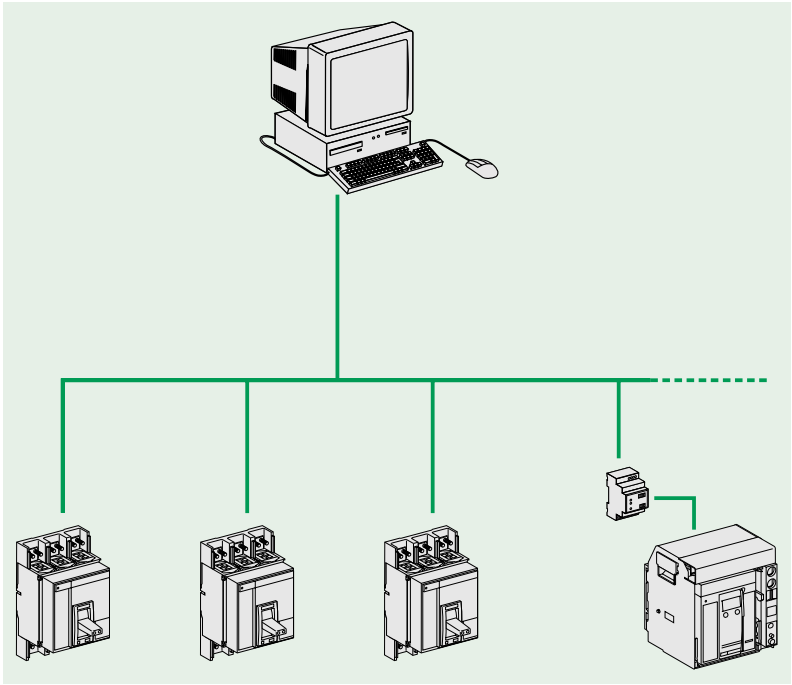
Communication ModBUS pour Micrologic
ModBUS communication for Micrologic

Notice d'installation
et de mise en oeuvre
Installation and
user manual



Merlin Gerin
Modicon
Square D
Telemecanique

Schneider Electric

Danger et avertissement

Le montage de ces matériels ne peut être effectué que par des professionnels. Le non respect des indications de la présente notice ne saurait engager la responsabilité du constructeur.

RISQUE D'ELECTROCUTION, DE BRULURES OU D'EXPLOSION

■ l'installation et l'entretien de cet appareil ne doivent être effectués que par du personnel qualifié.
■ coupez l'alimentation générale de cet appareil avant toute intervention sur ou dans l'appareil.
■ utilisez toujours un dispositif de détection de tension approprié pour confirmer l'absence de tension.
■ replacez tous les dispositifs, les portes et les couvercles avant de mettre cet appareil sous tension.
■ utilisez toujours la tension assignée appropriée pour alimenter cet appareil.

Si ces précautions n'étaient pas respectées, cela pourrait entraîner des blessures graves.

Danger and warning

This equipment should be mounted by professionals only. The manufacturer shall not be held responsible for any failure to comply with the instructions given in this manual.

RISK OF ELECTROCUTION, BURNS OR EXPLOSION

■ *the device must be installed and serviced by qualified personnel only.*
■ *switch off the general power supply to the device prior to any work on or in the device.*
■ *always use an appropriate voltage-detection device to confirm the absence of voltage.*
■ *put all mechanisms, doors and covers back in place before energising the device.*
■ *the device must always be supplied with the rated voltage.*

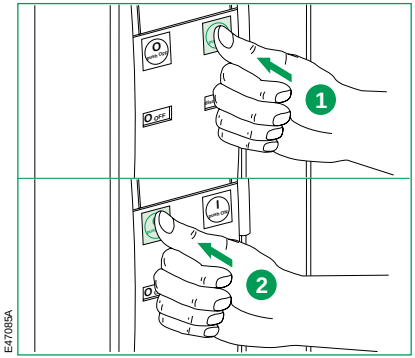
Failure to take these precautions could cause serious injuries.

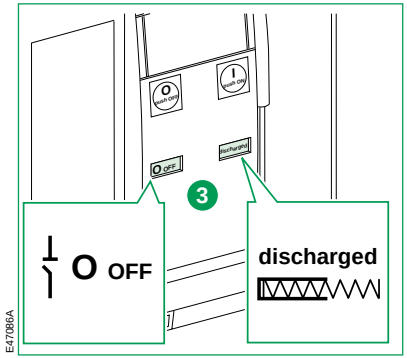
Précautions préalables à toute intervention
Precautions before carrying out any work

Avant toute intervention sur l'appareil, mettez ce dernier hors tension et, le cas échéant, en position débroché en procédant comme indiqué ici.

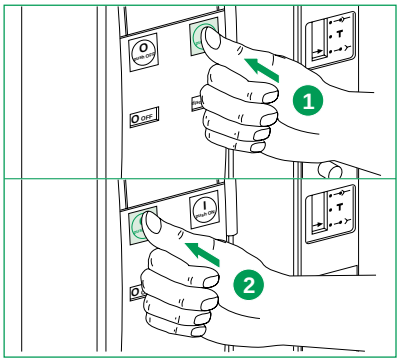
Before carrying out any work, always de-energise the device as indicated below. Withdrawable devices should be moved to disconnected position.

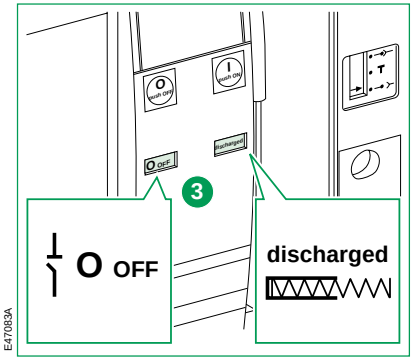
Appareil fixe / *Fixed device*

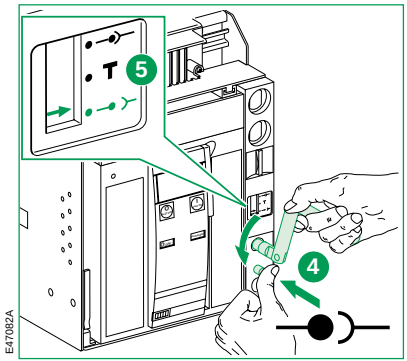




Appareil débrochable / *Withdrawable device*







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- **ModBUS CCP303 connection cable**

COM communication option

The COM option is available for all devices of the ranges:
- Compact NS630b to 1600
- Masterpact NT and NW, equipped with Micrologic A, P and H control units. With the option, the devices may be integrated in a supervision system implementing the **ModBUS** protocol.

In conjunction with the Micrologic control units, the option is used to:
- analyse distribution-system parameters for operating and maintenance purposes
- control the device
- indicate status conditions
- identify the causes of faults
- set protection functions
- identify the device.

Status indication by the COM option is independent of the device indication contacts. These contacts remain available for conventional uses.

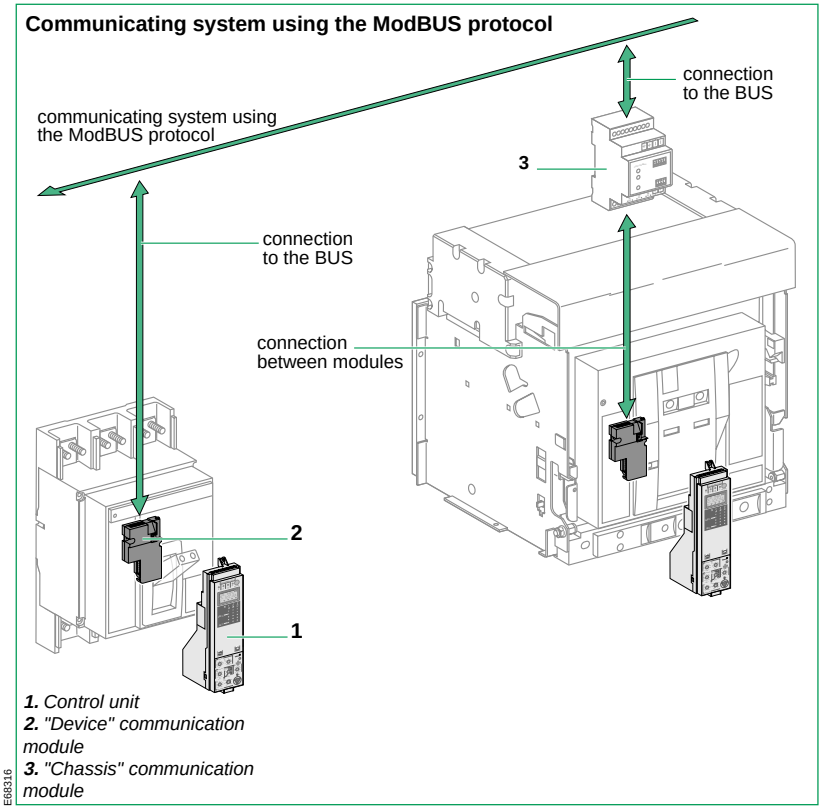


Fig. 28: *General presentation of the COM option*

Communication architecture

The type of device determines the make-up of the COM option.

Fixed devices

A **"device" communication module**, located behind the **control unit**, is supplied installed with its "device" auxiliary contacts:

- ■ for manually operated devices:
  - □ OF, SDE and/or SD contacts
- ■ for electrically operated devices:
  - □ OF, SDE, PF, MCH contacts
  - □ connection kit to the XF and MX voltage releases.

The communication module is independent of the control unit. It communicates two-way with:

- ■ the communication bus
- ■ the control unit via an infra-red link.

☞ The communication module must be connected to the bus (see page 38) and parameters must be set using the control unit (see pages 41 to 45).

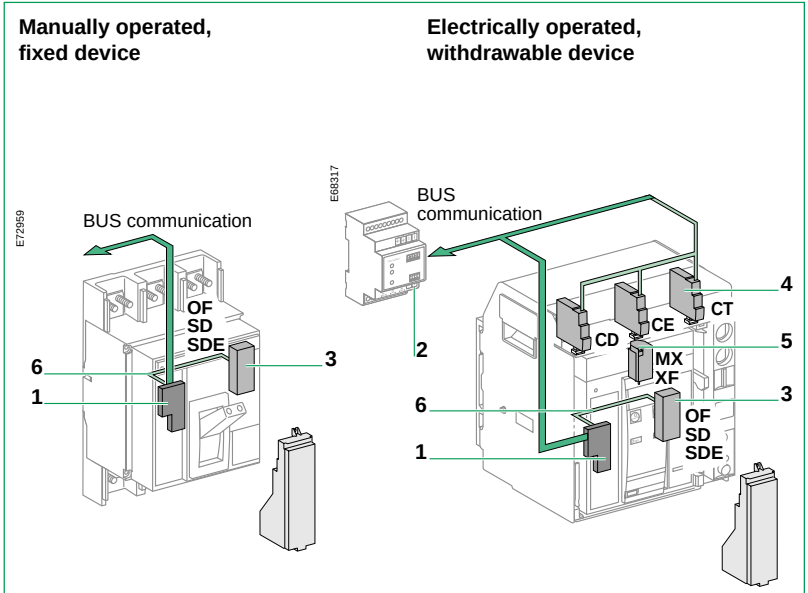
Withdrawable (or drawout) devices

- ■ **a "device" communication module**, like the fixed devices.

☞ The communication module must be set using the control unit (see pages 41 to 45).

- ■ **a "chassis" communication module** that must be installed on a DIN rail near the device and connected:
  - □ to the "device" module for which it stores the address if the device is disconnected
  - □ to the carriage switch contacts (CD, CT, CE) that transmit the position of the device in the chassis.

☞ This module must be installed and connected to the "device" auxiliary contacts (see page 36), the "device" module (see page 37) and the bus (see page 40).



1. *"Device" communication module*
2. *"Chassis" communication module*
3. *OF, SD, SDE "device" auxiliary contacts*
4. *CD, CT, CE carriage switch contacts*
5. *MX and XF voltage releases*
6. *Wires to the auxiliary contacts*

Fig. 29: *Make-up of the COM option*

Simplified diagram

Characteristic

- Up to 31 fixed or 15 withdrawable (or drawout) devices.
- maximum length of bus = 1200 meters
- maximum baud rate = 19 200 bauds.

Power supply for COM modules and control units

- COM modules: 24 V DC (± 20 %) supplied via the Digipact cables
- when the control units are supplied by an auxiliary source (24 V DC ± 5 %), that source must be distinct and insulated from the source for COM modules.
  - the AD power-supply module is recommended (see the order form for Masterpact NT/NW and Compact NS devices).

Consumption of the COM modules and the control units

- COM modules ("device" and "chassis"): 1 W
- Control units: 1 W
  - One AD power-supply module can supply two Micrologic control units.

Note:
To configure the control units, if there is no power-supply module, they may be individually supplied via the test kit and the test connector on the front panel.

Simplified diagram of a communicating system implementing the ModBUS protocol

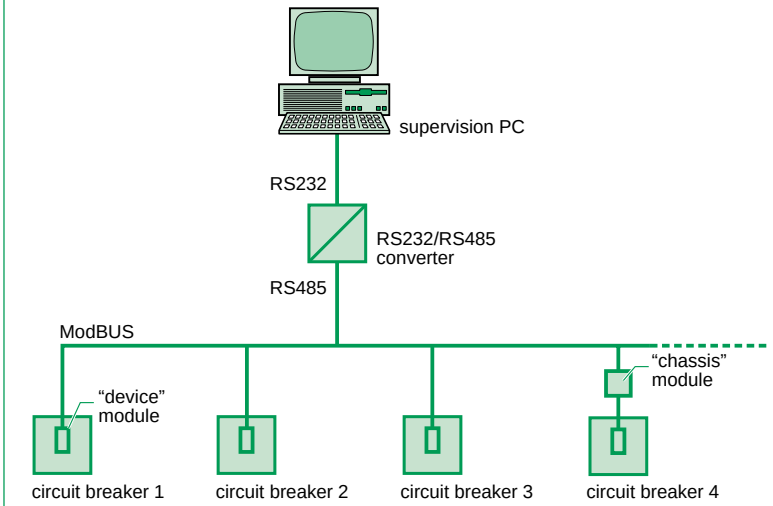


Fig. 30: *Simplified diagram*

Description of the "device" module

The COM option systematically includes a "device" communication module (see page 28). This module is independent of the control unit; it sends to and receives information from:

- the communication bus
- the control unit via an infra-red link
- the device, via its auxiliary contacts
- MX and XF voltage releases.

The module is made up of the elements shown in figure 31, which are supplied installed on the device and connected to the module.

elements supplied installed on the device and connected to the module	device manually operated	device electrically operated
voltage releases		
1 MX voltage releases used to open the device		□
2 XF voltage releases used to close the device		□
auxiliary contacts		
3 OF (ON/OFF)	■	■
4 SD (trip indication)	■	
5 SDE (fault-trip indication)	■	■
6 PF (ready-to-close)		■
7 MCH (springs charged)		■

■ standard □ optional

"Device" COM module

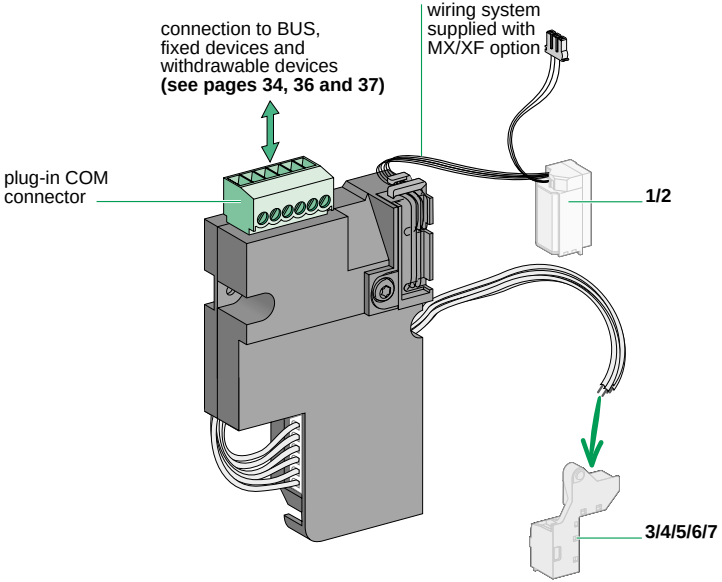


Fig. 31: *"Device" COM module with connections*

Installation of the "device" module

Fixed, manually operated Compact NS

Module installation

Supplied with the device, the module is mounted behind the control unit (see fig. 32) and is wired to the auxiliary contacts. On the top of the module is a plug-in COM connector for direct connection to the switchboard communication bus (see page 39).

Auxiliary contacts connected to the module

- OF (ON/OFF), indicates the position of the device main contacts.
- SD (trip indication).
- SDE (fault-trip indication).

The auxiliary contacts are supplied installed and connected to the module (see fig. 32).

Connection to OF, SD and SDE auxiliary contacts

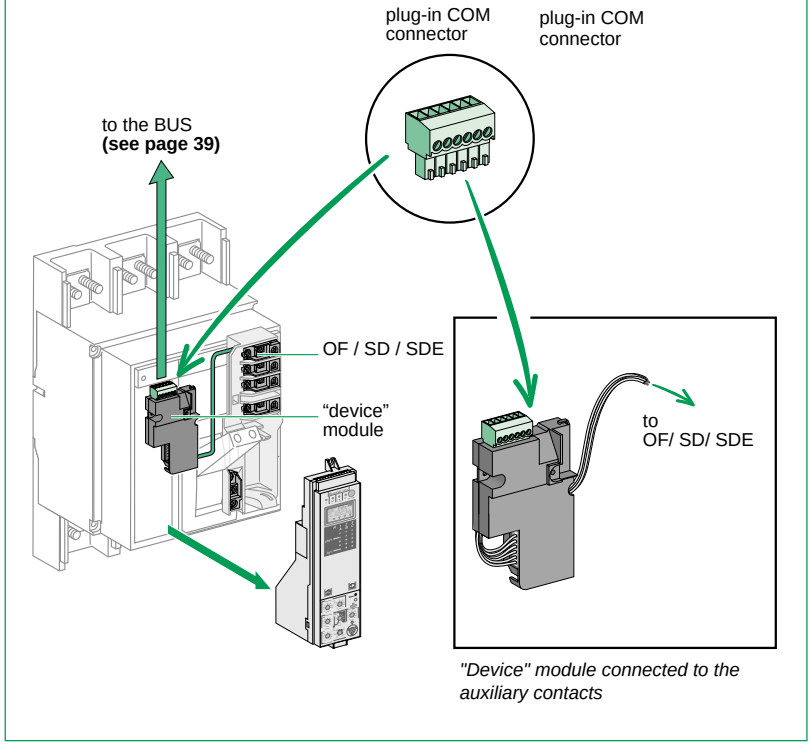


Fig. 32: *Installation of the "device" module on a fixed, manually operated Compact NS.*

Installation of the "device" module (cont)

Fixed, electrically operated Compact NS and Masterpact NT/NW

Module installation
Supplied with the device, the module is mounted behind the control unit (see fig. 33) and is wired to the auxiliary contacts.

Connection to the customer terminal block
The module is equipped with a plug-in COM connector that connects to the fixed customer terminal block (spring terminals) via prefabricated wiring. The customer terminal block is used for connection to the communication bus (see page 39).

Connection of auxiliaries to the module

auxiliary contacts
- OF (ON/OFF) indicating the position of the device main contacts.
- SDE (fault-trip indication).
- PF (ready-to-close).
- MCH (springs charged) by the gear motor.

These contacts are supplied already installed and connected to the module (see fig. 33).

voltage releases (optional)
- MX opening release.
- XF closing release.

These releases are supplied already installed and connected to the module (see fig. 33).

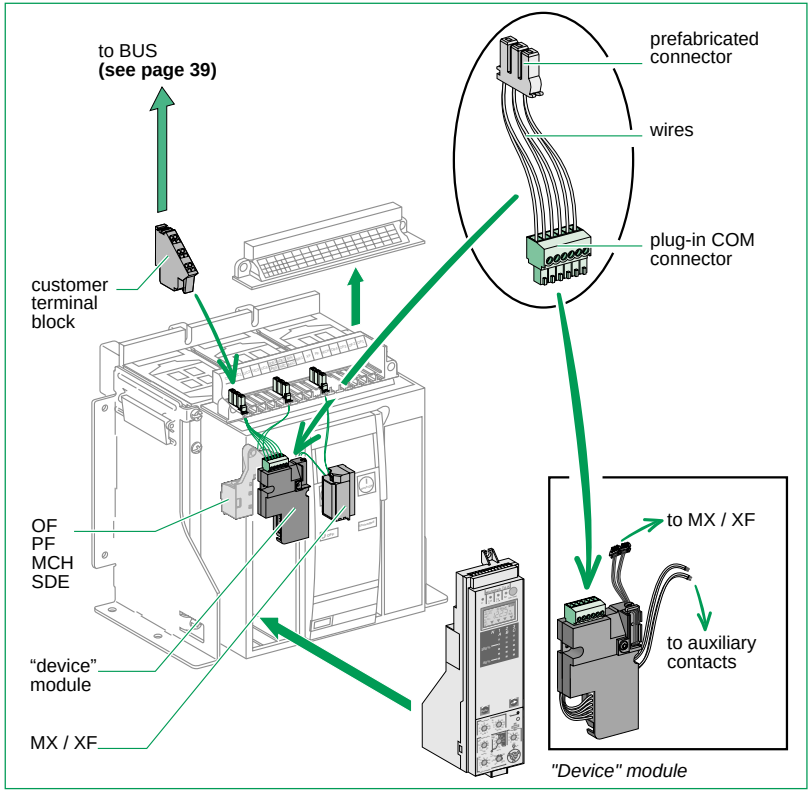


Fig. 33: *"Device" module installation on a fixed, electrically operated Compact NS or Masterpact NT/NW*

Installation of the "device" module (cont)

Withdrawable Compact NS and drawout Masterpact NT/NW

Module installation
The "device" module is installed as previously described for the fixed devices. It is supplied already installed and connected to the auxiliary contacts and the control module.

Connection to the customer terminal block
The module is equipped with a plug-in COM connector, wired to the prefabricated connector that clips to the top part of the device. When the device is racked in, the prefabricated connector automatically establishes contact with the customer terminal block (spring terminals). The customer terminal block is used for connection to the communication bus via the "chassis" module (see page 40).

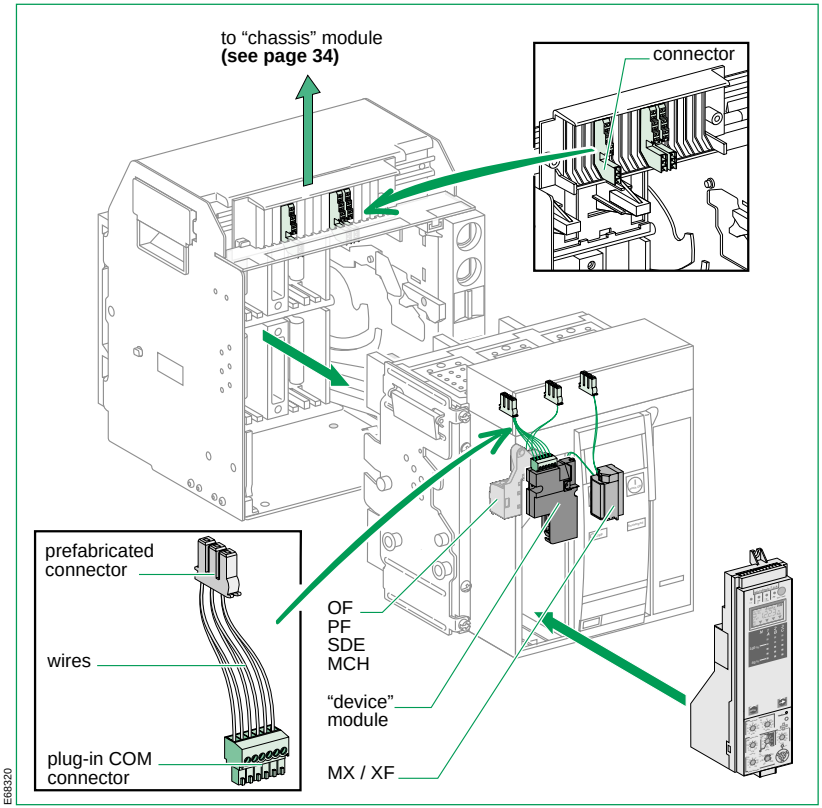


Fig. 34: *Example of "device" module installation on a drawout Masterpact NT*

Installation of the CCM "chassis" module

Withdrawable Compact NS and drawout Masterpact NT/NW

Contents of the "chassis" module package
See figure 35 opposite.

Withdrawable (or drawout) devices require two communication modules :
- a "device" module installed as indicated on page 28.
- a "chassis" module, supplied separately in a specific package, that must be (see fig. 36):
  - installed on a DIN rail;
  - connected to the "device" module;
  - connected to the carriage switch contacts.

Once the above operations have been carried out, the "chassis" module must be connected to the switchboard communication bus (see page 40).

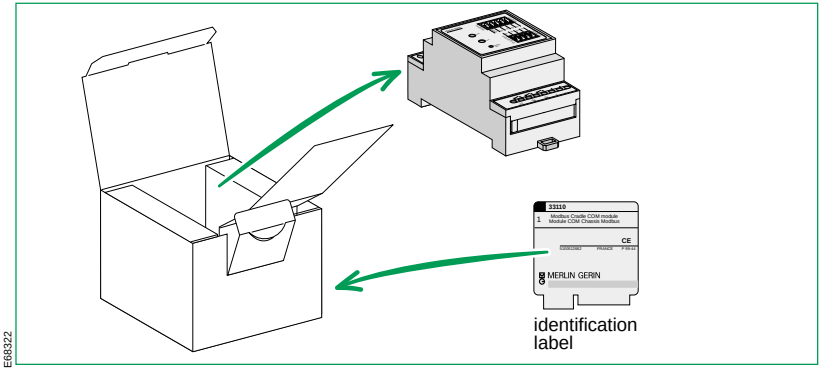


Fig. 35: *Package contents*

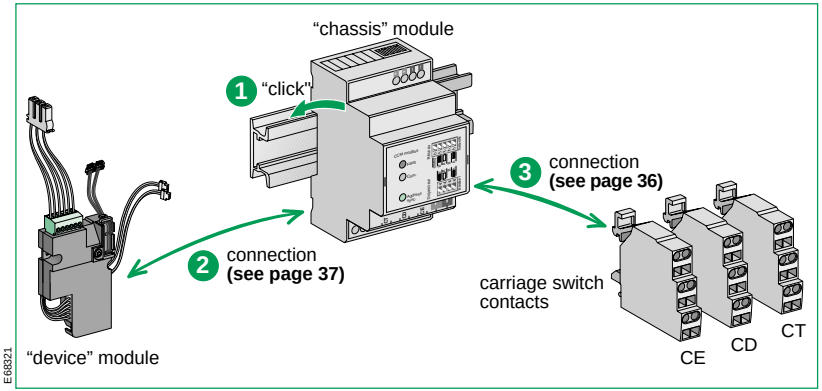


Fig. 36: *Steps for installation of the "chassis" module on withdrawable Compact NS and drawout Masterpact NT/NW*

Installation of the CCM "chassis" module (cont)

Withdrawable Compact NS and drawout Masterpact NT/NW (cont)

CCM "chassis" module components

1 24 V power supply terminals.
2 "network" connector for connection to the switchboard communication bus.
3 "device" connector for connection to the "device" module.
4 24 V output terminals for the "device" module power supply.
5 screw terminals for connection to carriage switch contacts (CE, CT, CD).
6 address-synchronisation button.
7 module status-conditions LEDs (see the *Operating modes* section on page 47).

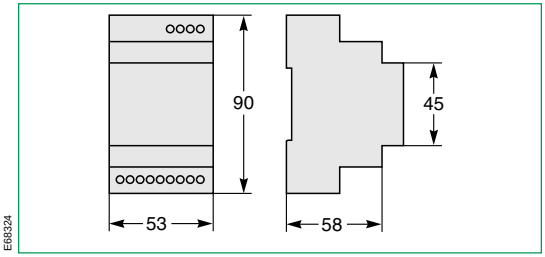


Fig. 37: *"Chassis" module dimensions*

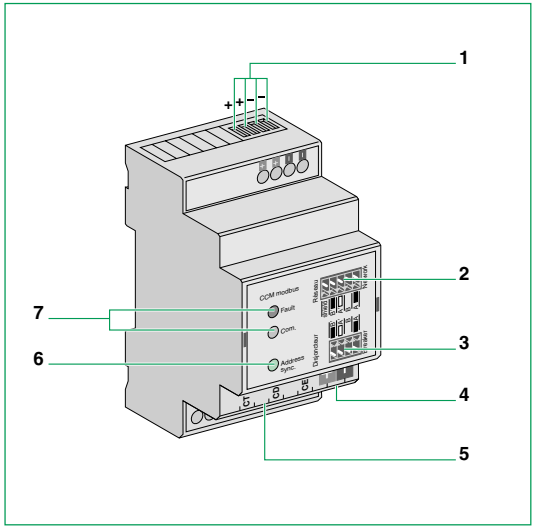


Fig. 38: *"Chassis" module components*

Installation of the CCM "chassis" module (cont)

Withdrawable Compact NS and drawout Masterpact NT/NW (cont)

Module installation

Mount the "chassis" module on a symmetrical DIN rail near the chassis in a position where the front can be easily accessed for connections and settings. If mounting is on a vertical rail, install a stop to secure the module.

Connection to the carriage switch contacts (optional)

These are changeover contacts.

- CE, indicating the connected position
- CD, indicating the disconnected position
- CT, indicating the test position.

They connect to the screw terminals on the "chassis" module via 6 x 0.5 to 1.25 mm^2 wires, i.e. two wires per contact. The terminals are marked CE, CD and CT, as indicated in figure 40.

Connections are made to the following terminals:

- CE, terminals 1 and 4
- CD, terminals 1 and 2
- CT, terminals 1 and 4.

For further information on installing the carriage switches, see the corresponding manuals in the Appendix:

- Manual for Compact NS and Masterpact NT carriage switches, document no. 51201010
- Manual for Masterpact NW carriage switches, document no. 51156129.

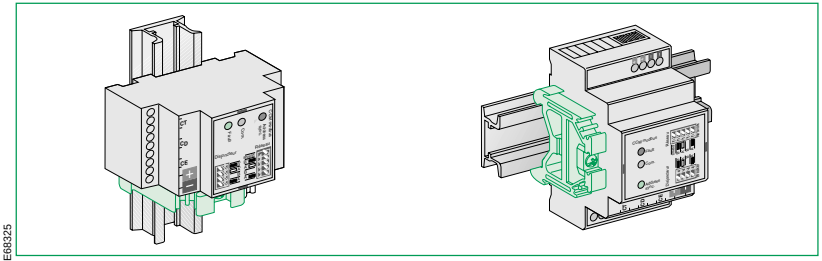


Fig. 39: *"Chassis" module installation on a symmetrical DIN rail*

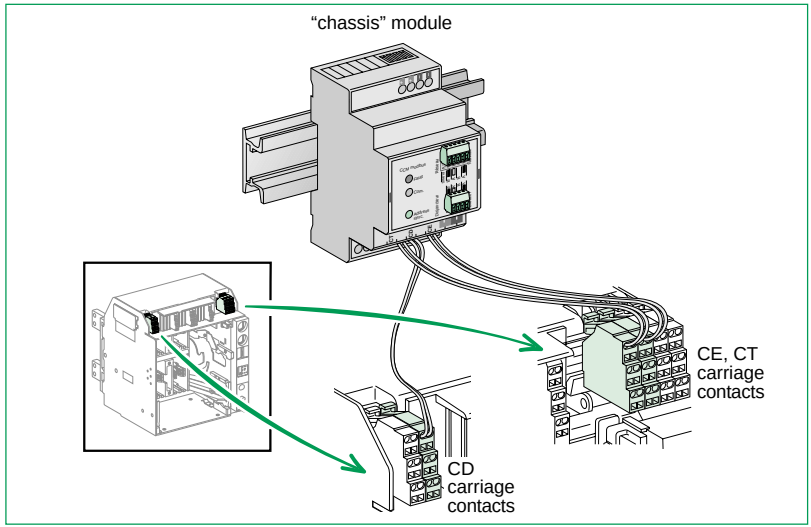


Fig. 40: *"Chassis" module connection to the carriage switches*

Installation of the CCM "chassis" module (cont)

Withdrawable Compact NS and drawout Masterpact NT/NW (cont)

Connection to the "device" communication module
Connection requires the CCP303 cable that must be ordered separately.
Cut a section without the connector to the desired length and keep the remaining section with the connector for connection to the bus (see page 40).
Connect one end as follows (see fig. 41):
□ the red (24 V) and black (0 V) wires to the + and - terminals (item "**4**" in figure 38);
□ the remaining four wires to the "Device" connector (item "**3**" in figure 38).

Note
Connect the six wires to the customer terminal block using the colour code on the device.

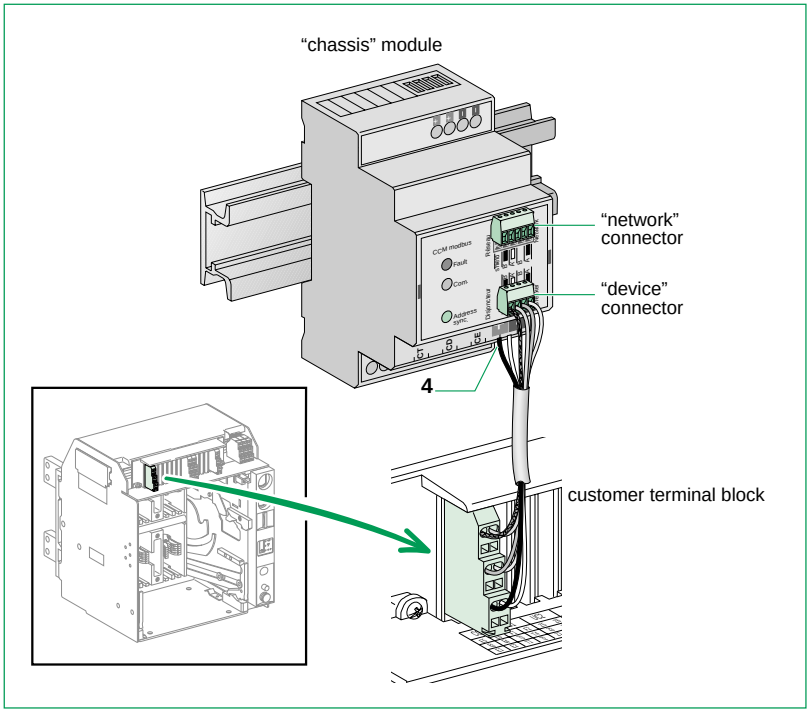


Fig. 41: *"Chassis" module connection to the "device" module*

Bus setup

The Schneider ModBUS wiring system facilitates connection of devices to the bus. Use the CJB306 junction block, the CSD309 connector and the prefabricated CCR301 and CCP303 cables to set up the bus rapidly and without error (see fig. 43).

Bus wiring using CJB306 junction blocks

Caution. Do not "daisy chain" the devices using their terminal blocks. Connect each device to a junction block.

The bus is created using one or more interconnected juction blocks. Each junction block may be connected to four devices and to two neighbouring junction blocks. The number of junction blocks depends on the system configuration (generally one per switchboard section). Junction blocks are mounted on DIN rails and interconnected using CCR301 cables with a CDD309 connector on each end. The junction blocks, cables and connectors must be ordered. For system setup, see the CJB306 and CSD309 manuels in the Appendix.

Position of the "Termination" switch on the CJB306

Caution. Set the switch to the ON position when the junction block is at the end of the line. **(*)**

The default position is OFF.

Position of the "2 wires/4 wires" switch on the CJB306

Caution. If one or more devices implement four wires (full duplex), set all the junction blocks to the 4-wire mode. **(*)**

The default position is "2 wires".

(*) See the CJB306 manuel in the Appendix.

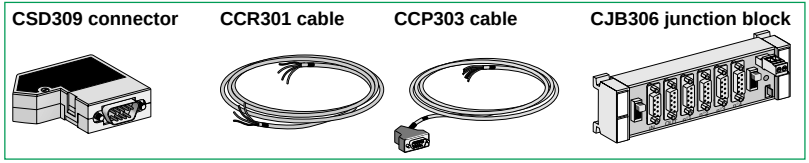


Fig. 42

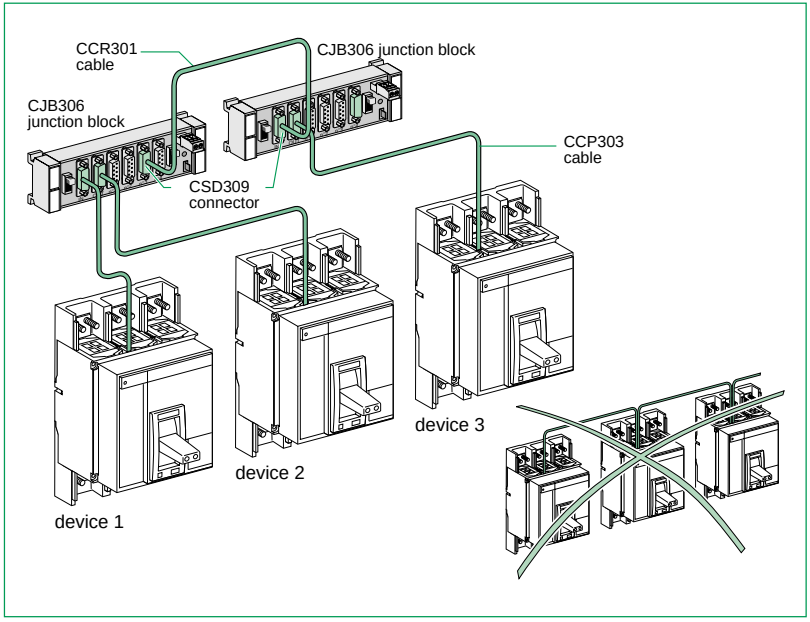


Fig. 43: *Bus setup*

Fixed devices

Reminder
On fixed devices, only the "device" module exists and must be connected to the bus.

Connection using the CCP303 cable
Connect the connector on the CCP303 cable to the CJB306 junction block. Run the cable to the terminal block on the device, cut to length and connect using the colour code indicated below.
For fixed devices, connections are made to (see figure 44):
- the plug-in COM connector (screw terminals) on the "device" communication module (fixed Compact NS devices)
- the fixed customer terminal block for fixed, electrically operated Compact NS and Masterpact NT/NW devices.

See the CCP303 manual in the Appendix.

Note
If connections are made without a CCP303 cable, make sure the cable used is compatible with the ModBUS standard.

ModBUS colour code

couleur	Europe	United States
blue	B'	In+
yellow	B	Out+
white	A'	In-
brown	A	Out-

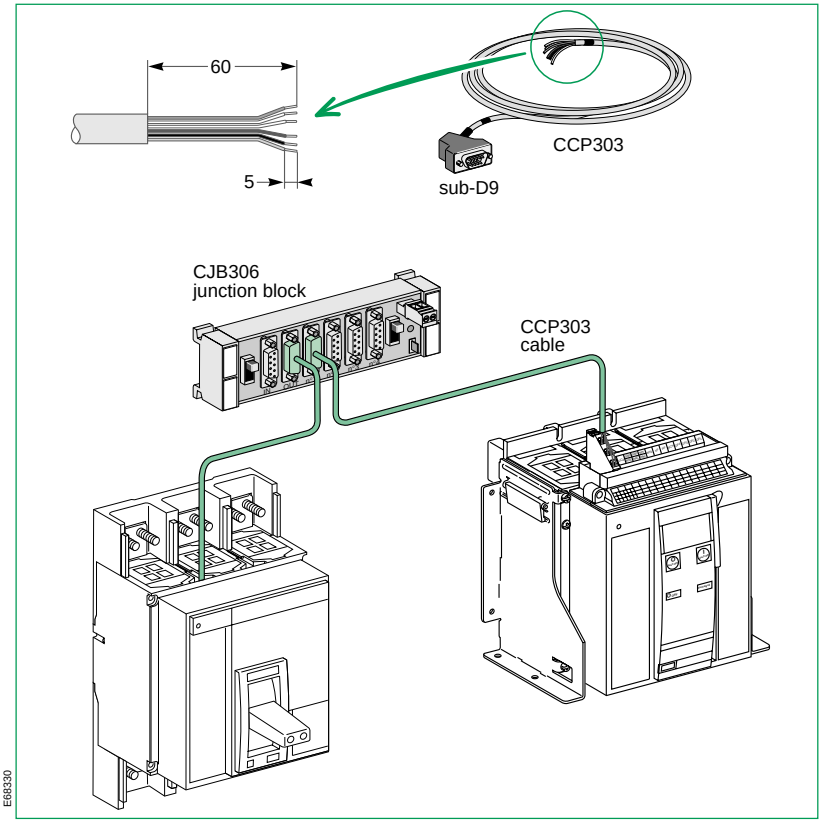


Fig. 44: *Terminal block connection to the bus, using the CCP303 cable*

Withdrawable (or drawout) devices

Reminder
For withdrawable (or drawout) devices, it is the CCM "chassis" module that connects to the bus.

"Chassis" module connection to the bus using the CCP303 cable
The "chassis" module connects to the bus using the plug-in "network" connector (item "2" in fig. 45). The remainder of the CCP303 cable with the connector is used (the part remaining after connection to the "device" module, see page 37).

After cutting the cable to length, remove several centimeters of outer insulation and twist the shielding to form a wire (see fig. 46).
- connect the four wires that are not red or black and the shielding to the plug-in "network" connector (item "2" in fig. 45), using the colour code on the module.
- connect the red (24 V) and black (0 V) wires to the + and - terminals (item "1" in fig. 45).
- connect the other end of the cable with the Sub-D9 connector to the nearest juction block.

Note
If connections are made without a CCP303 cable, make sure the cable used is compatible with the ModBUS standard. Comply with the indications on the front of the "chassis" module or the colour code on previous page.

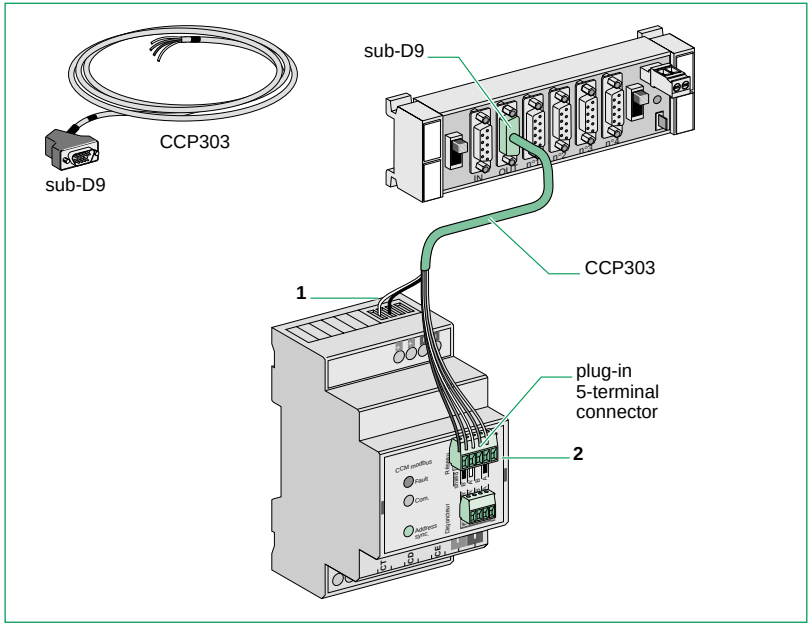


Fig. 45: *"Chassis" module connection to the bus, using the CCP303 cable*

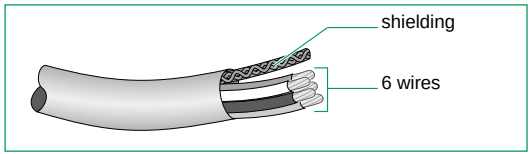


Fig. 46: *Twisted shielding*

Preliminary remarks

ModBUS communication is available only on Compact NS and Masterpact NT/NW devices equipped with Micrologic A, P and H control units. These control units are used to set up the communication modules, each with a **unique address** and a set of **common network parameters**.
To start ModBUS communication, the modules must have been correctly installed and energised. The Micrologic control units must also be energised in order to carry out the following configuration procedures.

Micrologic A control units

Simultaneously press the menu and the → buttons for three seconds. A series of four screens are displayed for configuration of the ModBUS communication.

Screen 1. Address
The default ModBUS address for the device is 47. The screen displays AdXX when the existing address for the communication module is XX.
Select an address from 1 to 47 (unique for the given device) by pressing the → button. Briefly press the button to increment the address by one, where the address displayed after 47 is 1.
Once the address has been selected, press the → button for three seconds, then release it to go on to the next screen.

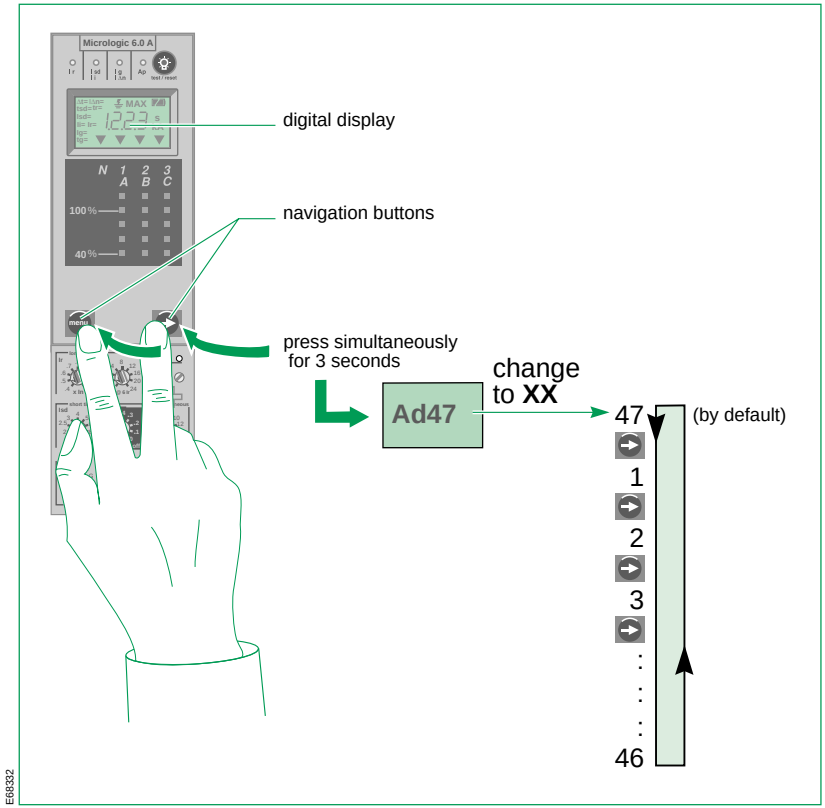


Fig. 47: *Micrologic A*

Fig. 48: Screen 1 for address

Micrologic A control units (cont)

Screen 2. Baud rate
The default rate is 19200 bauds. The screen displays *XXXX* which may be one of three values, **4800, 9600** or **19200**.
Select a rate that is the same for all devices using the button. Briefly press the button to go on to the next value in the loop.
Once the rate has been selected, press the button for three seconds, then release it to go on to the next screen.

Screen 3. Parity
The default parity is even. The screen displays *X* which may be one of two values, **E** (even) or **N** (none).
Select a value that is the same for all devices using the button. Briefly press the button to go on to the next value in the loop.
Once the parity has been selected, press the button for three seconds, then release it to go on to the next screen.

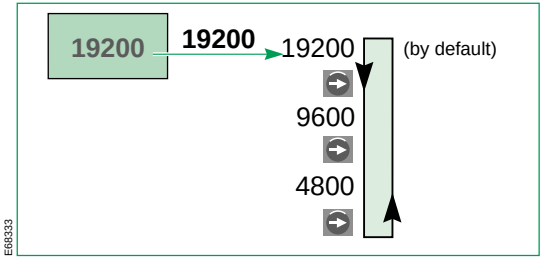


Fig. 49: *Screen 2 for baud rate*

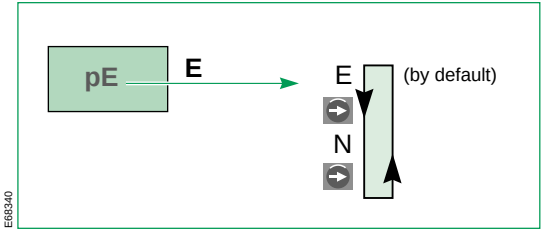


Fig. 50: *Screen 3 for parity*

Micrologic A control units (cont)

Screen 4. Language
The default language is English. The screen displays *XX* which may be one of the following values, **En** (English), **Fr** (French), **USEn** (North American English), **De** (German), **Sp** (Spanish), **It** (Italian).
Select a language using the button. Briefly press the button to go on to the next language in the loop. Once the language has been selected, press the button for three seconds, then release it to save the configuration and return to the initial screen.

Note
The Micrologic A control unit does not in itself require that a language be set, however it is nonetheless necessary to do so if a Digipact DMB300 or DMC300 display module is used.

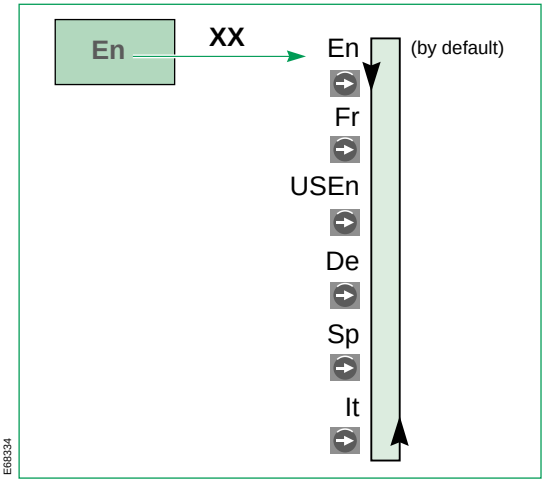


Fig. 51: *Screen 4 for language*

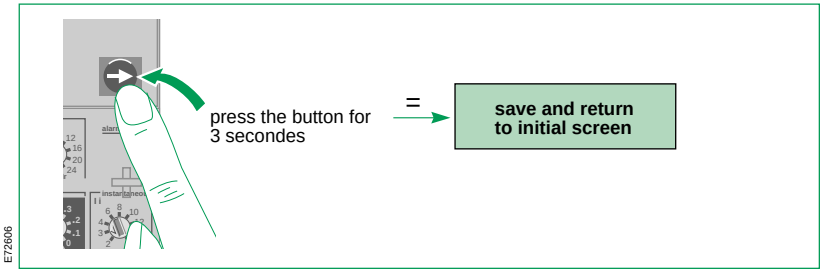


Fig. 52: *Save and return to initial screen*

Micrologic P / H control units

Press the button and in the displayed screen:
- select the *Com. setup* menu using the and navigation keys, then confirm the selection by pressing the key;
- then select the *Com parameter* menu in the same manner.

Address, baud rate, parity
In the *Com parameter* menu, set the Address, Baud rate and Parity values as indicated on the previous pages. The default and selectable values for each parameter are the same as indicated previously. See the information on Screen 1 (fig. 48), Screen 2 (fig. 49) and Screen 3 (fig. 50). Press the key to confirm the selection for each parameter.
After confirming the Parity parameter, press the key. A message is displayed asking you if you want to save the settings. Select Yes and confirm by pressing the key. The three parameters are saved.

Language
The language must be set, but using another menu.
To access the menu, press the button and in the displayed screen:
- select the *Micrologic setup* menu using the and navigation keys, then confirm the selection by pressing the key;
- set the desired language.

Rated system voltage
If a Digipact DMB300 or DMC300 display module is used, it is necessary to set the rated distribution-system voltage.
Press the button, select the *Micrologic setup* menu, then the *VT ratio* command and the desired voltage-transformation ratio.

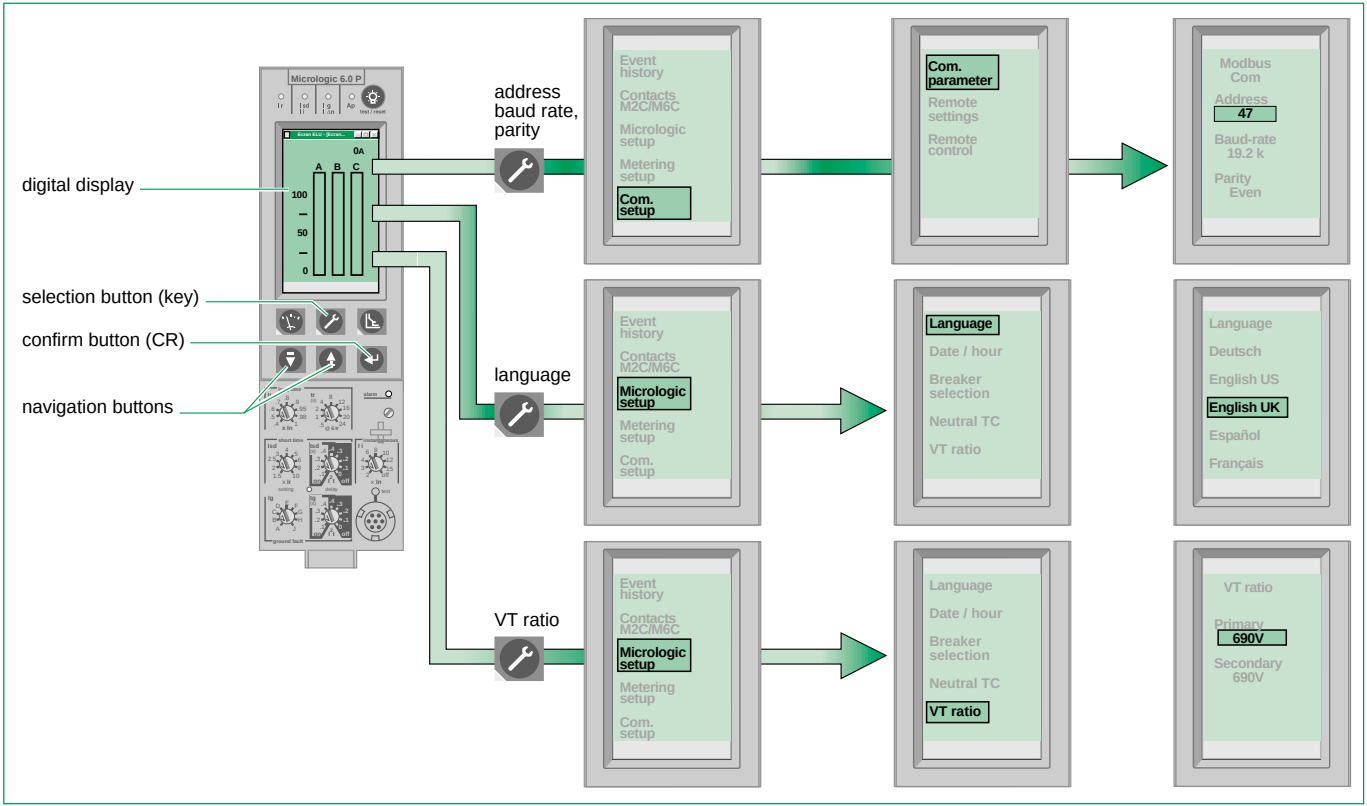


Fig. 53: *Navigation buttons and examples of screens*

Withdrawable (or drawout) devices

For withdrawable (or drawout) devices, the "chassis" module is a mandatory interface between the device and the communication network and there is consequently a procedure for transmitting the necessary parameters to the module. The parameters must first be set as indicated previously and depending on the respective control units (for Micrologic A, see page 41, for Micrologic P / H, see page 44).

CCM "chassis" module configuration

The CCM "chassis" communication module has a pushbutton and two LEDs (red and green) on the front panel that are used during start-up. Once all the parameters have been set as indicated previously and depending on the respective control units, press the "Address synchronisation" pushbutton (item **"6"** in the figure opposite and in fig. 54) on the "chassis" module. The CCM "chassis" module is automatically set up with:

- the same baud-rate and parity values as the "device" module;
- the address of the "device" module incremented by 50.

The "chassis" module then automatically launches start-up by connecting all the "device" and "chassis" modules to the communication network.

Replacement of a withdrawable device equipped with a communication module

If a withdrawable device equipped with a "device" communication module is replaced, configuration and start-up are automatically carried out by the CCM "chassis" module which sends the necessary parameters to the "device" module and then connects it to the communication network.

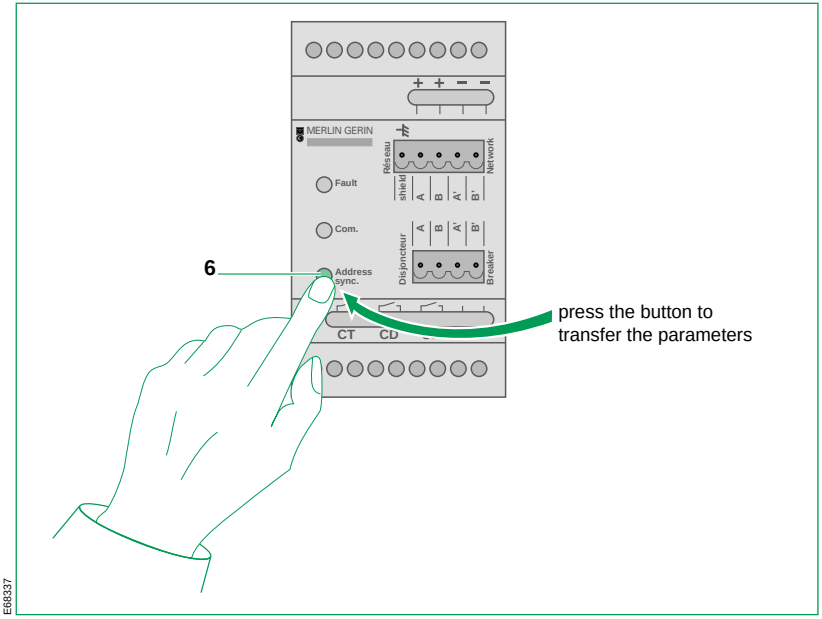


Fig. 54: *"Chassis" module configuration*

CCM "chassis" module operating modes

The "chassis" communication module operating-mode LEDs are presented in the table below.

Colour of LED(s)	Operating mode
All LEDs off	Module not supplied with power
Steady red	Module supplied with power, but not initialised
Steady green	Module supplied with power, operation OK
Green with short interruptions interruptions	Module supplied with power, operation OK, currently decoding network messages
Green interrupted by short red flashes	Module supplied with power, operation OK, currently failing to decode network messages
Alternating green and red	Configuration in progress (the Address-synchronisation button was pushed)
Flashing red	CCM "chassis" module currently sending configuration to "device" module
Flashing green	CCM "chassis" module successfully sent configuration to "device" module

CCM "chassis" module technical characteristics

Technical characteristics

- complies with CE marking requirements.
- operating temperature from 0° to +70° C.
- storage temperature from -20° to +85° C.
- relative humidity from 0 to 85 %.
- degree of protection IP 65 (IEC 529):
  - IP 30 for the accessible parts;
  - IP 20 for the connectors.
- electrostatic-discharge immunity (IEC 1000-4-2 level 4).
- electromagnetic field immunity (IEC 1000-4-3 10 V/m).
- electrical fast transient/burst immunity (IEC 1000-4-4 level 4).
- mechanical-shock withstand capacity (IEC 68-2-27).
- vibration withstand capacity (IEC 68-2-6).

Electrical characteristics

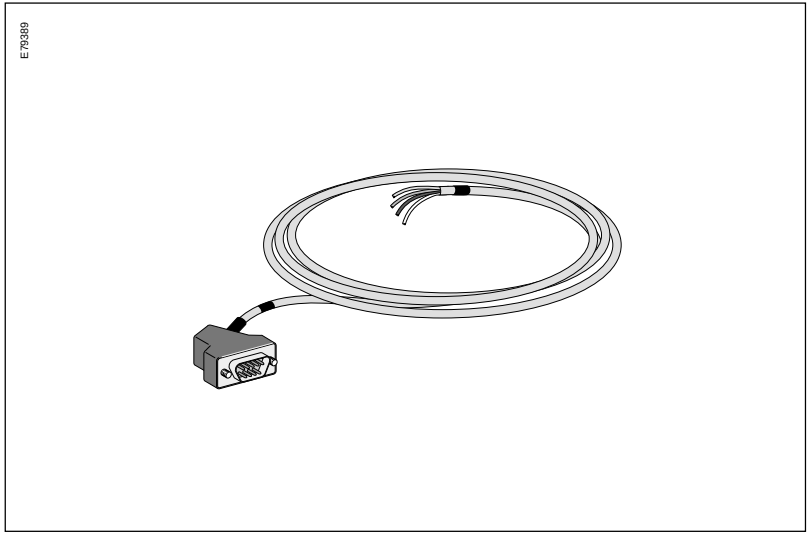
- power supply 24 V DC.
- voltage limits (including ripple) from 18 to 30 V.
- maximum consumption 1 W.

Certification

- IEC, UL-CSA.

Notes

Câble de liaison ModBUS CCS303
ModBUS CCS303 connection cable



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Code couleur / *colour code*

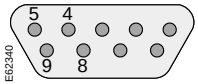
Les câbles et connecteurs ModBUS de Digipact utilisent le code couleur unique suivant :

Digipact ModBUS cables and connectors all use the following colour code:

Couleur / *colour*	Europe	USA
marron/*brown*	A	Out-
jaune/*yellow*	B	Out+
blanc/*white*	A'	In-
bleu/*blue*	B'	In+

Repérage des connecteurs ModBUS / *ModBUS connector pinouts*

Pins	signal
1	NC
2	NC
3	NC
4	B'/In+
5	B/Out+
6	NC
7	NC
8	A'/In-
9	A/Out-



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Conception et réalisation : AMEG
Impression :

Bloc de jonction ModBUS CJB306
ModBUS CJB306 junction block

Installation et raccordement

Fixation sur rail DIN symétrique
Le bloc de jonction CJB se fixe sur rail DIN symétrique. Dans le cas d'un montage sur rail vertical, utiliser une butée pour éviter le glissement.

Position de l'interrupteur de terminaison de ligne
Mettre l'interrupteur en position "ON" quand le CJB306 est en fin de ligne.

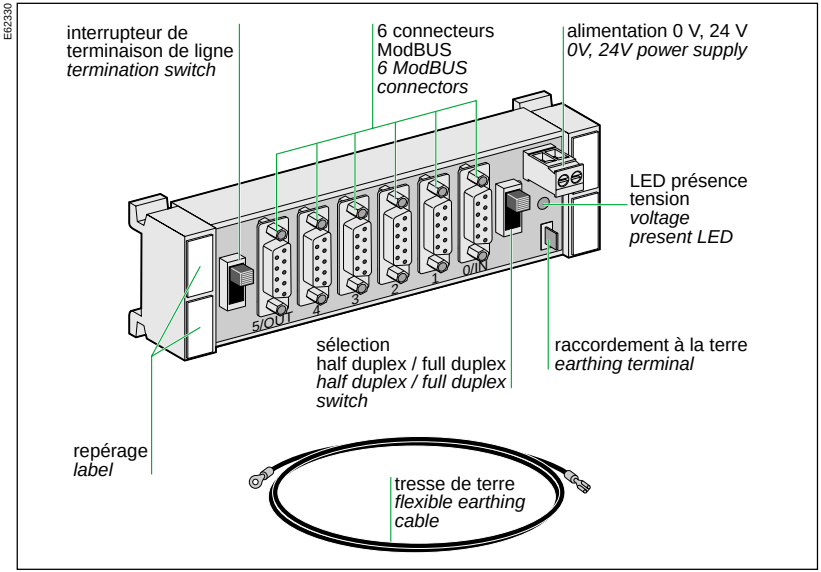
Position de l'interrupteur 2 fils - 4 fils
Position : “2 wires” liaison 2 fils (half duplex)
Position : “4 wires” liaison 4 fils (full duplex)

Installation and connection

Mounting on symmetrical DIN rail
The Modbus CJB306 junction block is designed for mounting on a symmetrical DIN rail. If it is mounted on a vertical rail, fit a stop to keep it from sliding.

Position of the termination switch
Set the switch to “ON” position when the CJB306 is at the end of the line.

Position of the “2-wires/4-wires” switch
Set to “2-wires” position for a half duplex connection
Set to “4-wires” position for a full duplex connection



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Raccordement de la masse

Il est impératif de raccorder le bloc de jonction à la masse. Ce raccordement se fera par la tresse de terre isolée livrée avec le bloc de jonction.

Branchement de l'alimentation 24 V :
Voir la notice "installation et mise en œuvre ModBUS" n°51005112864AA.

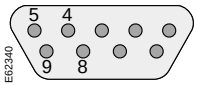
Earthing connection

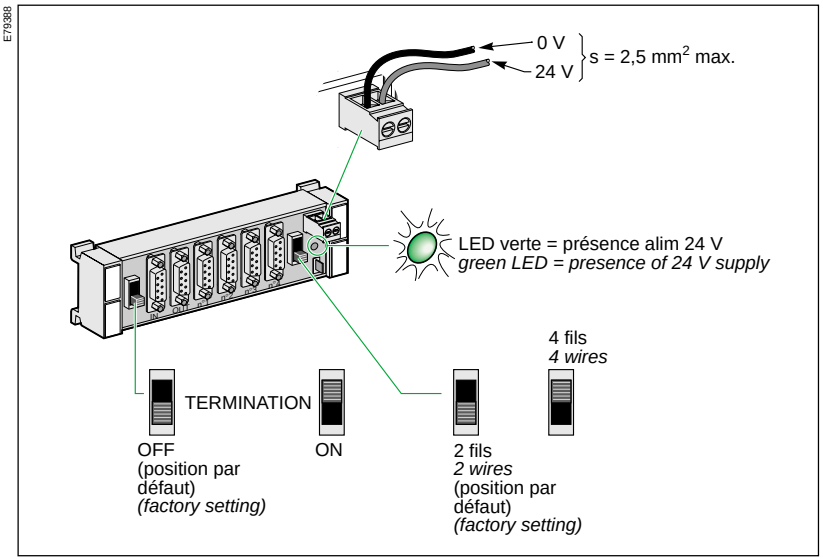
The junction block must be properly earthed.
For this, use the insulated flexible earthing cable supplied with the junction block.

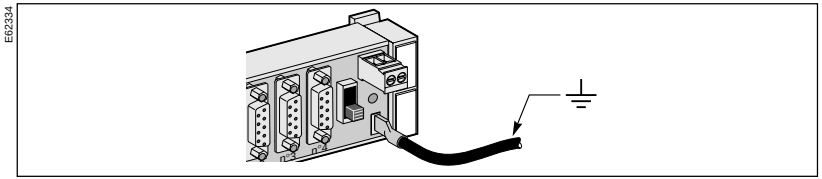
Connection of the 24 V power supply:
See "Modbus installation and user" manual no. 5100512864AA.

Repérage des connecteurs ModBUS / *ModBUS connector pinouts*

Pins	signal
1	0V
2	24V
3	NC
4	B'/In+
5	B/Out+
6	0V
7	24V
8	A'/In-
9	A/Out-







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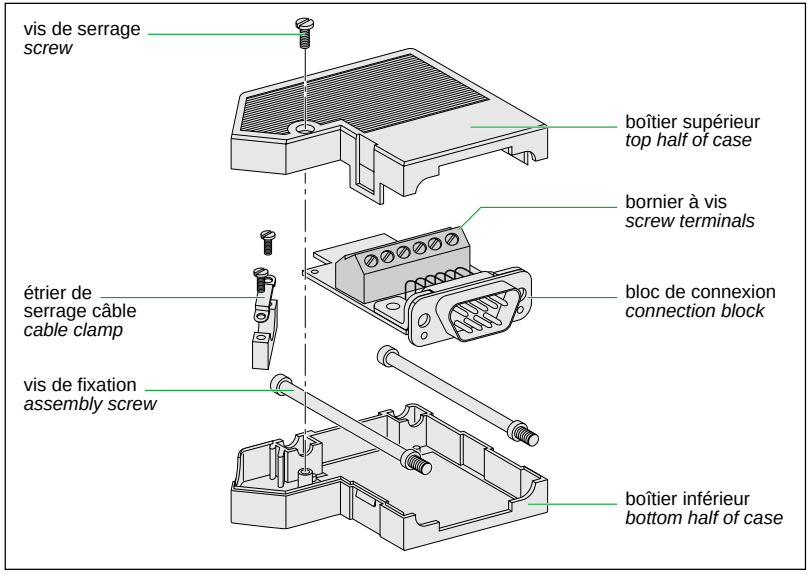
Conception et réalisation : AMEG
Impression :

Connecteur ModBUS CSD309
ModBUS CSD309 connector

Code couleur / *colour code*

Les câbles et connecteurs ModBUS de Digipact utilisent le code couleur unique suivant :
Digipact Modbus cables and connectors all use the following colour code:

Couleur / *colour*		Europe	USA
rouge/*red*		24 V	24 V
noir/*black*		0 V	0 V
marron/*brown*		A	Out-
jaune/*yellow*		B	Out+
blanc/*white*		A'	In-
bleu/*blue*		B'	In+



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Raccordement

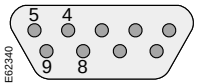
Raccordement des fils (voir fig. 1).
Serrer les fils dans le bornier en respectant le code couleur
Raccordement à la masse
Retourner le blindage du câble "en chaussette" sur 10 mm et serrer l'ensemble dans l'étrier (voir fig. 2).
Vissage de l'étrier (voir fig. 3)
Adapter le sens de l'étrier en fonction de la grosseur du câble.
Fermeture du capot
Fermer le capot et serrer la vis de fixation.

Connection

Connecting the wire *(see fig. 1).*
Secure the wires in the terminals, taking care to respect the colour codes.
Earthing
Fold 10 mm of the shielding back over the cable and secure the cable in the clamp (see fig. 2).
Tightening the clamp *(see fig. 3)*
The clamping piece can be fit in two ways depending on the diameter of the cable to be secured.
Closing the case
Close the case and tighten the screw.

Repérage des connecteurs ModBUS / *ModBUS connector pinouts*

Pins	signal
1	0V
2	24V
3	NC
4	B'/In+
5	B/Out+
6	0V
7	24V
8	A'/In-
9	A/Out-



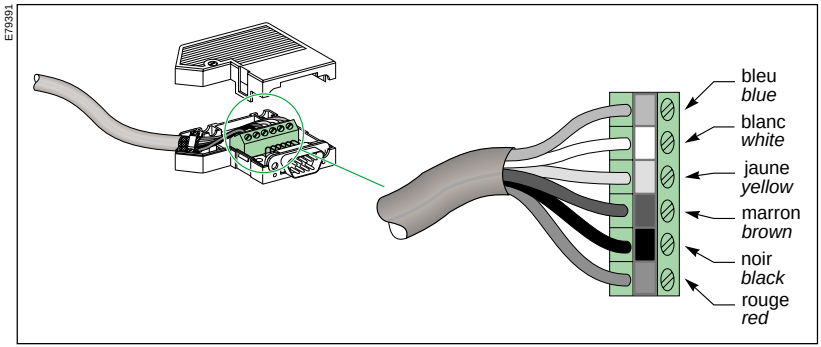


Fig. 1

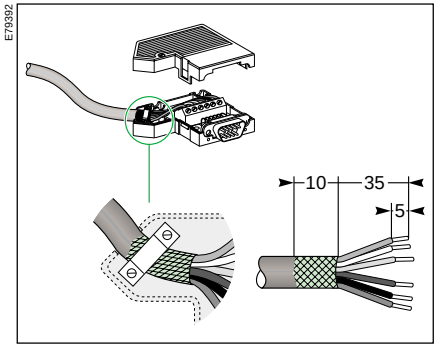


Fig. 2

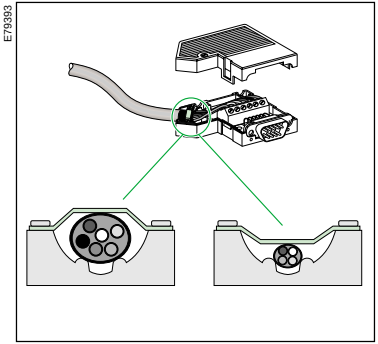


Fig. 3

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Conception et réalisation : AMEG
Impression :

Câble de liaison ModBUS CCP303
Modbus CCP303 connection cable

Pour disjoncteur Masterpact / Compact NS
For Masterpact / Compact NS circuit breakers

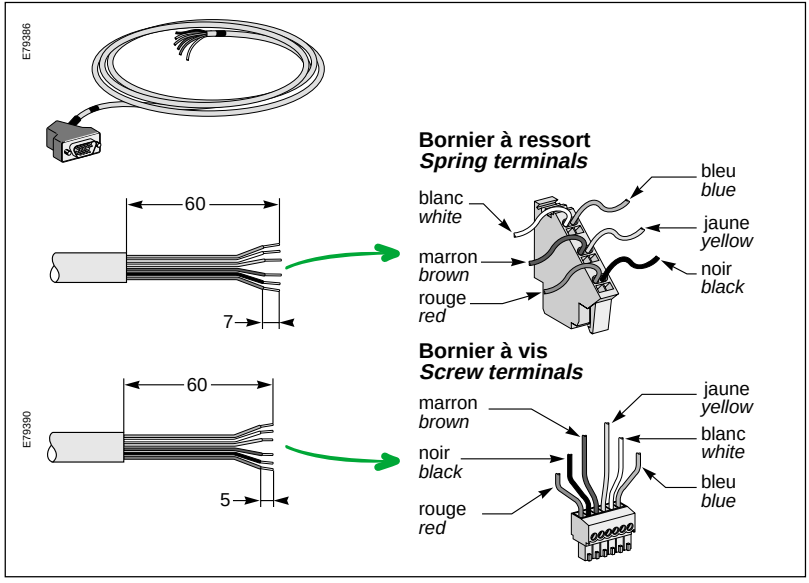
Préparation / *Preparation*

Mise à la longueur voulue
La filerie a une longueur standard de 3 m. S'il y a lieu recouper le câble à la longueur voulue et reconstituer la terminaison de l'extrémité suivant illustration.

Shortening the cable
The cable has a standard length of 3 m. If necessary, cut the cable to the desired length and rewire the connector as indicated opposite.

Utilisation avec CCM
Voir notice "installation et mise en œuvre ModBus" n°5100512864AA.

Using the cable with the CCM
See "Modbus installation and user" manual no. 5100512864AA.



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Code couleur / *colour code*

Les câbles et connecteurs ModBUS de Digipact utilisent le code couleur unique suivant :
Digipact Modbus cables and connectors all use the following colour code:

Couleur / *colour*	Europe	USA
rouge/*red*	24 V	24 V
noir/*black*	0 V	0 V
marron/*brown*	A	Out-
jaune/*yellow*	B	Out+
blanc/*white*	A'	In-
bleu/*blue*	B'	In+

Raccordement des fils

Serrer les fils dans le bornier en respectant le code couleur.

Connecting the wires

Secure the wires in the terminals, taking care to respect the colour codes.

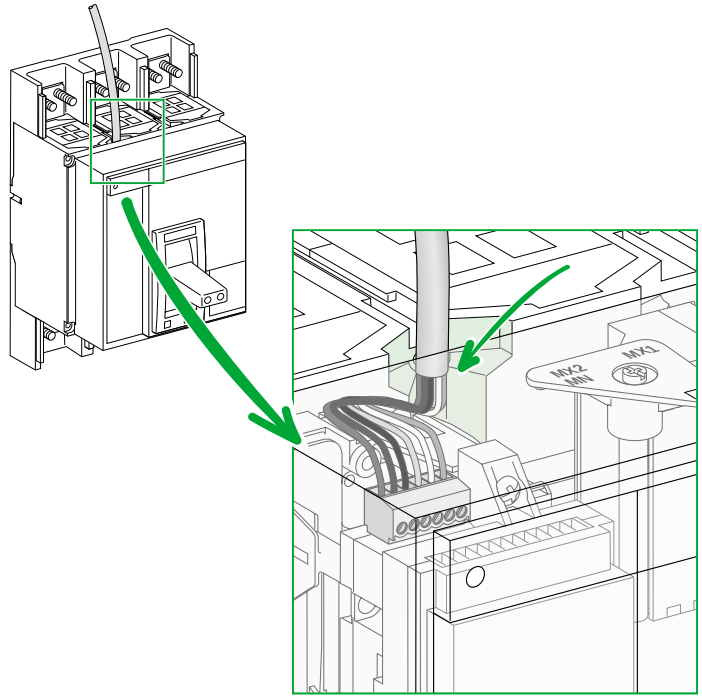
Attention : cas du bornier à vis

Passer les fils de manière à ne pas risquer de coincer ou écraser le câble et les fils lors de la fermeture du plastron de l'appareil (voir illustration).

Warning: for screw terminals

Run the wires in such a way as to avoid all risk of pinching or crushing the cable or the wires when the front cover is fitted (see illustration).

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