auma®
Solutions for a world in motion

Multi-turn actuators
TIGRON
TR-M30X – TR-M1000X
Profibus DP

Use short instructions in combination with operation instructions only!

These short instructions are only complete with the respective operation instructions of the actuator. Safety and warning instructions contained in the actuator operation instructions must be heeded when performing work on the actuator!

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1. Basic information on fieldbus connection

Electrical connection

The electrical connection of the actuator must be opened to be able to connect the fieldbus cables.

Refer to Operation instructions “Multi-turn actuators TIGRON TR-M30X – TR-M1000X” (Y009.100), “Electrical connection” chapter.

The “Electrical connection” chapter of the operation instructions fully applies to the connection of the fieldbus cables. It is imperative to heed the safety and warning instructions of this chapter in particular.

Fieldbus cable

Table 1:

Cable recommendation Only cables complying with IEC 61158 or IEC 61784, cable type A, may be used for Profibus DP wiring.	
Impedance	135 to 165 Ohm, at a measurement frequency between 3 and 20 MHz
Cable capacity	< 30 pF per metre
Wire diameter	> 0.64 mm
Cross section	> 0.34 mm², corresponds to AWG 22
Loop resistance	< 110 Ohm per km
Screening	CU shielding braid or shielding braid and shielding foil

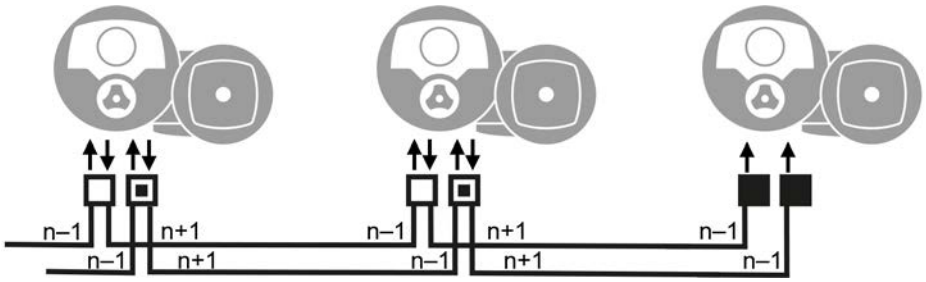
Prior to installation, please note:

- Connect maximum 32 devices to one segment.
- If more devices are to be connected:
  - Allot devices to different segments.
  - Connect segments using repeaters.
- Install fieldbus cables at a distance of minimum 20 cm to other cables.
- If possible, fieldbus cables should be laid in a separate, conductive, and earthed cable tray.
- Ensure absence of equipotential earth bonding differences between the individual devices at fieldbus (perform an equipotential earth bonding).

Baud rate [kbit/s]	≥ 93.75	187.5	500	1,500
Maximum segment length [m]	1,200	1,000	400	200

2. Fieldbus connection for line topology

Figure 1: Line topology



□ Channel 1: Further fieldbus devices follow

▣ Channel 2 (redundancy only): further fieldbus devices follow

■ Last fieldbus device

n–1 Fieldbus cable from previous device (input)

n+1 Fieldbus cable to next device (output)

Connection at terminal carrier

For flexible cables, the fieldbus connection can be made via spring clamp terminals directly at the terminal carrier. For solid cables (single or multiple strands), additional support terminals must be used. ➪ page 5, Connection with support terminals

Information For two flexible wires per terminal, a joint wire end sleeve must be used (twin wire end sleeve).

Figure 2: Terminal assignment at terminal carrier: Channel 1 (1A/1B)

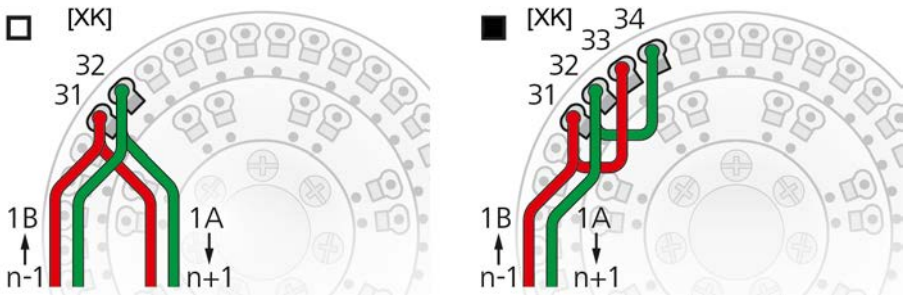
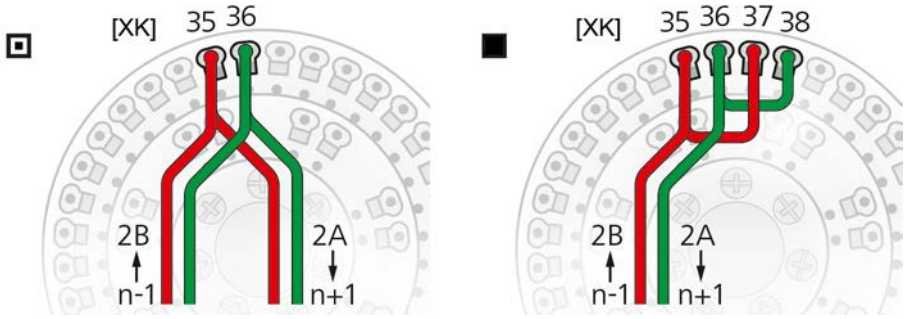


Figure 3: Terminal assignment at terminal carrier: Channel 2 (2A/2B)



[XK] Terminal assignment according to wiring diagram (customer connection):

□ ▣ Channel 1 □ or channel 2 ▣ if further fieldbus devices follow

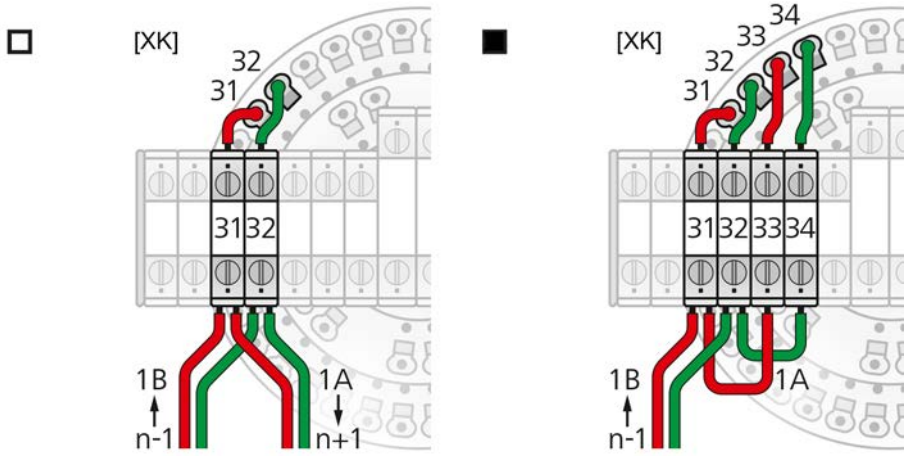
■ If the actuator is the last fieldbus device:
Channel 1: Link terminals 31/33 and 32/34
Channel 2: Link terminals 35/37 and 36/38

Information Always link A connections to green wire and B connections to red wire.

Connection with support terminals

When using solid cables (single or multiple strands), additional support terminals must be used. The support terminals (terminal blocks) are mounted above the terminal carrier.

Figure 4: Terminal assignment of support terminals: Channel 1 (1A/1B)

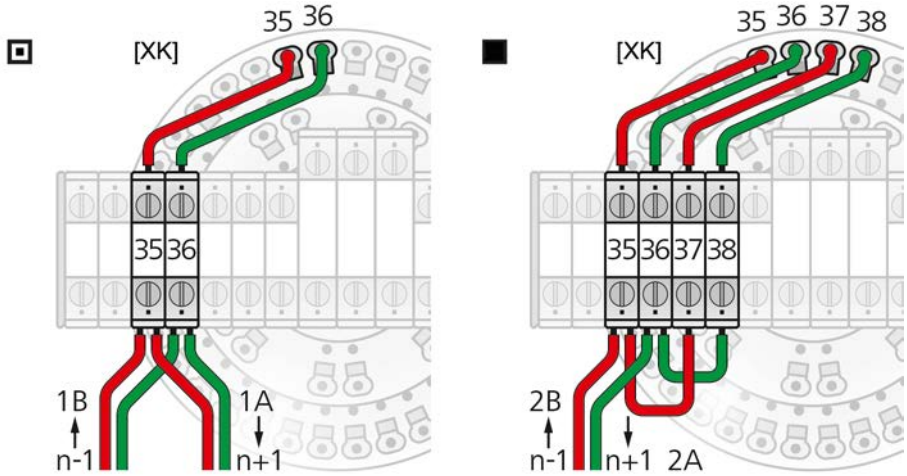


[XK] Terminal assignment according to wiring diagram (customer connection):

□ Terminals 31 and 32 if another fieldbus device follows

■ Terminals 31 – 34 if the actuator is the last fieldbus device

Figure 5: Terminal assignment of support terminals: Channel 2 (2A/2B)



[XK] Terminal assignment according to wiring diagram (customer connection):

▣ Terminals 35 and 36 if another fieldbus device follows

■ Terminals 35 – 38 if the actuator is the last fieldbus device

Information Always link A connections to green wire and B connections to red wire.

3. Set fieldbus (slave address) via device menu

Information

Local actuator settings are made using the Combi-Switch.

- Operate the yellow shuttle dial of the Combi-Switch to scroll within the menu ▲▼.
- Operate the black selector switch (outer ring), either to confirm the selected menu ↵ or to go one step back (ESC).

For further information on menu operation using the Combi-Switch, refer to the actuator operation instructions.

How to proceed

1. Open device menu.

   Information: If the ID of the indicated page starts with M, PRM, ..., you have already entered the device menu.

2. Select menu M0098 or M0295:

   Customer settings M0041
   Profibus DP M0016
   DP1 slave address M0098
   DP2 slave address M0295

   Information: DP2 slave address M0295 menu will only be available for Redundancy (option).

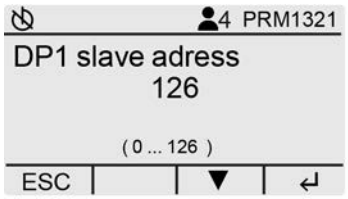
➥ The display shows parameter PRM1321 or PRM1322.

Figure 6: For user levels 👤 1–3 (read parameters only):

Information

Use ↵ (Enter) to change from user levels 👤 1–3 to a higher user level.

Figure 7: For user levels 👤 4–6 (settings can be changed):



Change settings

3. Select new value via ▲▼. (At least user level 👤 4 required.)

   Information: The adjustable address range is shown in round brackets.

4. Save new value via ↵ (Enter).

➥ The display shortly indicates Value saved!. The fieldbus address setting for the selected channel is now complete.

5. Press ESC (Escape) to be able to set further parameters.

4. Profibus parameter overview in device menu

Device menu parameters can also be set via the **AUMA CDT** software. For information on AUMA CDT, refer to the operation instructions and our website at www.auma.com.

For further information on these parameters and all other settings, refer to the Manual (Operation and setting).

Table 2: Profibus parameters

Menu	Setting values	Menu	Setting values
Customer settings M0041		Device configuration M0053	
Profibus DP M0016		Profibus M0600	
DP1 slave address M0098		Redundancy M0601	
0 ... 26, default value = 26		None (default value)	
Bus termin. ch 2 M2240		DP-V2 (SR)	
Function not active (default value)		DP-V2 (FR)	
Function active		AUMA redundancy I	
DP2 slave address M0295		AUMA redundancy II	
0 ... 26, default value = 26		Behaviour Tx M0609	
Bus termin. ch 1 M2239		Tx active channel (default value)	
Function not active (default value)		Tx both channels	
Function active		Connection type M1640	
Self.ret. fieldbus M2894		AUMATIC .2 (default value)	
Off (push-to-run op.) (default value)		AUMATIC .1	
OPEN		AM/VM 0...1000 ‰	
CLOSE		AM/VM 0...100 %	
OPEN and CLOSE		AUMATIC .1 - 01	
OPEN & CL w/o STOP			
Fieldbus comm. eval. M2895			
Level controlled (default value)			
Edge controlled			

Information DP2 slave address M0295 menu will only be available for Redundancy I (option). Parameter Redundancy M0601 = AUMA redundancy I

Information Bus termin. ch 2 M2240 menu will only be available if parameter Redundancy M0601 has been set to value AUMA redundancy I or AUMA redundancy II.

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