TT200403 – OPEN - Installation and Wiring

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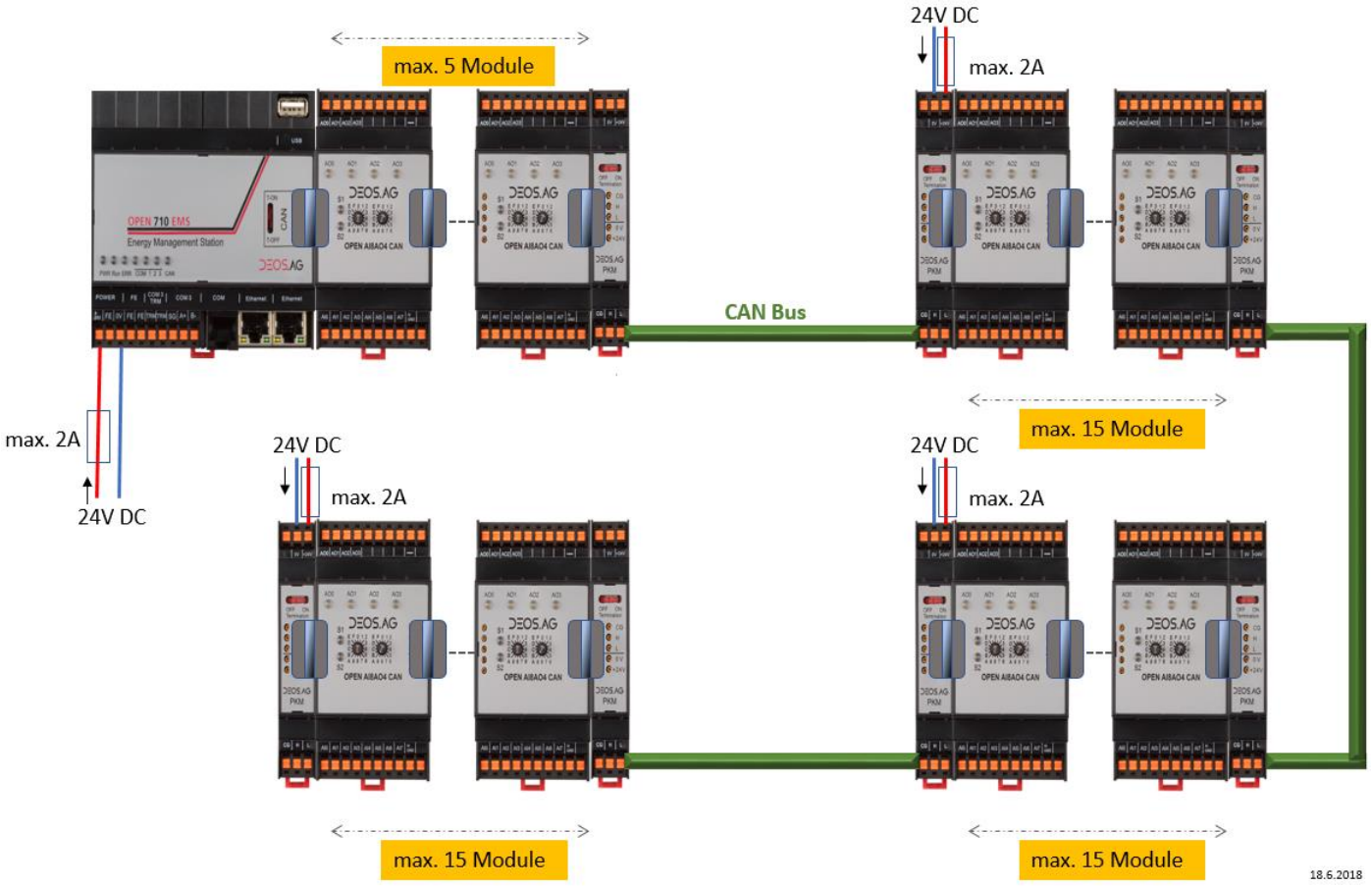
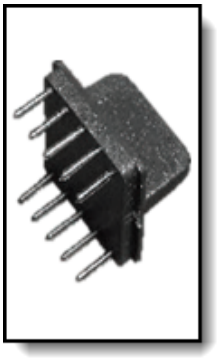
Title	OPEN - Installation and Wiring (TT200403)
Object	OPEN
Reference version	NA
Date	04.2020
Author	EK
Goal	To explain the correct installation and wiring of OPEN controller

Content:

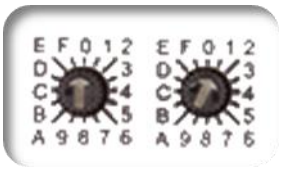


TT200403 – OPEN - Installation and Wiring

1. **Bridge Bus Connector**. With the BBS (bridge bus connector), different types of IO modules can be connected to each other quickly and easily



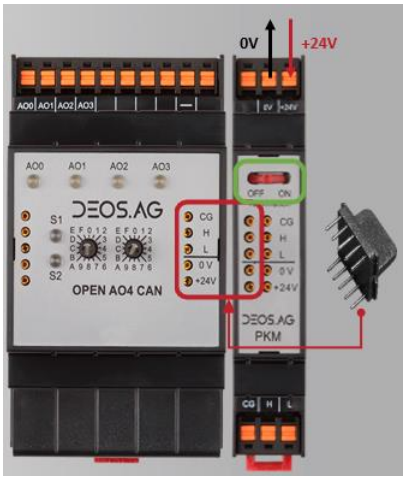
2. **CAN Module Addressing**. Each IO module requires a unique address, and the CAN address is set with two separate switches. Note: All modules are delivered with the address setting “00”!



3. Only addresses from 01 to 99 are possible, but it also depends on the controller (e.g. OPEN 600 I32 is from 01 to 05). The position 00 and the letters A-F are not used in normal operation (they are for service functions. e.g. display and change CAN-bus speed).

Address	S1	S2
1	0	1
2	0	2
...	...	...
97	9	7
98	9	8
99	9	9

4. **PKM Module**. Power supply & CAN-bus connection to IO modules, with a selector for the 120 Ω CAN bus termination resistor



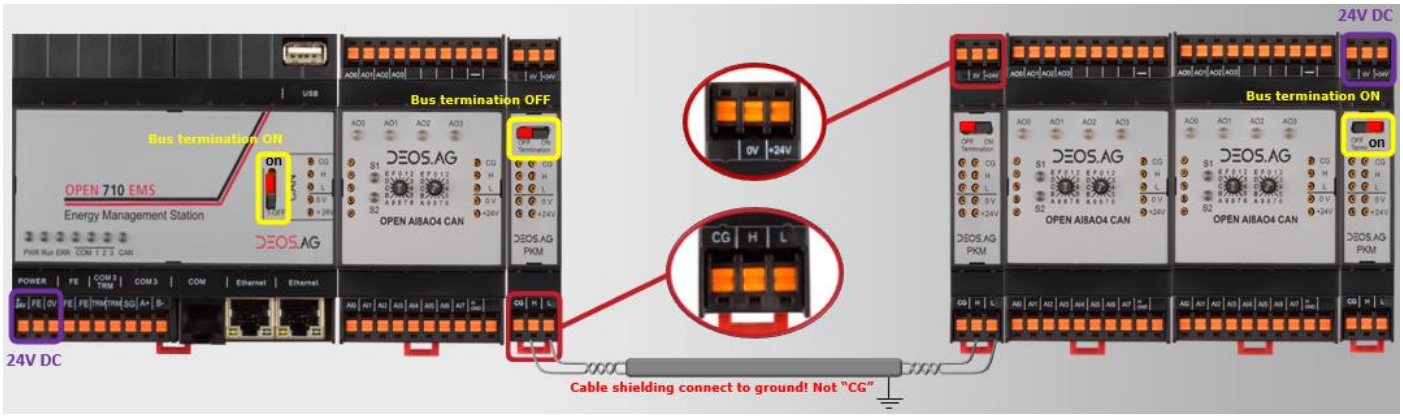
5. **Cabling**. A CAN-bus cable requires two twisted-pair wires (plus shield) for signal routing (CAN-high, CAN-low) and an optional wire for carrying the reference potential (CAN-ground). Requirements for CAN-bus cables are defined in ISO 11898, e.g. DS-BUS-C0,5, see below

CAN-bus cable	
Cross-section CAN-bus	1 x 2 x 0,5 mm²
Outer cable diameter	7,0 mm +/- 0,3
Operational capacity at 800 Hz	37 pF/m nom.

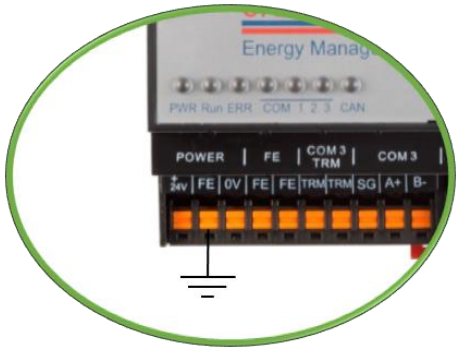
6. The required cable cross-sectional area increases with cable length, and the CAN-bus speed decrease respectively.

Length [m]	Cross-section [mm²]	Transmission rate [kbit/s]
25	0.34	50[1]
50	0.34	50[1]
100	0.34	50[1]
250	0.5	50[1]
500	0.5	50
1000	0.75	20
2000	1.0	10
5000	1.5	10

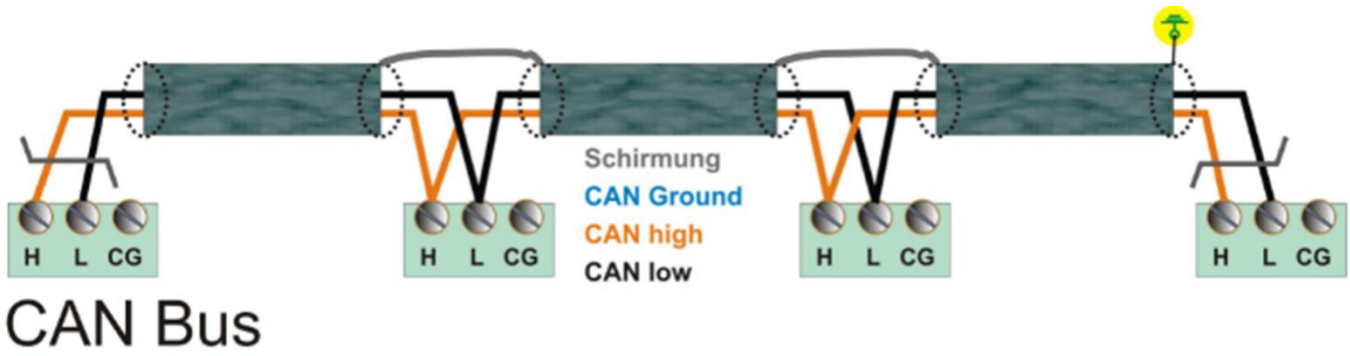
7. **Basic CAB-bus Connection**. Please note the following points
   - 24V DC infeed of a series from one side only!
   - Bus termination at both **ends** of the CAN-bus
   - Cable shielding must be grounded **on one side. DO NOT** connect it to the “CG” terminal



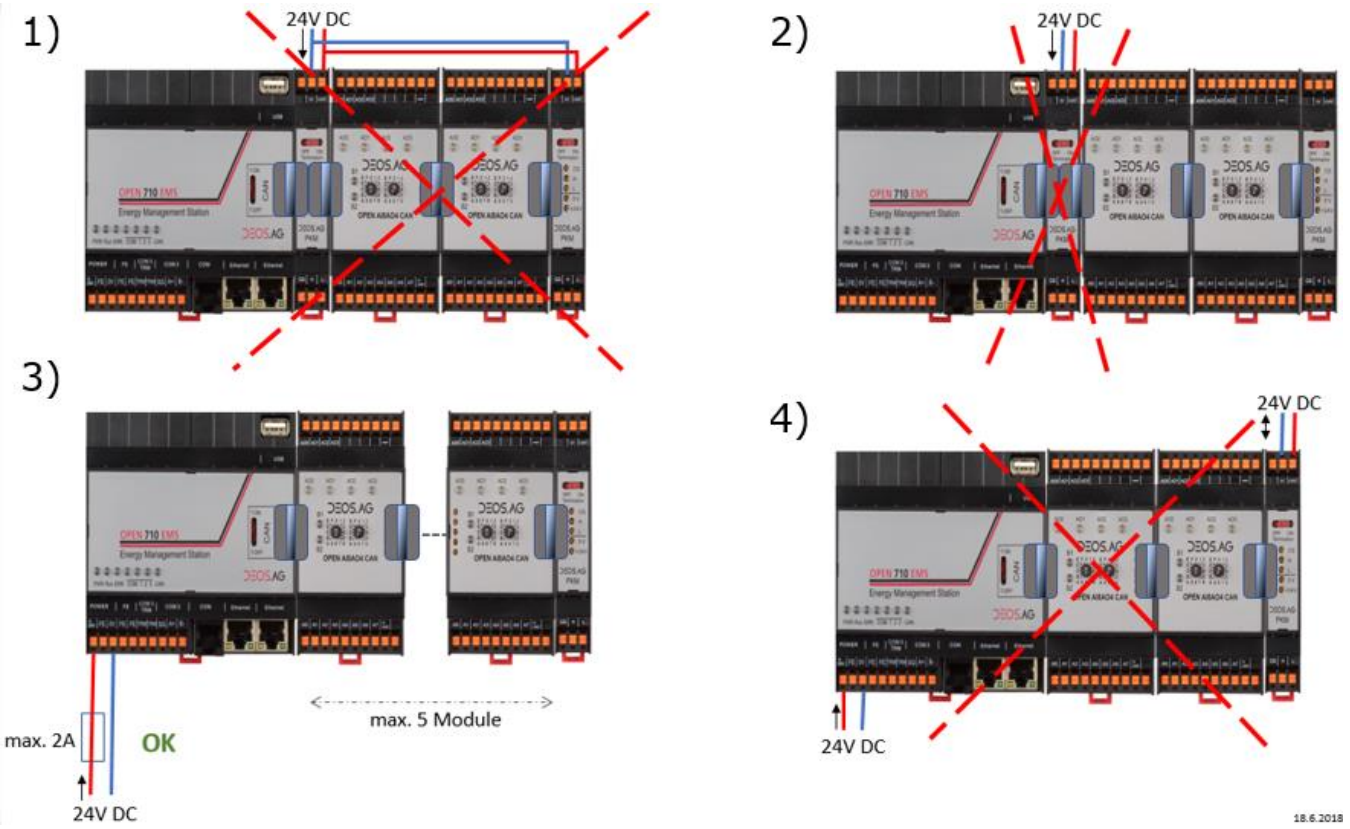
8. Please not that you must connect the “FE” terminal on the controller to the “earth”



9. This is the correct way to connect the CAN-bus cable. Please note that the shielding of all the CAN-bus cables are link together and connect to ground at a single point.

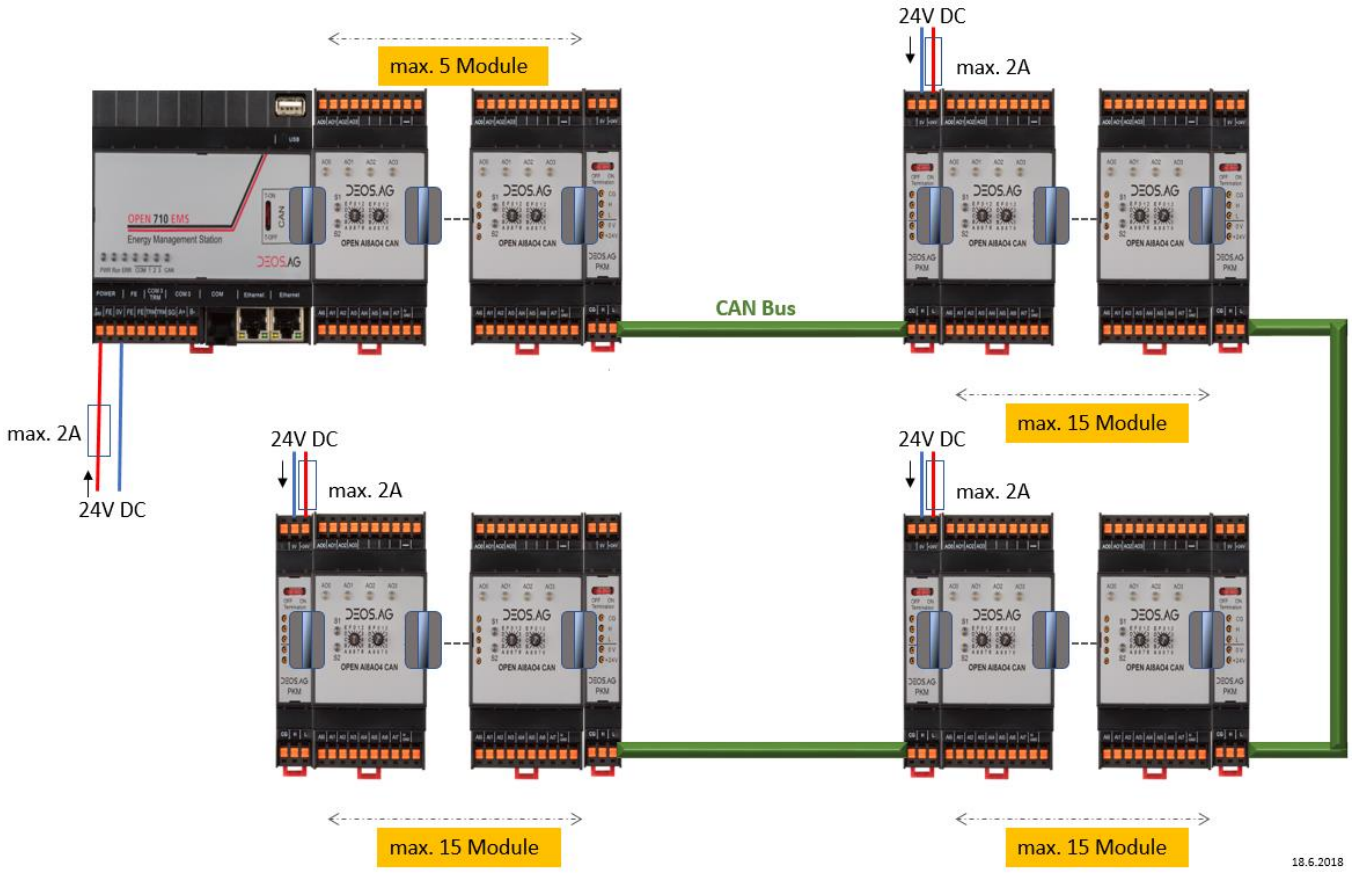


10. Here are some examples for your reference
    1. **Wrong**! 24V DC should not connect to both PKM, it should connect to OPEN 810 only
    2. **Wrong**! The PKM in the middle is not required. 24V DC should connect to OPEN 810
    3. **Correct**! 24V DC connect to OPEN 810 only. No PKM between OPEN 810 and modules
    4. **Wrong**! 24V DC should not connect to the PKM at the end



11. **Recommendation**! The 24V DC for the controller and module should be fused with max. 2A

12. Finally, below is the correct installation and wiring method for OPEN controller. Please note the following
    1. Max. of 5 modules if connect to the OPEN controller directly
    2. Max. of 15 modules if connect using the PKM module



13. For installation and wiring of the inputs and outputs of the IO modules, please refer to the corresponding datasheet.