



## XMPro-10 series Programmable Logic Controller

### Data sheet applicable for:

- **XM14-DT:** PLC with 8 digital inputs and 6 digital outputs.
- **XM17-ADT:** PLC with 8 digital inputs, 6 digital outputs, 2 analog inputs and 1 analog output.

### Introduction

XMPro-10 is a family of compact, cost-effective and powerful Programmable Logic Controllers (PLCs).

### Features of XMPro-10 series PLCs

- Self-contained unit with in-built Inputs/Outputs (I/Os).
- Easy addition of digital or analog input/outputs using expansion modules.
- Flexible connectivity via Ethernet and RS485.
- Programming by powerful yet intuitive XMPS 2000 software.

### Front view

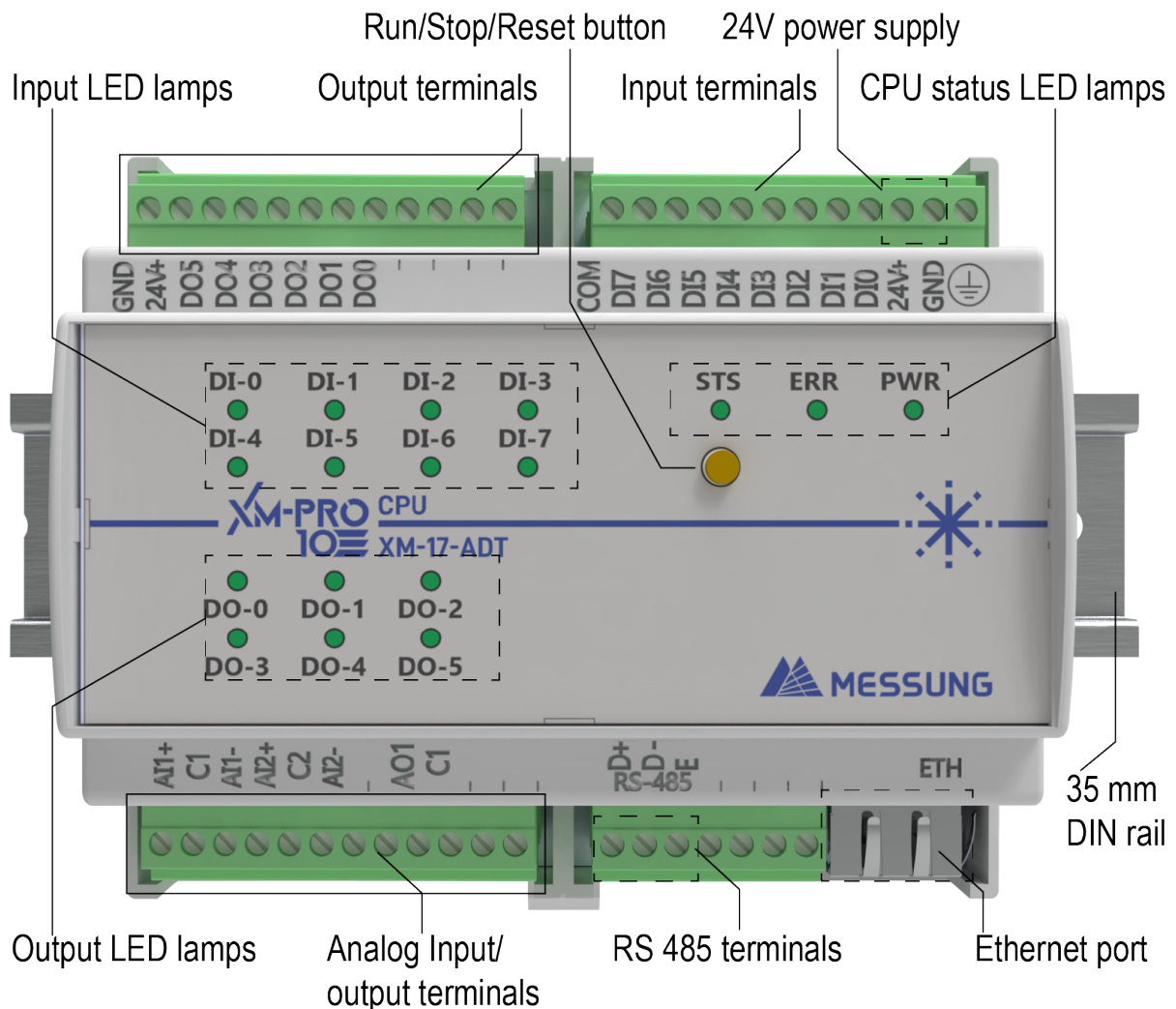
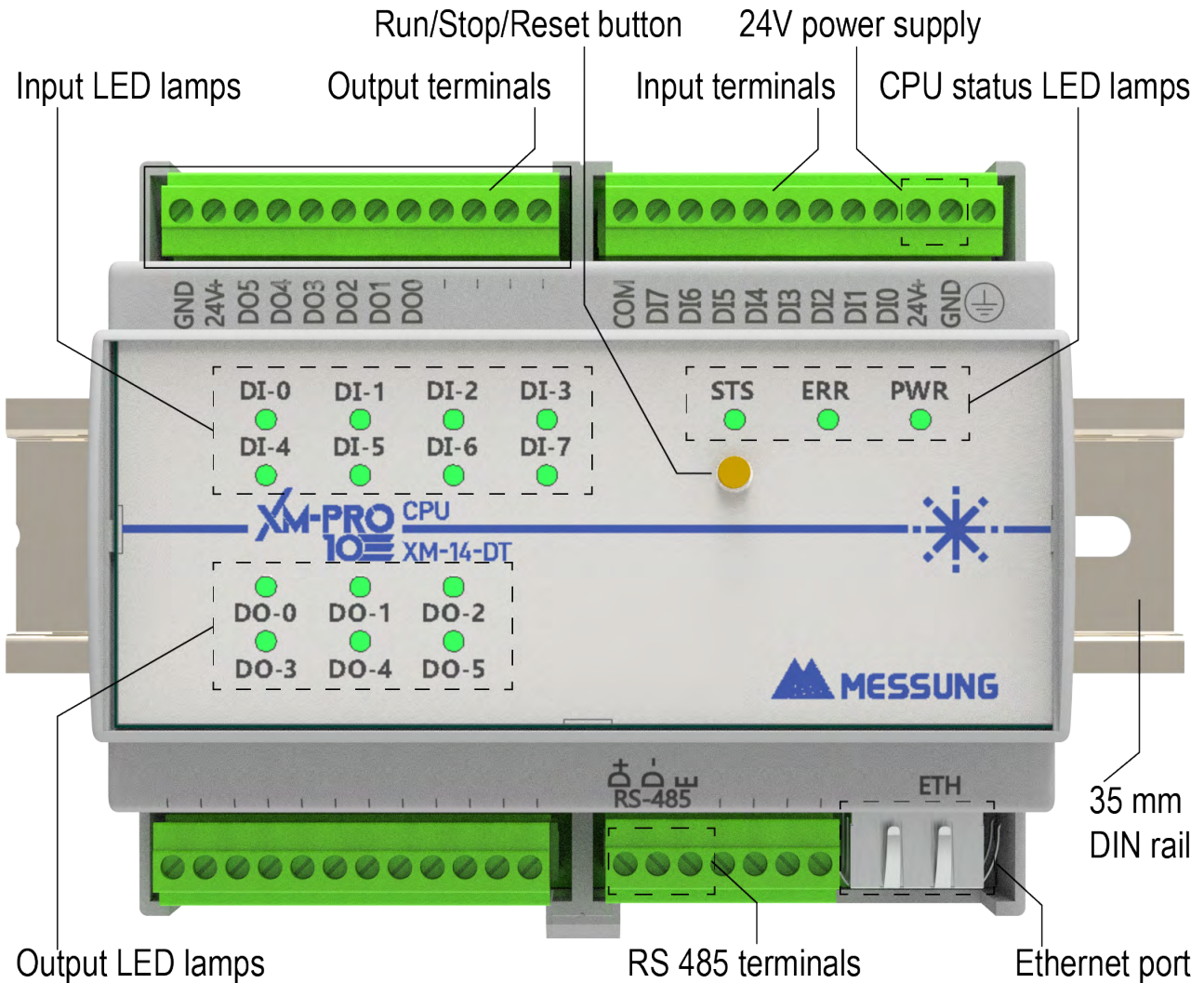
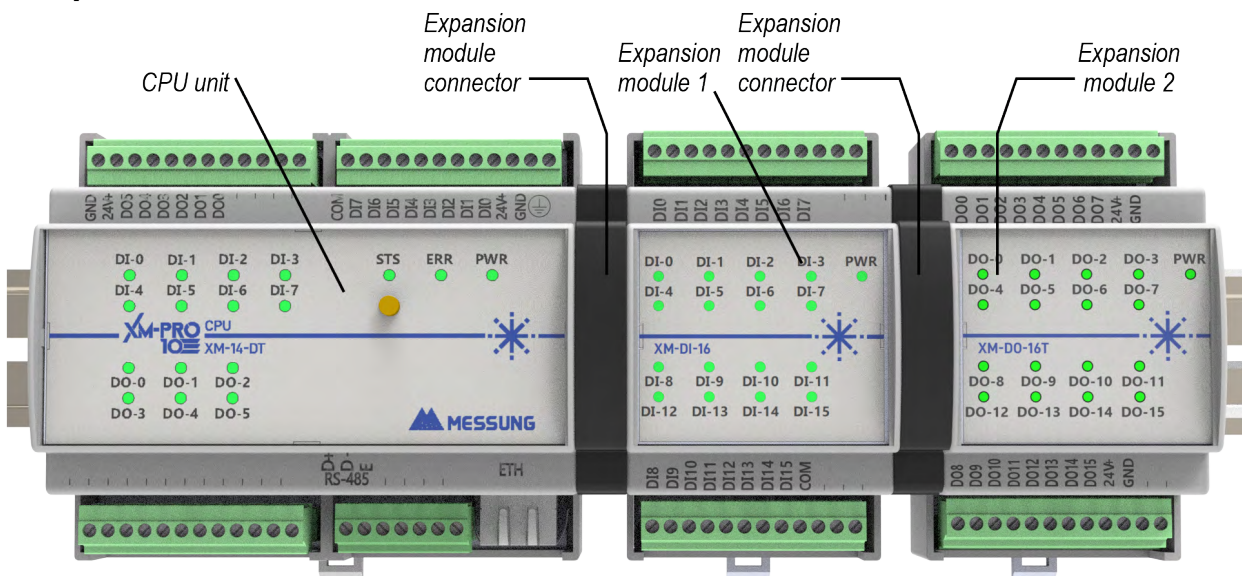


Figure 1. XM17-ADT PLC



**Figure 2. XM14-DT PLC**

**Local expansion for PLC unit**



**Figure 3. PLC with 2 expansion modules**

## Specification

| General Features                           | XM14-DT   | XM17-ADT                  |
|--|---|---------------------------|
| PLC supply voltage                         | 24V DC (18-30V DC)  | <b>24V DC (18-30V DC)</b> |
| Digital inputs                             | 8   | 8                         |
| Digital outputs                            | 6   | 6                         |
| Analog inputs                              | 0   | 2                         |
| Analog outputs                             | 0   | 1                         |
| RS485 port                                 | 1   | 1                         |
| Ethernet port                              | 1   | 1                         |
| Local expansion                            | <ul style="list-style-type: none"> <li>▪ Maximum of 5 number of local expansion modules is possible.</li> <li>▪ Maximum local I/O expansion points should be less than 66 for XM-14-DT and 63 for XM-17-ADT.</li> <li>▪ Total number of points includes on-board I/Os and a maximum of 5 external modules.</li> </ul> |                           |
| Remote expansion                           | <ul style="list-style-type: none"> <li>▪ Maximum number of on-board + local + remote I/O points should be less than 80.</li> <li>▪ Example: If 62 on-board + local expansion I/O points are already used, only 18 I/O points will be available for remote expansion.</li> </ul>                                       |                           |
| Maximum input power                        | 6 W   |                           |
| Maximum output power                       | 3.6 W   |                           |
| RTC (Real Time Clock)                      | 1 milliseconds resolution, retention time of 14 days, maximum variation of 3 seconds per day.   |                           |
| CPU speed                                  | 0.8 microseconds for BOOL instruction and <2.5 microseconds for WORD instruction  |                           |
| Addressable variables memory (F/S/W/P/T/C) | 3.25 KB   |                           |
| Program memory                             | 128 KB  |                           |
| Retain/Persistent memory                   | 0.75 KB   |                           |
| Timers - On Delay , Off Delay, Pulse       | 256 each  |                           |
| Timers resolution                          | 0.01 seconds, 0.1 seconds, 1 seconds  |                           |
| Counters                                   | Up Counter, Down Counter  |                           |
| Programming software                       | XMPS 2000 software  |                           |
| Programming language                       | Ladder diagram  |                           |
| Status and diagnostics                     | STS, ERR, PWR LED lamps   |                           |
| Multi-functional key                       | RUN/STOP/RESET modes  |                           |
| IP level                                   | IP 20   |                           |
| Operating temperature                      | 0 to 55°C   |                           |
| Storage temperature                        | -5°C to +55°C   |                           |
| Operating and Storage, relative humidity   | 5 to 95% RH (no condensation)   |                           |

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| General Features  | XM14-DT   | XM17-ADT |
|-------------------|---|----------|
| Standards         | CE*, RoHS                                       |          |
|                   | *CE certification being implemented.            |          |
| Isolation         | Isolation between power supply and CPU          |          |
|                   | Isolation between digital I/Os and CPU          |          |
| Maximum wire size | 0.5 mm <sup>2</sup> with lugs                   |          |
|                   | 1.5 mm <sup>2</sup> without lugs                |          |
| Dimensions        | 106 mm (width) X 91 mm (height) X 62 mm (depth) |          |
| Weight            | 225 grams                                       |          |

## Digital inputs

| Parameter             | Value                               |
|-----------------------|-------------------------------------|
| Input type            | Source/Sink                         |
| Isolation             | Optical                             |
| Supply voltage        | 24 VDC                              |
| Input voltage Range   | 18 VDC to 30 VDC for logical inputs |
| Connection Type       | Pluggable terminal connector        |
| 0 Signal (low)        | 0 to 5 VDC                          |
| 1 Signal (high)       | 18 VDC to 30 VDC                    |
| Maximum input current | 6 mA at 24 VDC                      |
| Response time         | 0.1 milliseconds                    |
| Indication            | Green LED lamps                     |

## Digital outputs

| Parameters             | Value                            |
|------------------------|----------------------------------|
| Output type            | Transistor Source Type           |
| Isolation              | Optical/Galvanic                 |
| Maximum output current | 0.5A per channel                 |
|                        | 2A per group                     |
| Protection             | Protected against surge voltages |
| Indication             | Green LED lamps                  |

## Analog inputs

| Parameter         | Value   |
|-------------------|---|
| Input type        | Voltage or current, individually configurable |
| Input ranges      | 0-10 VDC, 0-20 mA, 4-20 mA                    |
| Engineering scale | 0 to 4095                                     |
| Resolution        | 12 bits                                       |
| Conversion time   | 17 ms   |
| Data rate         | 60 samples per second                         |

| Parameter                               | Value                                   |                |
|---|---|----------------|
| Analog to digital conversion resolution | Voltage                                 | 2.5 mV         |
|   | Current                                 | 5.12 $\mu$ A   |
| Input impedance                         | Voltage                                 | > 1 M $\Omega$ |
|   | Current                                 | 250 $\Omega$   |
| Maximum permissible input               | Voltage                                 | 12 V           |
|   | Current                                 | 22 mA          |
| Accuracy                                | $\pm$ 0.1 % of full-scale rating @ 25°C |                |
| Protection                              | Protected against reverse polarity      |                |
| Indication                              | Green LED lamps                         |                |

### Analog outputs

| Parameter                               | Value   |                |
|---|---|----------------|
| Output type                             | Voltage or current, individually configurable |                |
| Input ranges                            | 0-10 VDC, 0-20 mA, 4-20 mA                    |                |
| Engineering scale                       | 0 to 4095                                     |                |
| Resolution                              | 12 bits                                       |                |
| Settling time                           | 5 milliseconds                                |                |
| Digital to analog conversion resolution | Voltage                                       | 2.5 mV         |
|   | Current                                       | 5.12 $\mu$ A   |
| Load impedance                          | Voltage                                       | > 1 K $\Omega$ |
|   | Current                                       | < 500 $\Omega$ |
| Maximum permissible input               | Voltage                                       | 10.5 V         |
|   | Current                                       | 21 mA          |
| Accuracy                                | $\pm$ 0.1 % of full-scale rating @ 25°C       |                |
| Indication                              | Green LED lamps                               |                |

### Multi-functional (Run/Stop/Reset) button

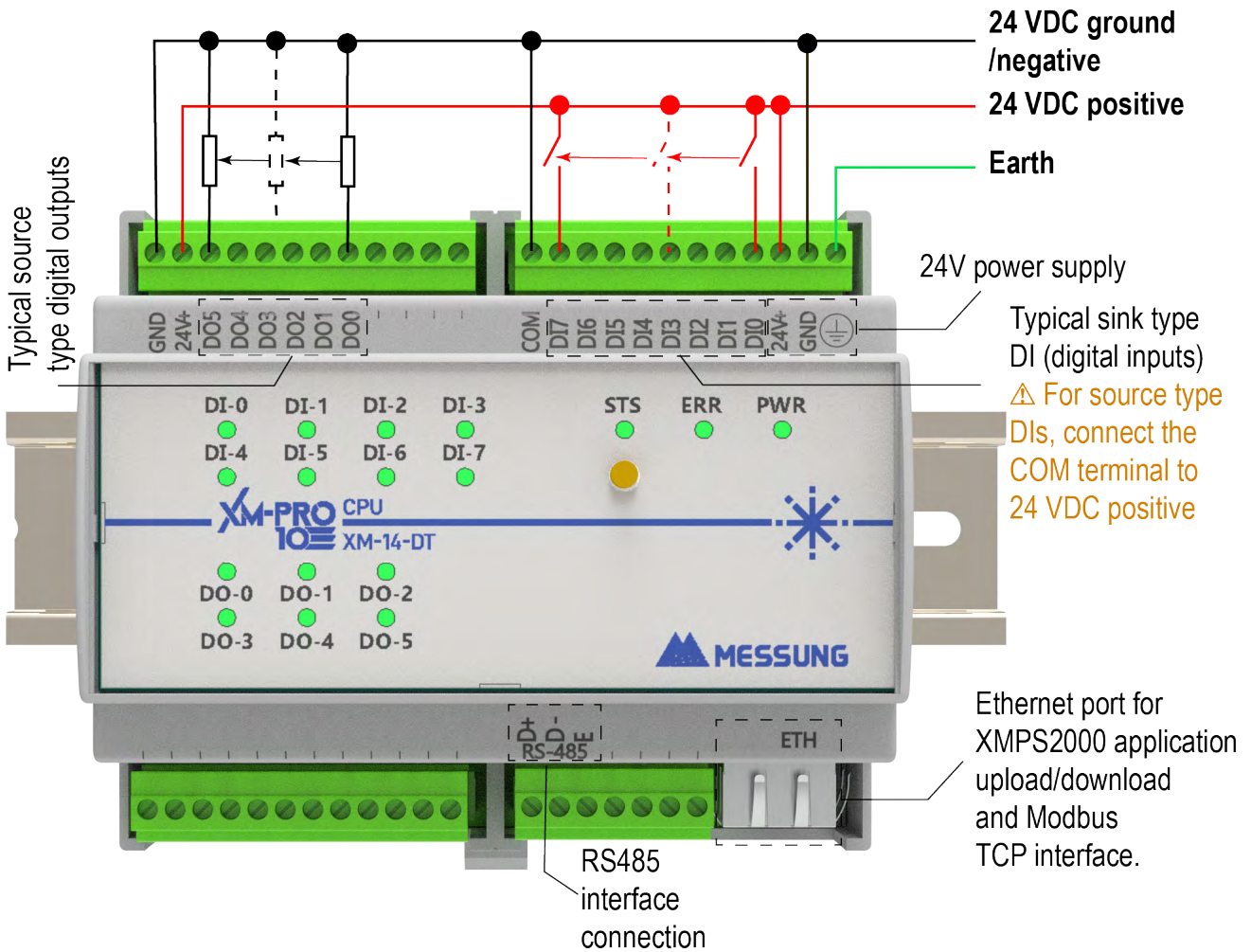
| Button operation                | Action                                |
|---------------------------------|---------------------------------------|
| Press the button for 5 seconds  | Switch to Run/Stop mode               |
| Press the button for 20 seconds | Switch to Bootloader/application mode |

### LED lamps

| Conditions                         | LED lamp behavior                               |
|------------------------------------|---|
| <b>Green PWR LED lamp (Power)</b>  | Lit continuously whenever the PLC has DC power. |
| <b>Green STS LED lamp (Status)</b> |   |
| PLC after power switches on        | Blinks fast for 2-3 seconds.                    |
| Start mode                         | Lit continuously.                               |
| Stop mode                          | Off continuously.                               |

| Conditions                        | LED lamp behavior                                    |
|-----------------------------------|--|
| Bootloader mode                   | Toggles continuously with delay of 200 milliseconds. |
| <b>Green ERR LED lamp (Error)</b> |  |
| Expansion error                   | Blinks < 20 times.                                   |

**Wiring diagram**



**Figure 4. Typical wiring diagram of XM-14-DT PLC**

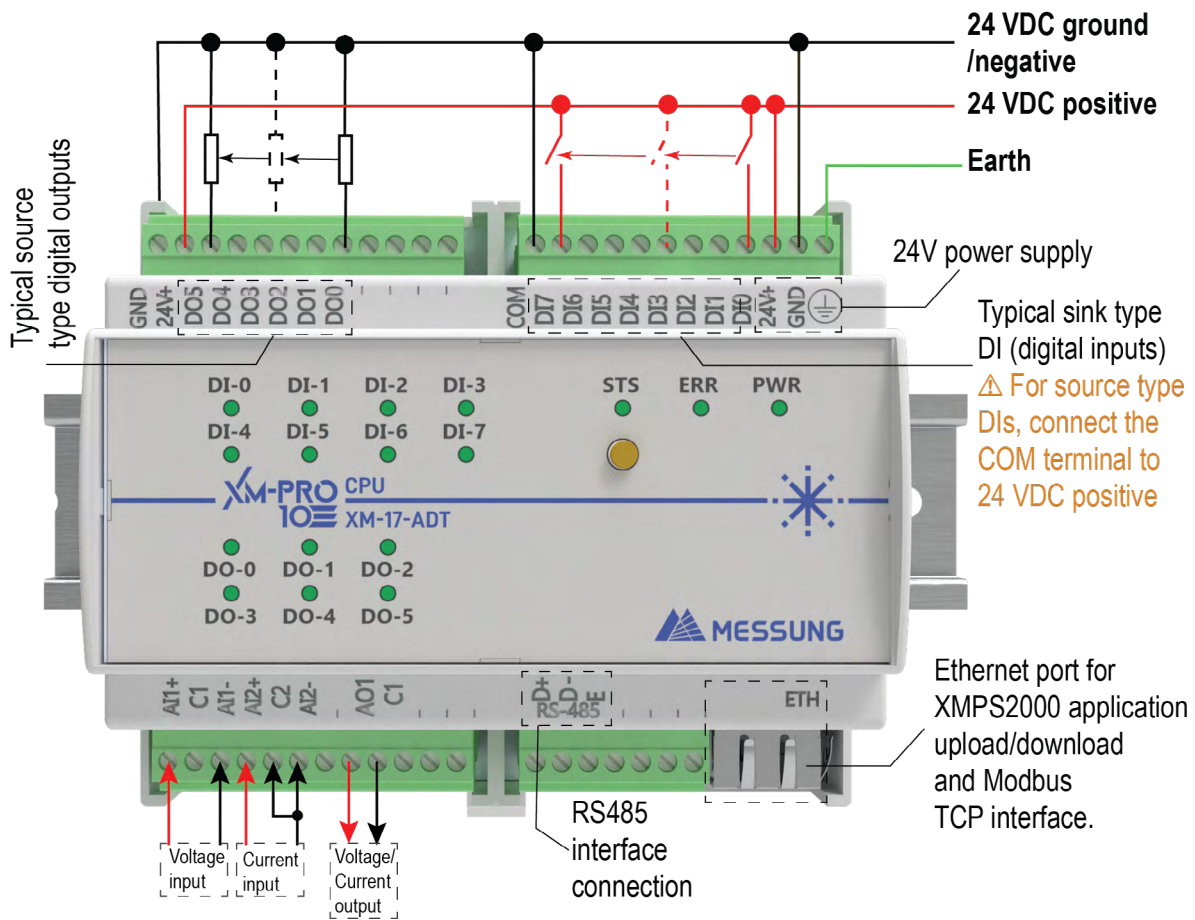


Figure 5. Typical wiring diagram of XM-17-ADT PLC

### Connecting the modules

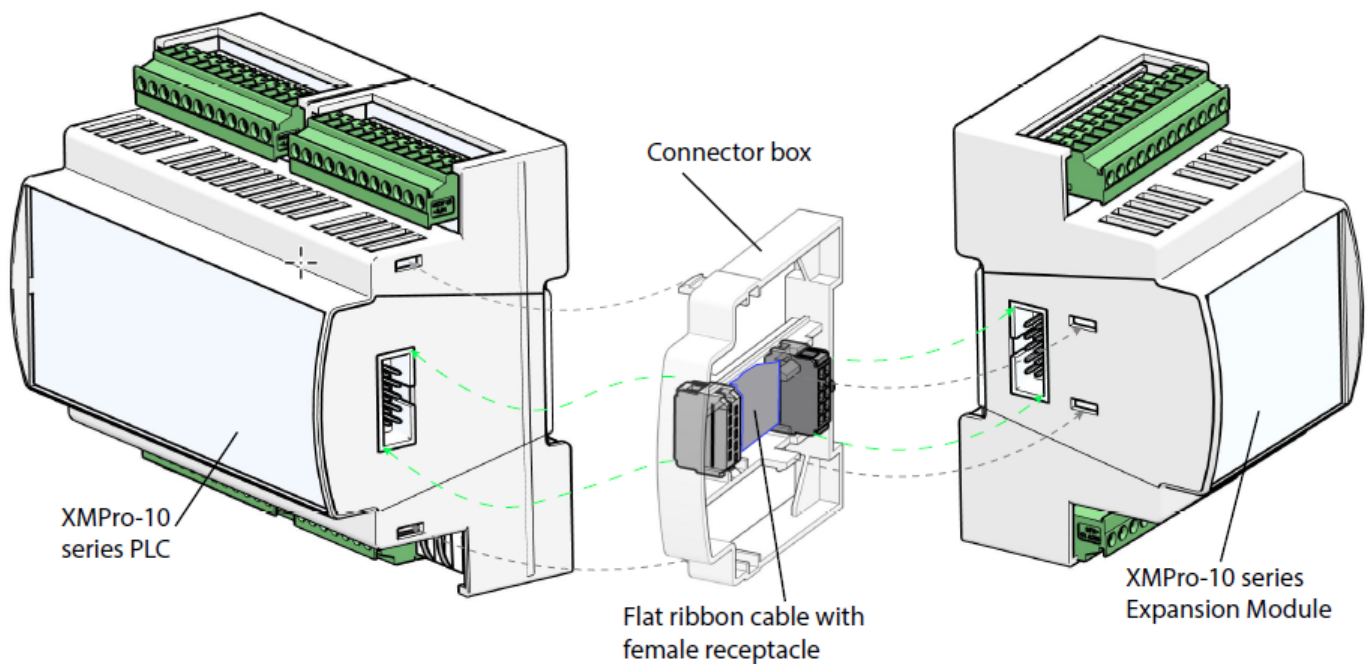
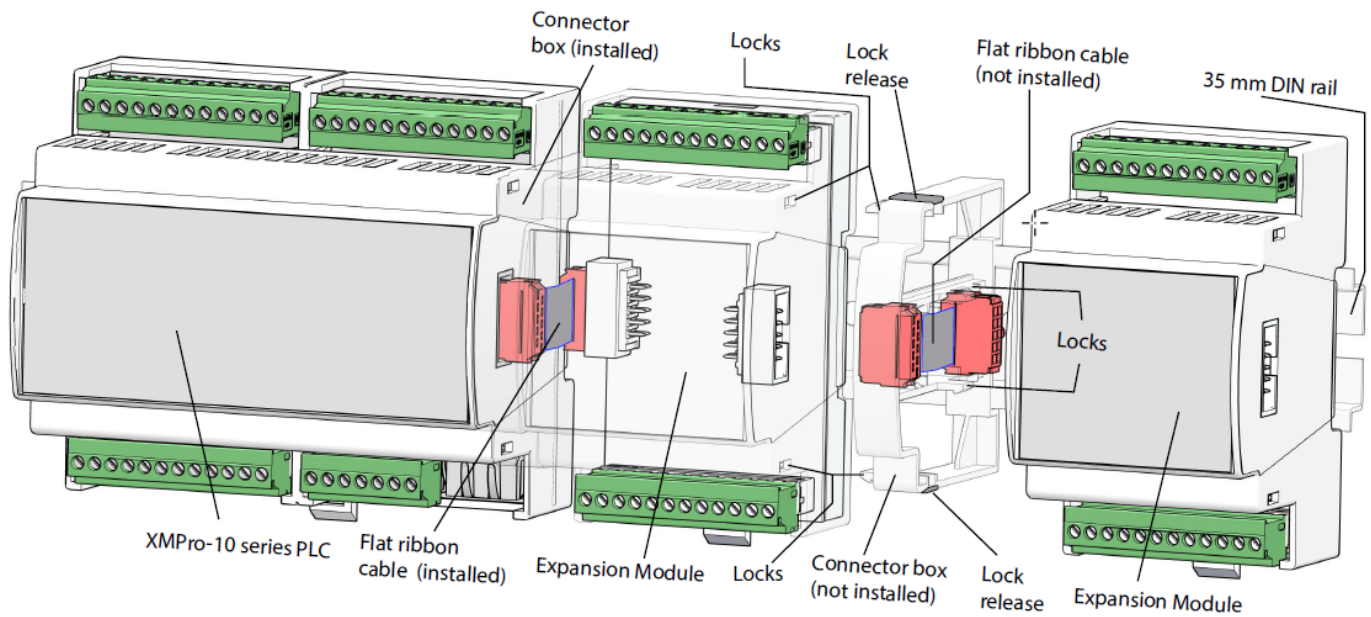


Figure 6. Connecting the modules 1/2

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**Figure 7. Connecting the modules 2/2**

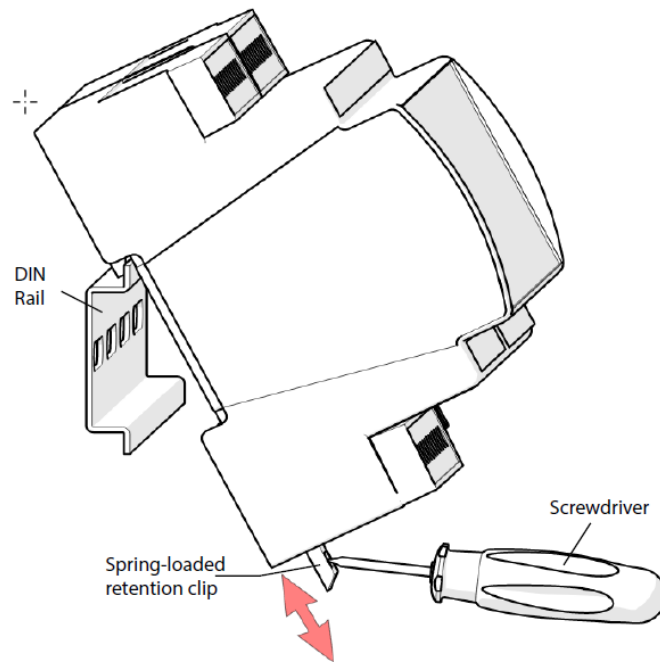
1. Fit the Expansion module on the 35 mm DIN rail to the right of the XMPro-10 PLC.
2. Install a Connector Box between the PLC and Expansion modules. This box encloses a Flat Ribbon Cable (FRC) for the electrical connections.
3. Insert the female receptacle on the FRC in the male header on the PLC module and the Expansion module after mating the slots in the two connectors.
4. Fit the Connector box on the DIN rail between the PLC or the Expansion module. Slide the locks on the Connector box into matching slots on the PLC or the Expansion module.
5. Add more Expansion modules to the right of 1st Expansion module. Follow steps 2 through 4.
6. When required, unlock the Connector box from the PLC or Expansion module by simultaneously pressing the Lock Release surfaces on top and bottom of the unit. Unplug the FRC cable to separate the connections between PLC and the Expansion module.

### Fitting and removal

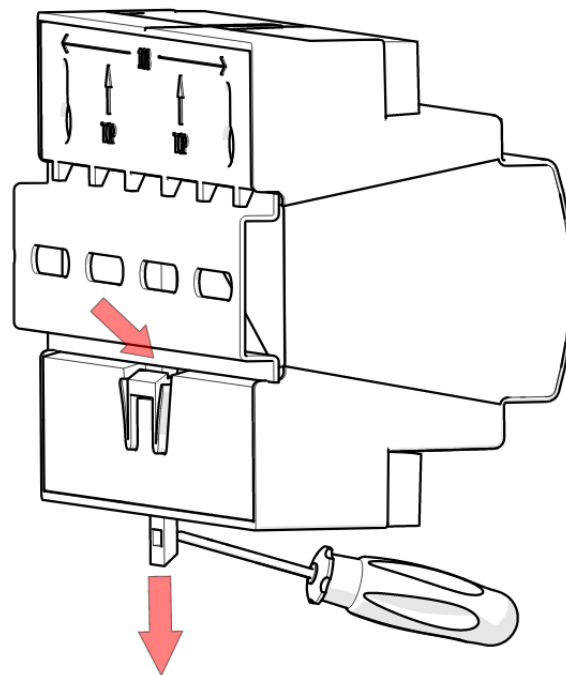
**⚠** XmPro 10 series units fit on a 35 mm DIN rail channel.

1. Engage the slot at rear of XmPro 10 series unit with the upper edge of DIN rail.
2. Pull down the spring-loaded retention clip using a flat-blade screwdriver.
3. Push the unit onto the DIN rail.
4. Release the retention clip to lock the XmPro 10 series unit on the DIN rail.
5. Reverse the procedure for removing the XmPro 10 series unit from the DIN rail.

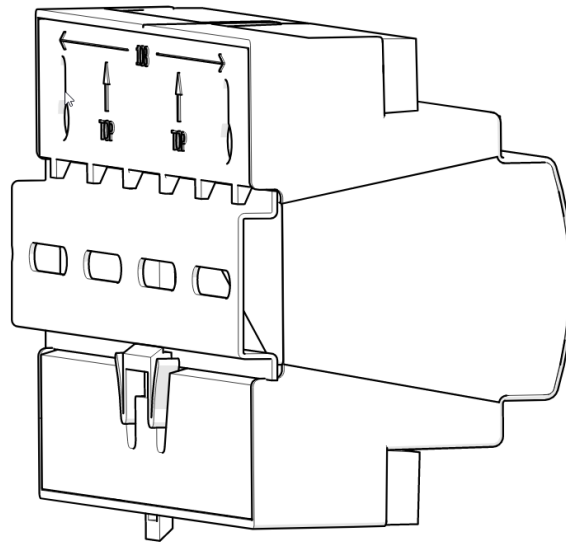




**Figure 8. Pull the retention clip and locate housing on DIN rail**








**Figure 9. Keep the retention clip pulled, fit the housing on the DIN rail**



**Figure 10. Release retention clip and the housing will lock onto the DIN rail**

### **Safety instructions**

-  Do install the unit only by qualified professionals, following all applicable laws and regulations.
  -  Do not connect mains supply or any other external voltage to any terminal of the XmPro10 series unit.
  -  Do ensure that the panel or box with the device is locked to prevent unauthorized access.
  -  Do protect all electrical loads against overloads and short-circuits.
  -  Do ensure adequate ventilation and protection from dripping water.
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