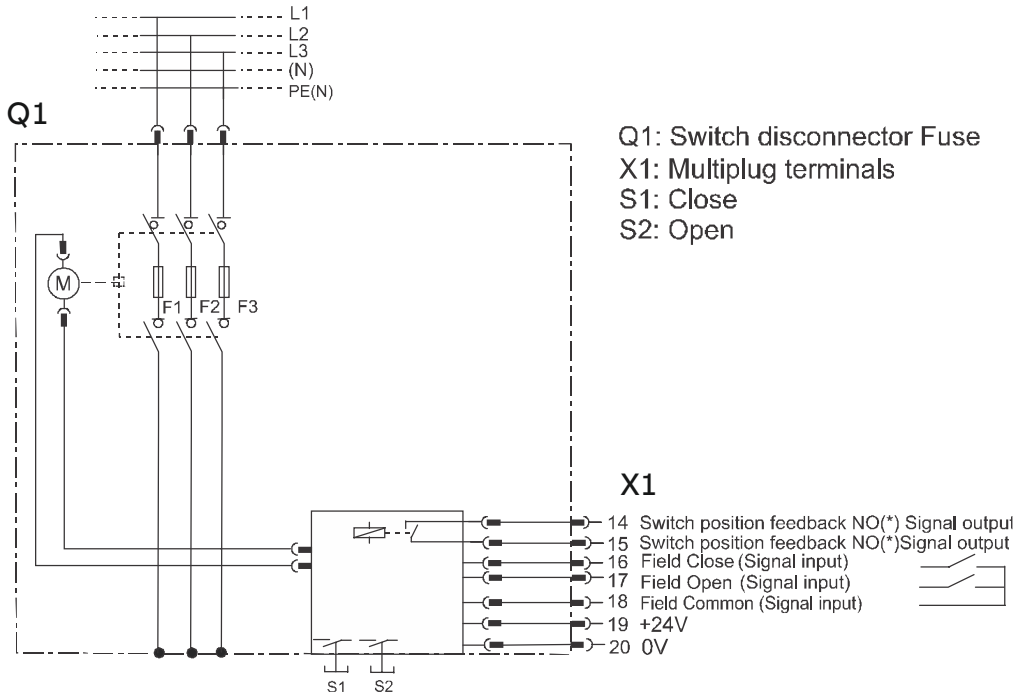
Signal: >0.5 sec or permanent



Manual operation: long hexagon bit size 3mm - approx. 40 revolutions



Motor operation



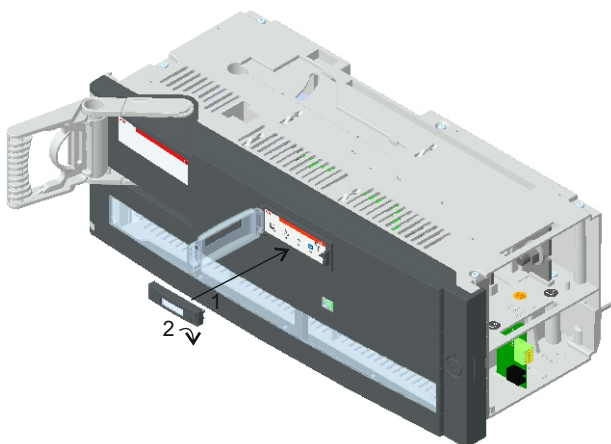
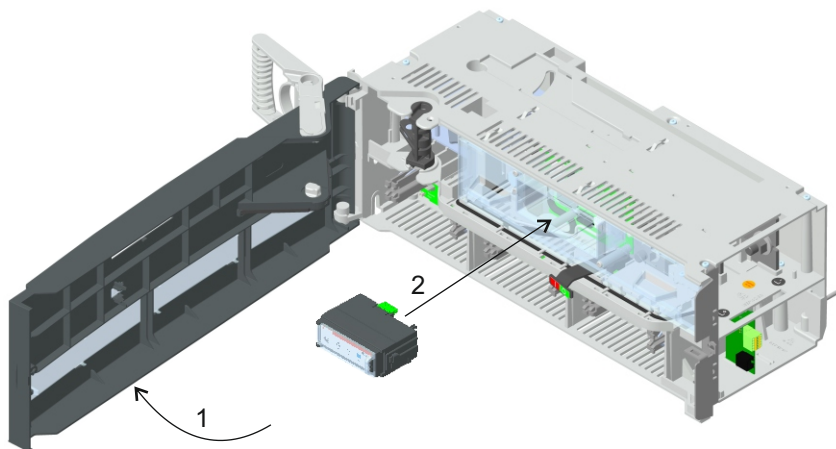
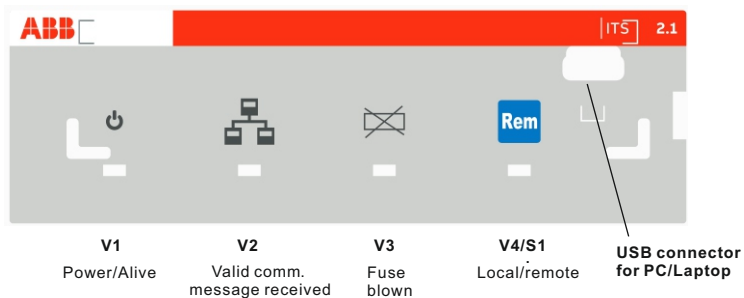
(*) Will go to NO at loss of +24V power supply, even when the XR apparatus is in closed position. For indication purposes only.

(*) Motor multiplug connect diagram is different from ITS+Motor configurations. Refer to the ITS page of instruction.

Technical data:	XRG2/3 MOT
Operational Voltage:	24V DC ± 1 volt
Operational consumption:	2,8A

ITS

Indicator LED's



For possible connection to your PC/laptop using the software **Ekip Connect**, use the USB connector at the bottom side of the Ekip Display.

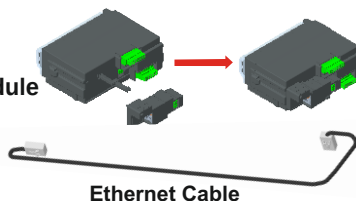
The connection cable has to be the **T&P cable kit** (Order code : 1SDA066989R1)

The **Ekip Connect** software tool can be downloaded for free at:

<http://library.abb.com>

ITS

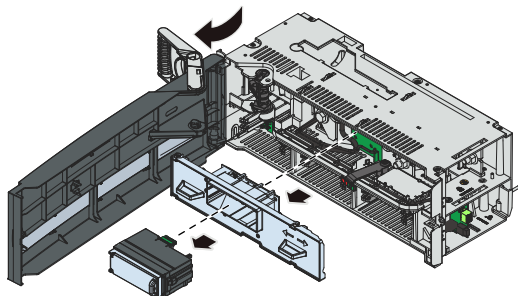
ITS with TCP Module



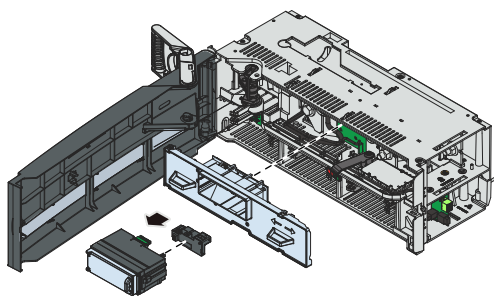
Ethernet Cable

The **TCP Module** (Order code : 1SDA104052R1) has to use two Ethernet cable RJ45, Shielded Twisted Pair, CAT5 or above. First cable (Length about 410mm) connects TCP Module with PCB. Second cable connects PCB with outside equipment.

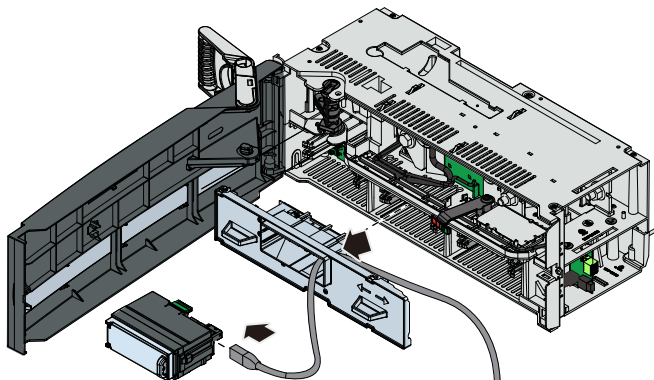
1. Open the frontcover and take out the transparent base and ITS module.



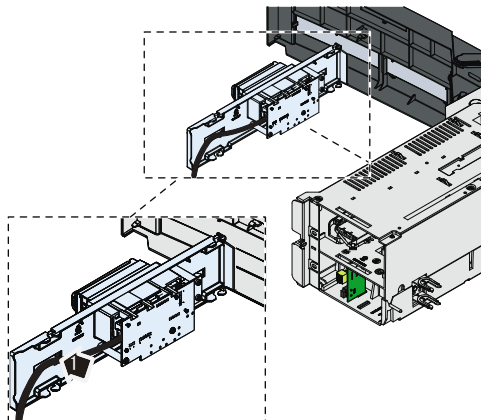
2. Install the TCP module into the ITS module.



3. Connect the TCP module with RJ45 network cable.



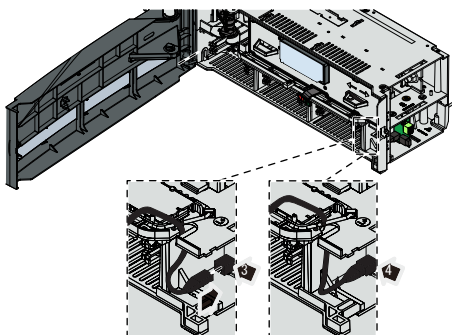
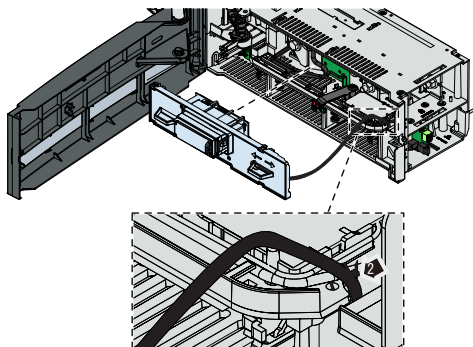
4. Install the ITS module into the transparent base. Use cable tie (1) to tie the RJ45 network cable to the transparent base.



5. Use cable tie (2) to tie the RJ45 network cable to the middle base, then install the transparent base.

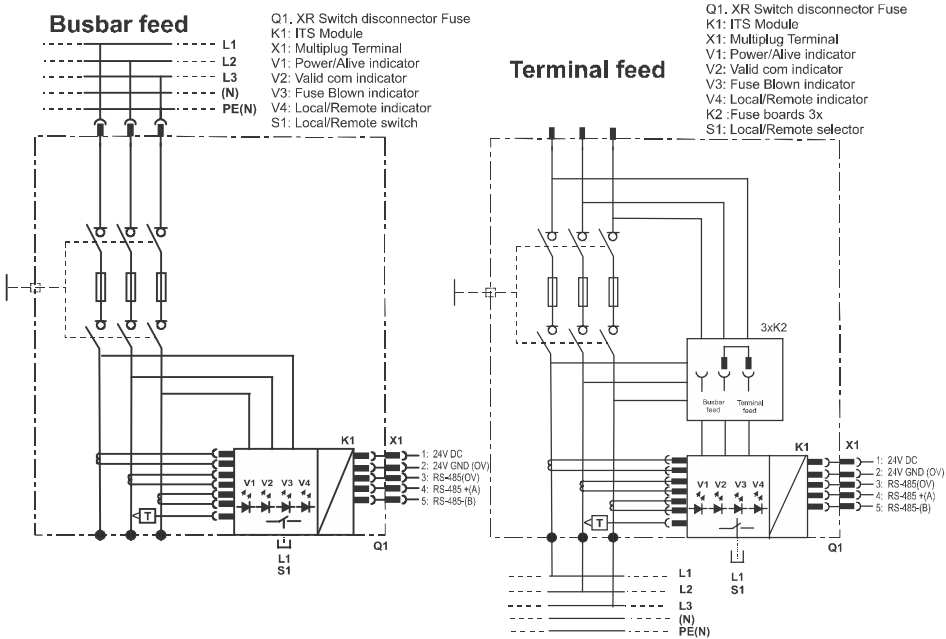
6. Insert the RJ45 network cable into the slot of the PCB substrate (3).

Use another cable tie (4) to tie the RJ45 network cable to the base.

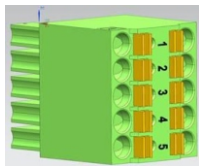


7. Close the frontcover.

ITS



Terminal	Signal
1	24 VDC
2	24 V GND (0V)
3	RS-485 0V
4	RS-485 + (A)
5	RS-485 - (B)



If a termination resistor is needed, it must be fitted to terminals 4 and 5 in the last ITS2.1 or ITS2.D unit in the multi drop line.



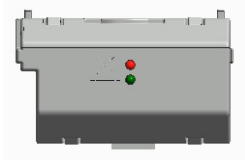
Strap here for
Terminal feed

Strap here for
Busbar feed

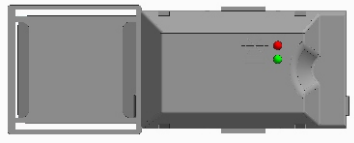
Technical data for XR ITS2.1 and ITS2.D

Input voltage limits	
Power supply	24 VDC $\pm$ 20%
Power consumption	2W
Functional characteristics	
Voltage measuring range	10 - 900 VAC
Measured current range	0 - 1,3 x I _n
Measuring range temperature	0 - 127 °C
Measuring accuracy (Voltage and current)	$\pm$ 1 %
Electronic Fuse Monitoring detection level	Nominal line to line voltage-20%
Electronic Fuse Monitoring operating time	$\geq$ 1 s
Signaling output terminals(multiplug)	
Conductor cross section stranded min.	0.25 mm ²
Conductor cross section stranded max.	1.5 mm ²
Conductor cross section stranded, with ferrule without plastic sleeve max.	1.5 mm ²
Conductor cross section stranded, with ferrule with plastic sleeve max.	0.75 mm ²
Modbus communication and configuration	
Default setting	19200 E,8,1 Default Modbus addr. 247
Baudrates	9600, 19200
Parity, stop-start bits	E,8,1 O,8,1 - N,8,2 - N,8,1
Modbus address range	1 - 247
Configuration tool	Ekip connect <i>SACE Ekip T&P needed when connecting a laptop to the ITS2.1 or ITS2.D unit for configuration</i>
Termination resistor	No internal resistor. If needed, place on terminal 4,5 on last ITS2.1 or ITS2.D unit in multidrop line.
Insulation test	The ITS2.1 or ITS2.D unit must be removed during dielectric test.

EFM

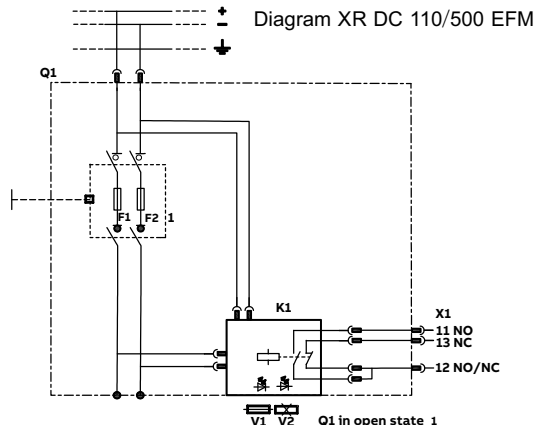
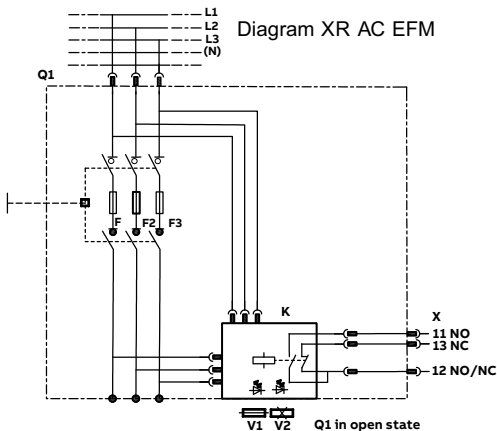
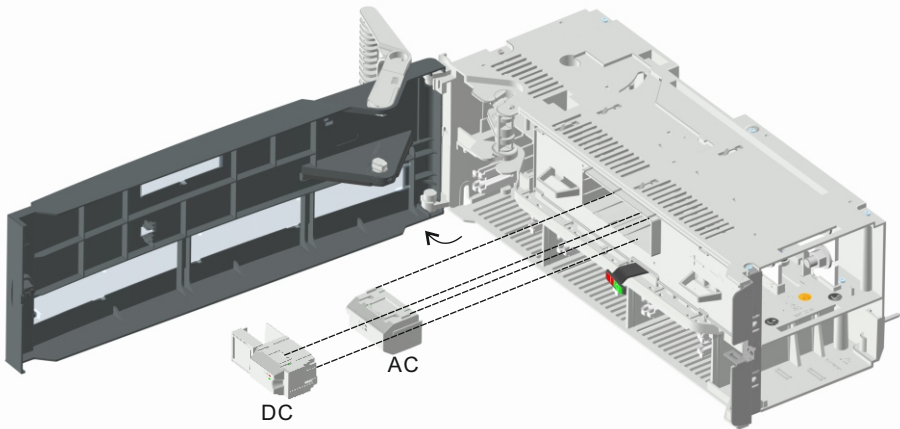


AC



DC

Red LED: One or more fuses are blown
Green LED: All fuses are OK



EFM

Technical data for XR EFM

Input voltage limits		
Application AC voltage U _e	280-880V	
DC 110: Rated DC voltage U _e	40-140V	
DC 500: Rated DC voltage U _e	135-550V	
Power consumption	2W	
Functional characteristics		
Operating time t _e	≤ 4 s	
Measuring accuracy	±5%	
Signaling output terminals (multiplug)		
Normally open	Terminals 11 – 12	
Normally closed	Terminals 12 - 13	
Rated load, inductive	2A at 24 VDC	Utilization category DC-1
Rated load, resistive	4A at 24 VDC	Utilization category DC-13
Wiring capacity [mm ²]	Stranded / solid : 0.08 – 0.5/ 0.08 – 0.75 Stranded with ferrule, no plastic sleeve : 0.25 – 0.34 Stranded with twin ferrule, plastic sleeve : 0.5	
EFM unit's dielectric properties (IEC 60947-1)		
Rated impulse withstand voltage (U _{imp})	6.0kV	
All poles connected together/Earth	1.89 kV/1 min 50 Hz	
All poles connected together/Aux. contacts	1.89 kV/1 min 50 Hz	
Insulation resistance	1 MΩ, 500 VDC	

Insulation test

The EFM unit will survive an insulation test voltage of 1.6kV. However, by insulation test, we recommend that the EFM module can be completely removed by also disconnecting the internal plug to the rear side of the Multiplug. This will also avoid leakage current between the main phases.

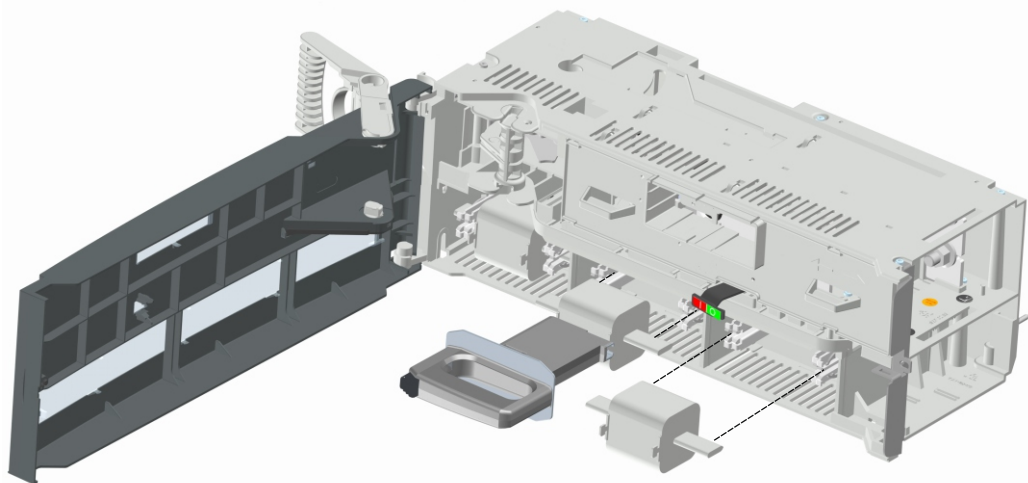
Power supply

EFM is powered by the XR busbar contacts, and it starts to operate once the XR switch is in close position.

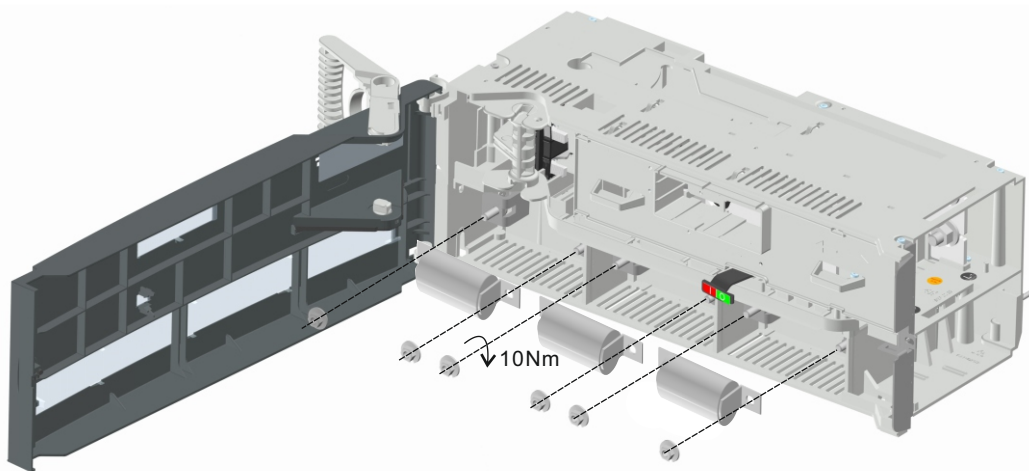
Fuse Status	Green LED	Red LED	NO contact 11-12		NC contact 13-12	
			Open	Closed	Open	Closed
1. XR in ON Position :						
Fuses OK			x			x
Fuses BLOWN				x	x	
2. XR in OFF Position :						
Fuses OK			x			x
Fuses BLOWN			x			x

Fuse replacement

NH



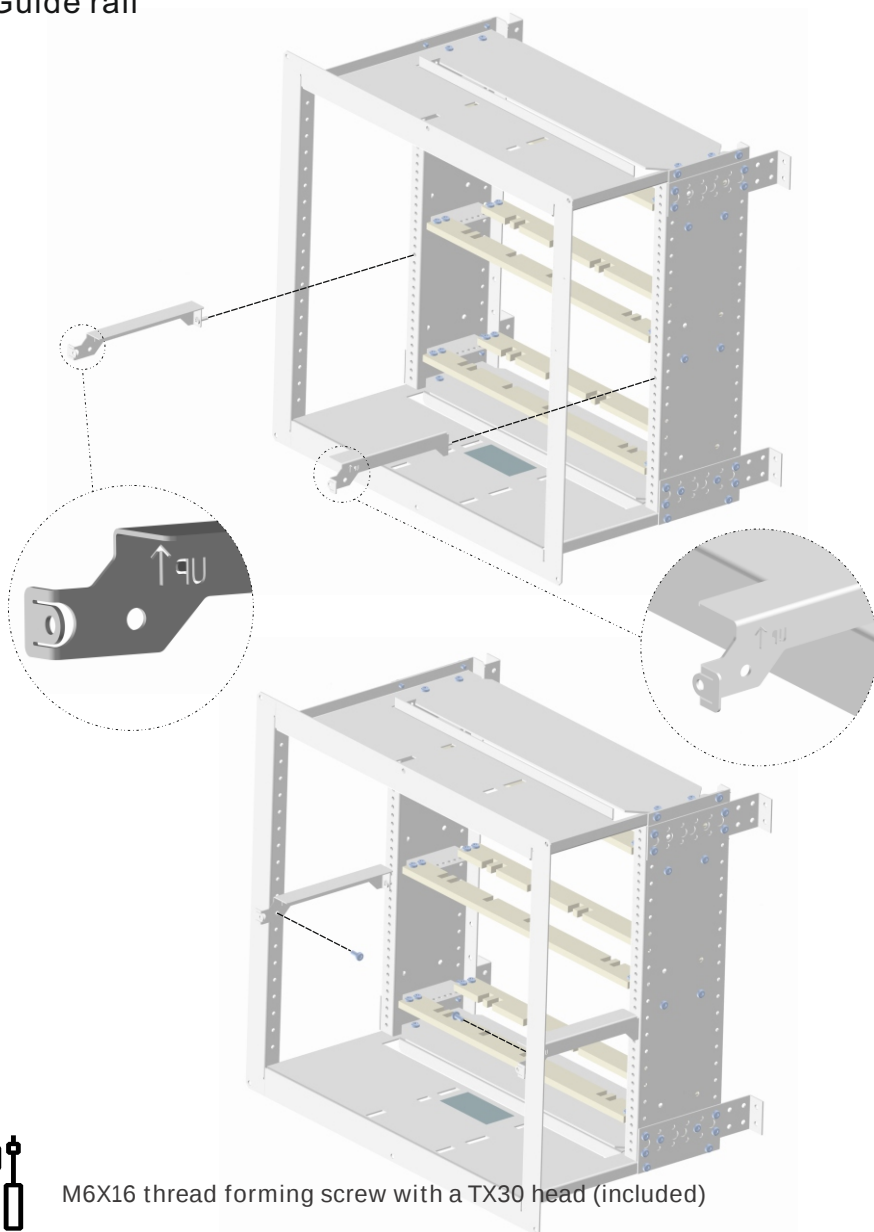
BS



Hex socket 13 mm

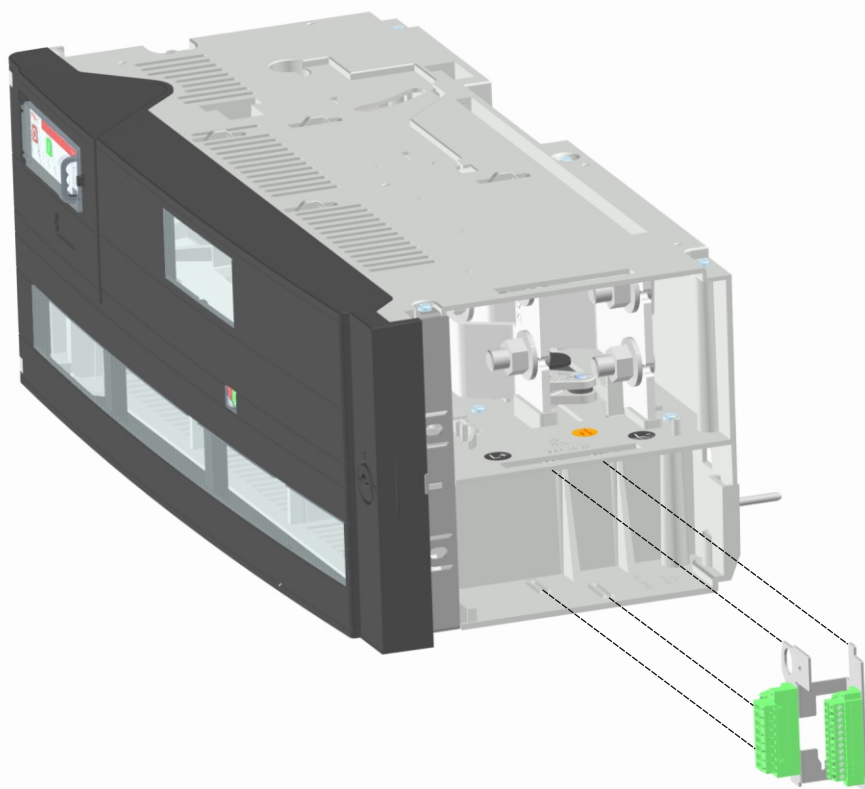
Accessory

Guide rail



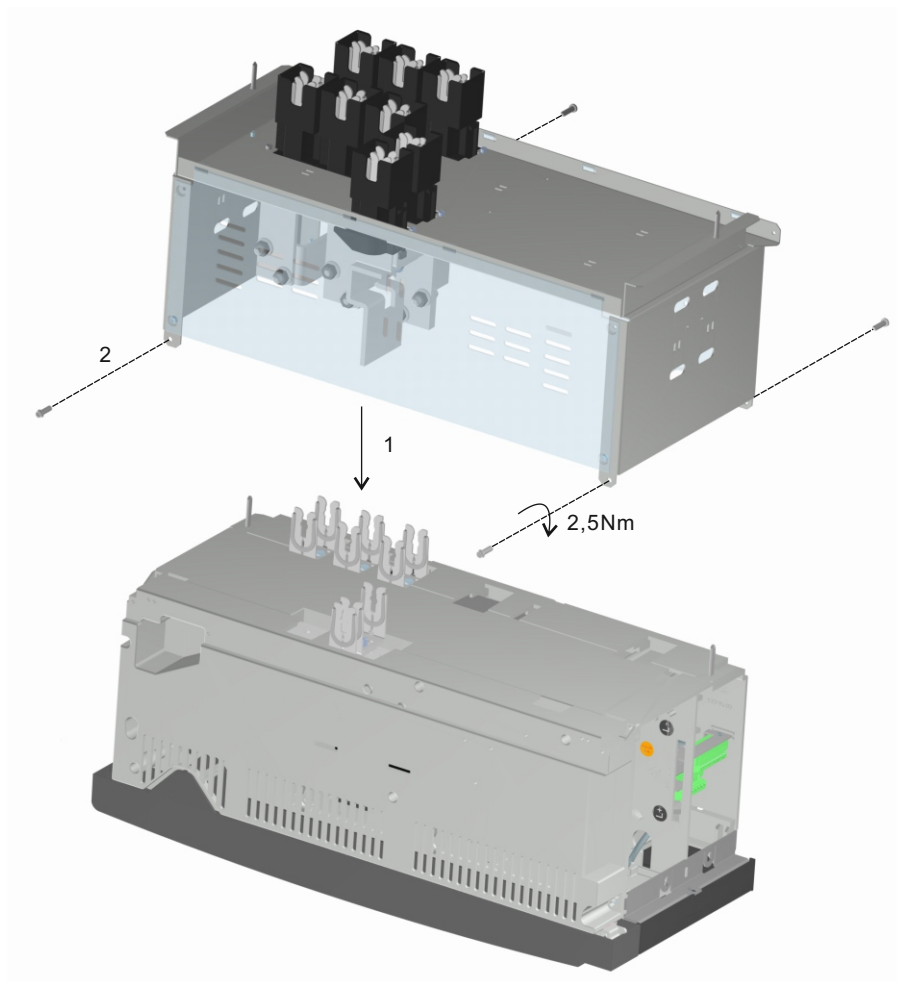
Accessory

Multiplug



Accessory

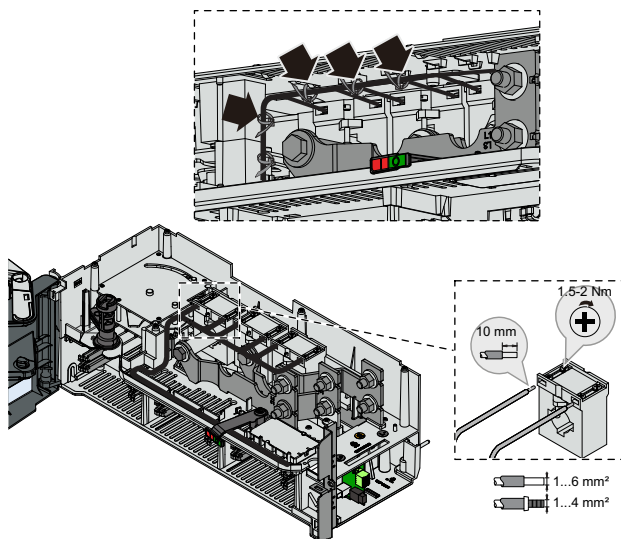
Contact extension



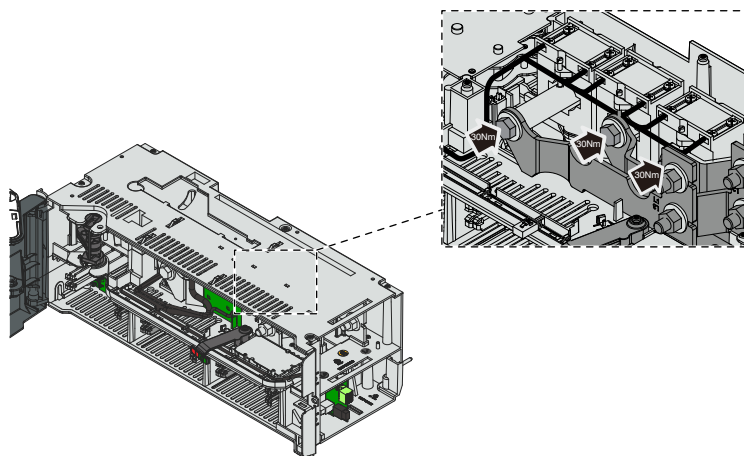
Pos. 2 - TX20 head (fasteners included)

Accessory

CT



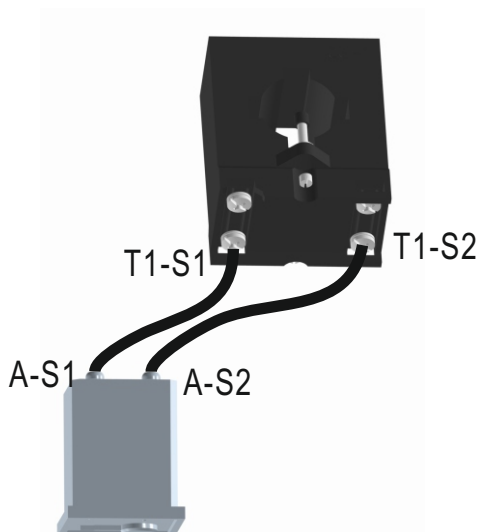
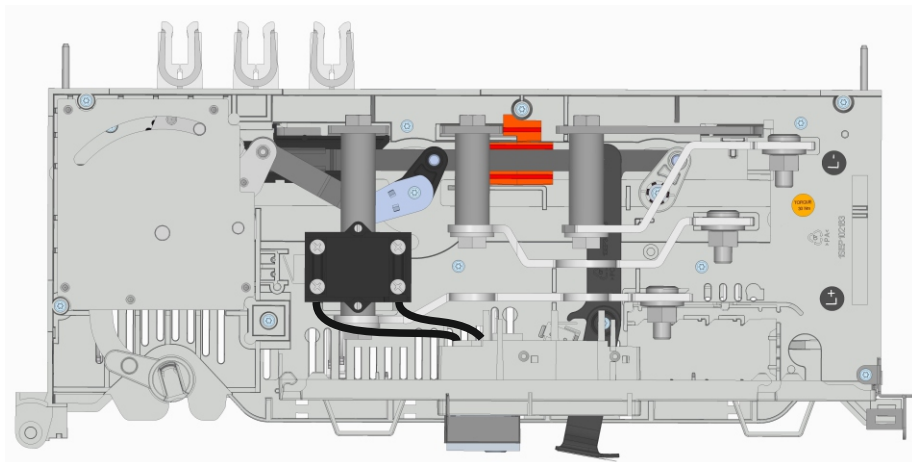
Use pneumatic tool with 19 mm socket calibrated to 30 Nm to fasten the three bolts.



*Top cover is missing just for illustration purpose, do not disassemble.

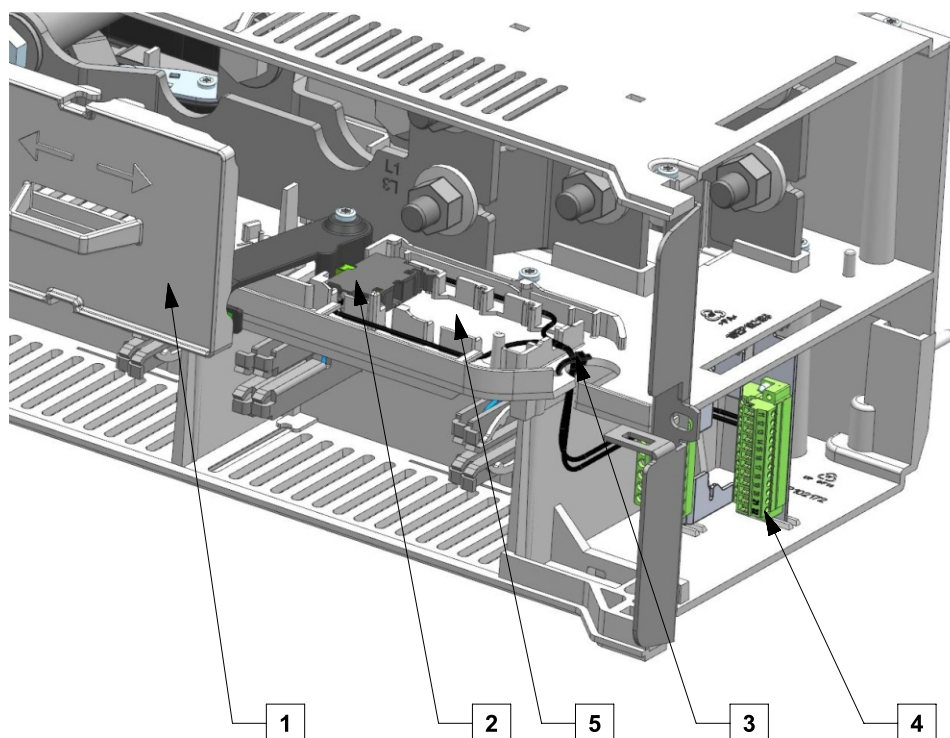
Accessory

A-meter



Accessory

Auxiliary switch



- 1: Remove the terminals protection cover (1)**
- 2: Fasten the wires to the auxiliary switch.
Insert the auxiliary switch in position (2).**
- 3: Lead the wires as shown and fix with cable-tie (3).**
- 4: Connect wires to the screw terminals on the multiplug (4).
See terminal layout for connection possibilities.**
- 5: Slide in the protection cover over the auxiliary switch (5).**
- 6: Attach the terminals protection cover again (1).**

Accessory

Auxiliary switch

Diagram for multiplug with motor

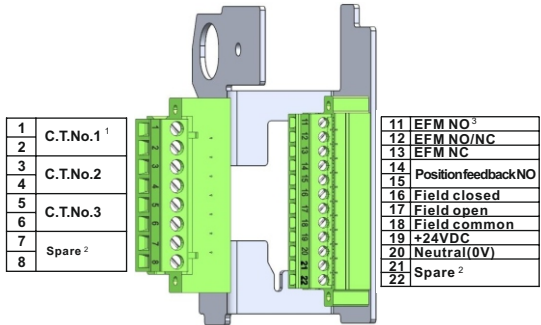
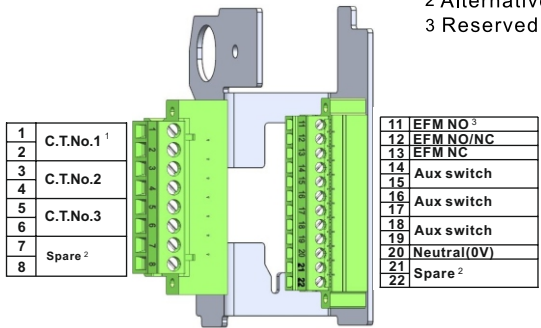


Diagram for multiplug without motor



1 Reserved for current transformers.

2 Alternatively used for auxiliary switches.

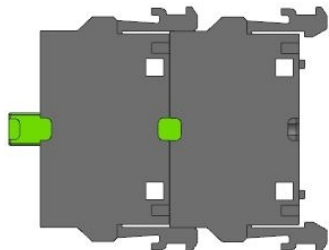
3 Reserved for use with fuse monitoring EFM.

Additional Auxiliary switches

Attach the new switch to the first one.

Connect the wires to the aux. switch and the multi-plug terminals.

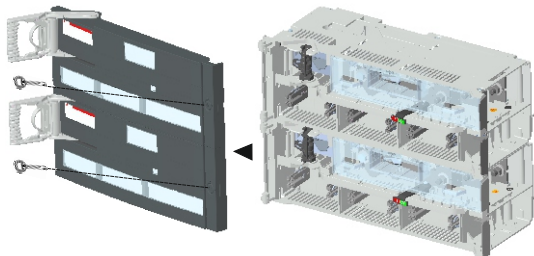
See terminal overview for connection possibilities.



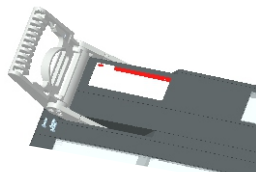
Accessory

XRG23 Double handle

1. Remove the front cover from the switches.

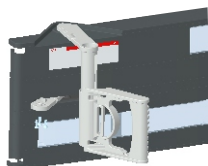


2. Unscrew the three screws on the bottom of each handle.

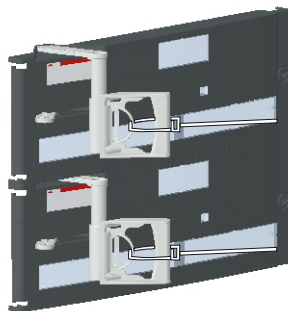


3. Rotate the upper part of the handles away from the bottom part.

Press the release handle, and pull the handle down to remove the out handle.

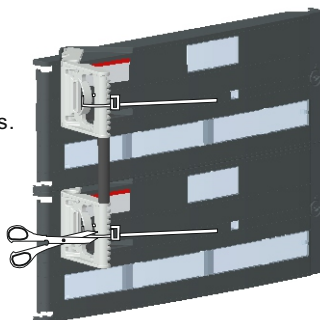


4. Attach straps to the handle, and slide in the new double handle on the two frontcovers simultaneously and reverse the procedure.



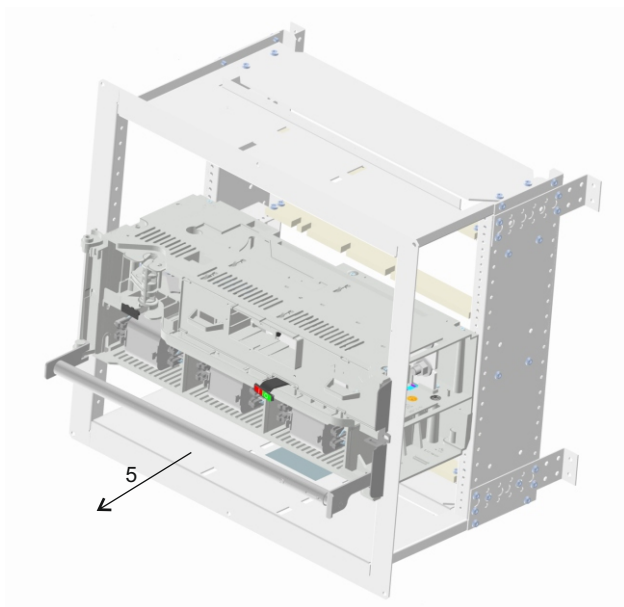
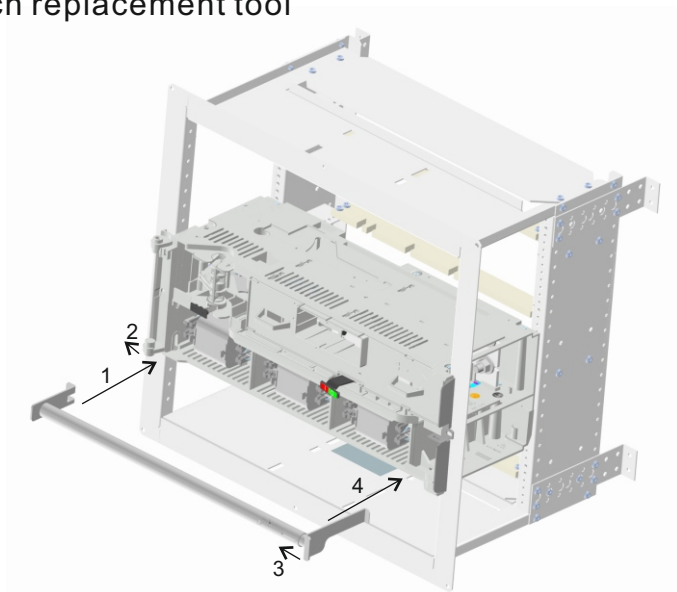
5. Fix the three screws on each handle and assemble the frontcover back on the switches.

Cut the straps, and operate the handles with two hands.



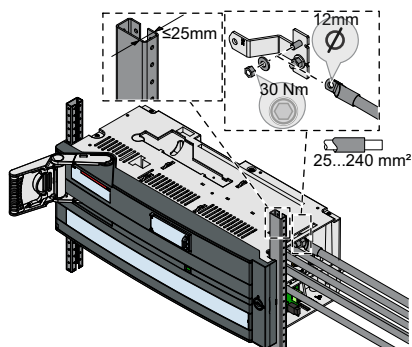
Accessory

Switch replacement tool

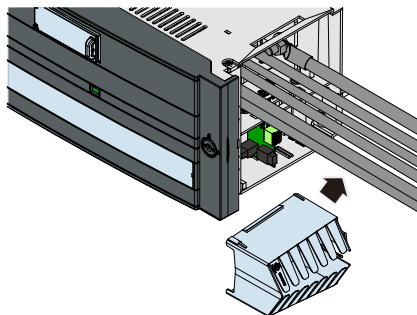


Cable shrouds installation

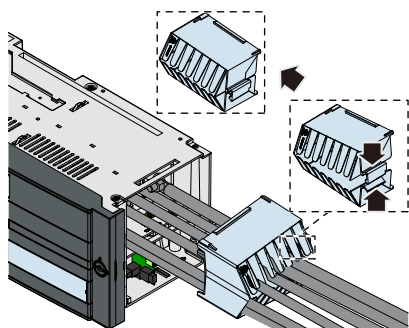
1. Install the cable (the width of right bracket $\leq 25\text{mm}$) (socket 19mm)



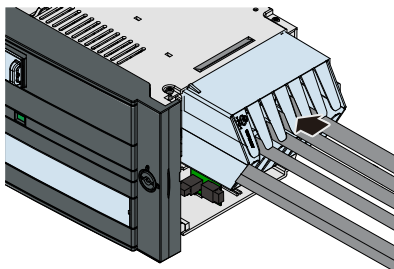
2. Open the 3 pole cable shroud and cover it onto the cables.



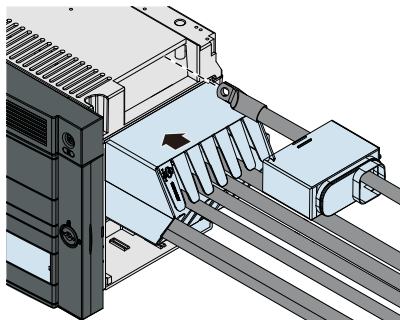
3. Close the 3 pole cable shroud.



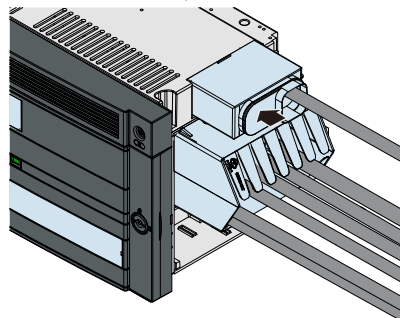
4. Insert the 3 pole cable shroud.



5. Install the cable.

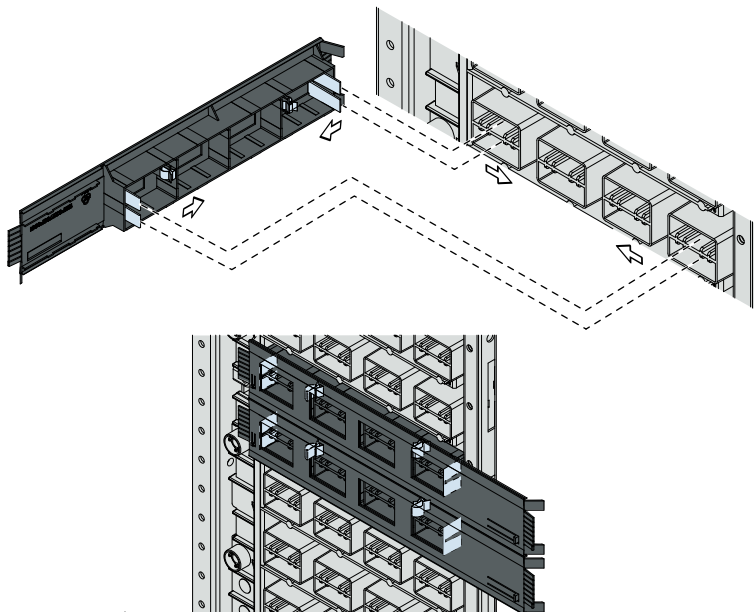


6. Insert the 4th pole cable shroud.

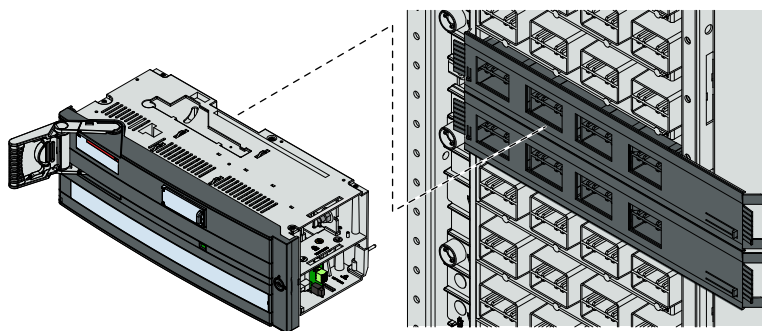


MNS arc protection back cover for XRG

1. Install the MNS arc protection back covers to the electrical cabinet .



2. Install 3 pole switch to the electrical cabinet.

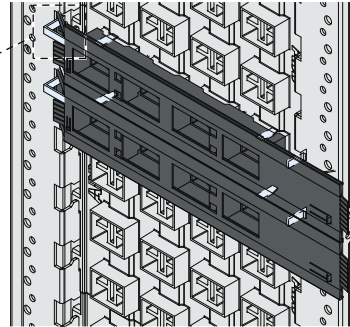
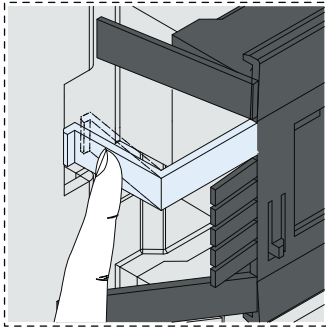
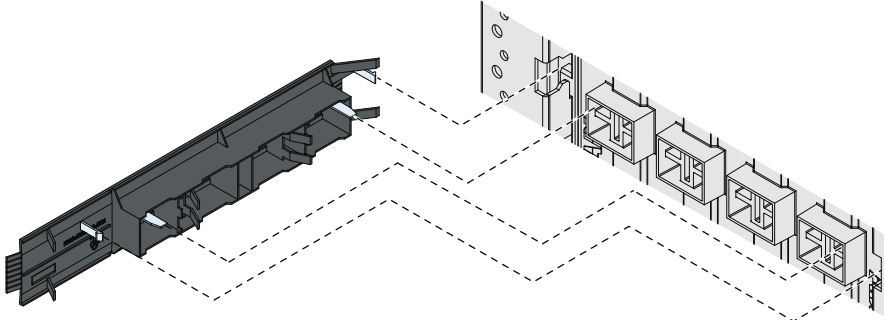


Note:
For XRG2/3-50/5
3P version
needs to mount two back covers.

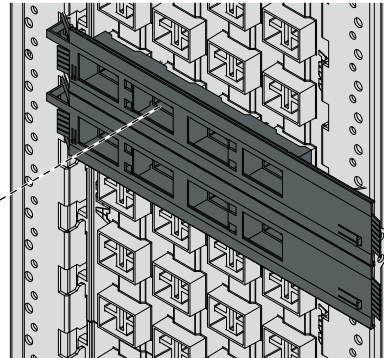
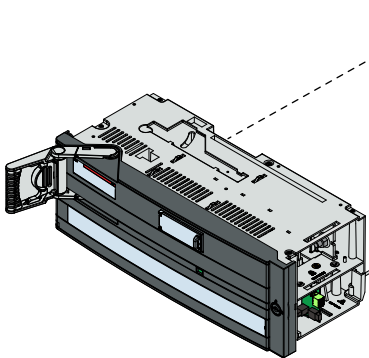
4P version
needs to mount three back covers.

RBBS arc protection back cover for XRG

1. Install the RBBS arc protection back cover for XRG to the electrical cabinet.



2. Install 3 pole switch to the electrical cabinet.



Note:
For XRG2/3-50/10-3P
mounts two back covers
in Xline 50 mm Compact cabinets.

For XRG2/3-50/10-3P with contact extensions
mounts two back covers
in Xline 50 mm Enlarged cabinets.

[illegible]

This image shows a full page of primary-ruled paper. It features multiple sets of horizontal lines designed to guide handwriting. Each set consists of three lines: a solid top line, a dashed middle line, and a solid bottom line. These sets are repeated vertically down the entire page, providing a template for practicing letter formation and alignment. The paper is otherwise blank, with no margins or additional markings.

[illegible]



BG	Внимание! Опасно напряжение! Да се монтира само от лице с електротехническа квалификация.
FR	Avertissement! Tension électrique dangereuse! Installation uniquement par des personnes qualifiées en électrotechnique.
MT	Twissija! Vultaġġ perikolu! Għandu jiġi installat biss minn persuna b'kompetenza elettroteknika.
HR	Upozorenje! Opasan napon! Postavljati smije samo elektrotehnički stručnjak.
DE	Warnung! Gefährliche Spannung! Installation nur durch elektrotechnische Fachkraft.
PL	Ostrzeżenie! Niebezpieczne napięcie! Instalacji może dokonać wyłącznie osoba z fachową wiedzą w dziedzinie elektrotechniki.
CZ	Varování! Nebezpečné napětí! Montáž smí provádět výhradně elektrotechnik!
EL	Προειδοποίηση! Υψηλή τάση! Η εγκατάσταση πρέπει να γίνεται μόνο από εξειδικευμένους ηλεκτροτεχνικούς.
PT	Aviso! Tensão perigosa! A instalação só deve ser realizada por um electricista especializado.
DA	Advarsel! Farlig elektrisk spænding! Installation må kun foretages af personer med elektroteknisk ekspertise.
HU	Figyelmeztetés! Veszélyes feszültség! Csak elektrotechnikai tapasztalattal rendelkező szakember helyezheti üzembe.
RO	Avvertire! Tensiune periculoasă! Instalarea trebuie efectuată numai de către o persoană cu experiență în electrotehnică.
NL	Waarschuwing! Gevaarlijke spanning! Mag alleen geïnstalleerd worden door een deskundige elektrotechnicus.
IE	Rabhadh! Voltas guaiseach! Ba chóir do dhuine ag a bhfuil saineolas leictreicniúil, agus an té sin amháin, é seo a shuiteáil.
SK	Varovanie! Nebezpečné napätie! Montáž môže vykonávať iba skúsený elektrotechnik.
EN	Warning! Hazardous voltage! Installation by person with electrotechnical expertise only.
IT	Avvertenza! Tensione pericolosa! Fare installare solo da un elettricista qualificato.
SL	Opozorilo! Nevarna napetost! Vgradnjo lahko opravi le oseba z elektrotehničnim strokovnim znanjem.
ET	Hoiatus! Ohtlik pinge. Paigaldada võib ainult elektrotehnika-alane ekspert.
LV	Uzmanību! Bīstami - elektrība! Montāžas darbus drīkst veikt tikai personas, kurām ir atbilstošas elektrotehnikās zināšanas.
ES	¡Advertencia! ¡Tensión peligrosa! La instalación deberá ser realizada únicamente por electricistas especializados.
FI	Varoitus! Vaarallinen jännite! Asennuksen voi tehdä vain sähköalan ammattihenkilö.
LT	Dėmesio! Pavojinga įtampa! Dirbti leidžiama tik elektrotechnikų patirties turintiems asmenims.
SE	Varning! Farlig spänning! Installation får endast utföras av en elektriker.
CN	警告！电压危险！只能由专业电工进行安装。
RU	Осторожно! Опасное напряжение! Монтаж должен выполняться только специалистом-электриком.



Contact us

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> Low Voltage Products and Systems