MULTI-LINE 2

Option X
Additional display and operator panel

- Description of option
- Functional description

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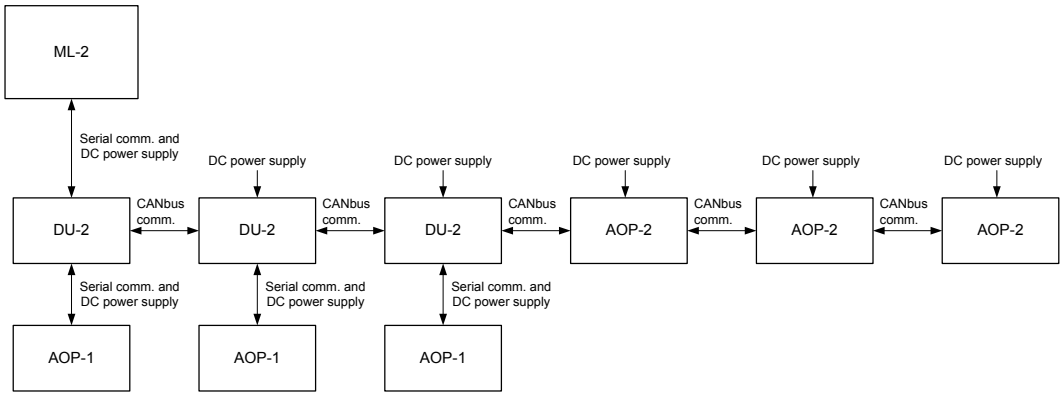
4. Function description

4.1 Additional displays and operator panels

Below is a principle diagram of the connection of the additional displays and operator panels.



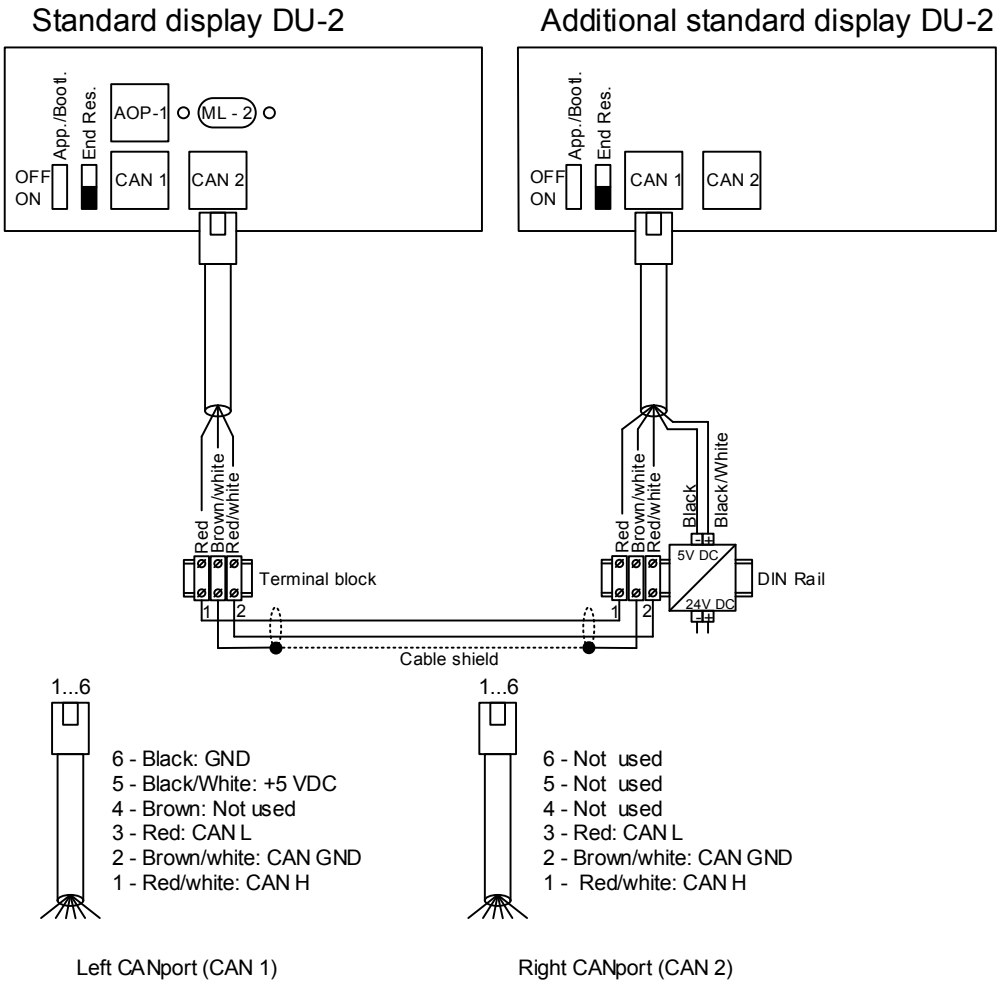
INFO
Only three AOP-2 units are shown in the diagram, but up to five units are supported.

Only one DU-2 has to be connected to the ML-2 unit. The rest of the displays and AOP units are connected to each other with communication lines (serial or CAN bus) and get their information through the DU-2 unit connected to the ML-2 unit.

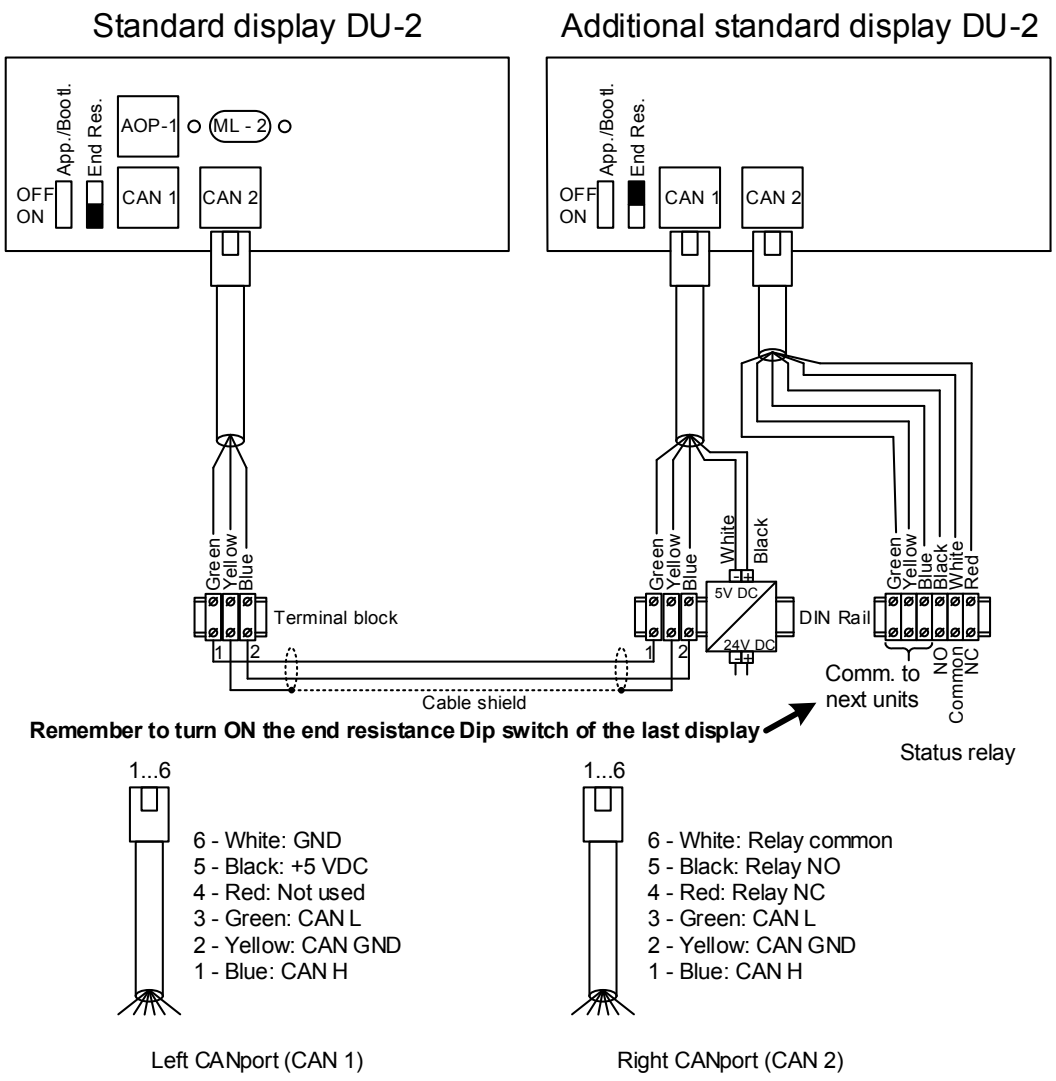
4.2 Display unit - DU-2

4.2.1 Wiring - cable type 1

INFO
Be aware that two cables can be chosen, and that there is a difference in the colour codes of the wires. The diagrams below show how to wire up both cable types.


Standard display DU-2
Additional standard display DU-2
App./Bootl.
End Res.
AOP-1
ML - 2
OFF
ON
CAN 1
CAN 2
Red
Brown/white
Red/white
Black
Black/White
Terminal block
5V DC
24V DC
DIN Rail
1
2
Cable shield
1...6
6 - Black: GND
5 - Black/White: +5 VDC
4 - Brown: Not used
3 - Red: CAN L
2 - Brown/white: CAN GND
1 - Red/white: CAN H
6 - Not used
5 - Not used
4 - Not used
3 - Red: CAN L
2 - Brown/white: CAN GND
1 - Red/white: CAN H
Left CANport (CAN 1)
Right CANport (CAN 2)

4.2.2 Wiring - cable type 2



INFO
It is recommended to keep a fair distance to power cables.

INFO
The maximum length of the CAN bus line is 200 m.

INFO
A DC/DC converter for the DC supply voltage and 2 x 1 m cable with an RJ45 plug in one end and stripped wires in the other end are included in the DU-2 delivery.

4.2.3 End resistor

2 units connected:	Dip switch no. 1 has to be set to ON on both units.
3 units connected:	Dip switch no. 1 has to be set to ON on unit 1 and unit 3.
More than 3 units connected:	Dip switch no. 1 has to be set to ON on the first and the last unit on the CAN bus line.

4.2.4 CAN ID configuration

The CAN ID on the DU-2 can be set from 0 to 3. If it is set to zero, the CAN bus communication is deactivated.

The CAN ID selection is done in the following way:

1. On the DU-2, press the left  , up  and right  buttons at the same time to activate a CAN ID selection menu.
2. Select the desired CAN ID with the up  and down  buttons and press ENTER.

The CAN ID of the DU-2 has now been selected.

INFO
The DU-2 which is connected to the ML-2 unit has to have CAN ID no. 1.

INFO
If the CAN bus communication to other DU-2 or AOP-2 units are not used, the CAN ID should be set to zero.

4.2.5 Protocol selection

The DU-2 contains three protocols for the data transmission between the ML-2 unit and the display. Normally the protocol is set automatically, however if the display is used with older ML-2 units, it is necessary to choose the protocol which supports these according to the following table.

Protocol	Supports	Comment
1	Std. ML-2 with software version 1.xx.x and 2.xx.x	
2	AGC units with software version 1.xx.x and 2.xx.x PPM units with software version 2.xx.x	
3	AGC-4 Mk II controllers AGC units with software version 3.xx.x and 4.xx.x GPC/GPU/PPU units with software version 3.xx.x PPM units with software version 3.xx.x	

Change of protocol is done like this:

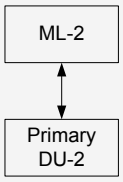
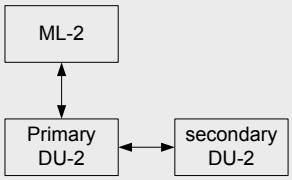
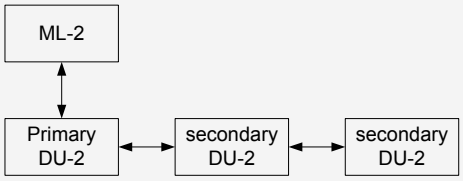
1. On the DU-2, press the left  , ENTER and right  buttons at the same time to activate a protocol selection menu.
2. Select the desired protocol with the up  and down  buttons and press ENTER.

4.2.6 Access from primary and secondary DU-2

The below table describes what can be done from the displays. "Read" means that it is only possible to supervise, for example, parameter settings. "Write" means that it is possible to make changes in, for example, parameter settings.

The drawings in the table show examples of different set-ups. The selection of primary and secondary display is independent of wiring and CAN bus IDs. In this way, any given DU-2 in a set-up can be primary or secondary display.

The table also describes the settings of the CAN bus IDs for the displays.

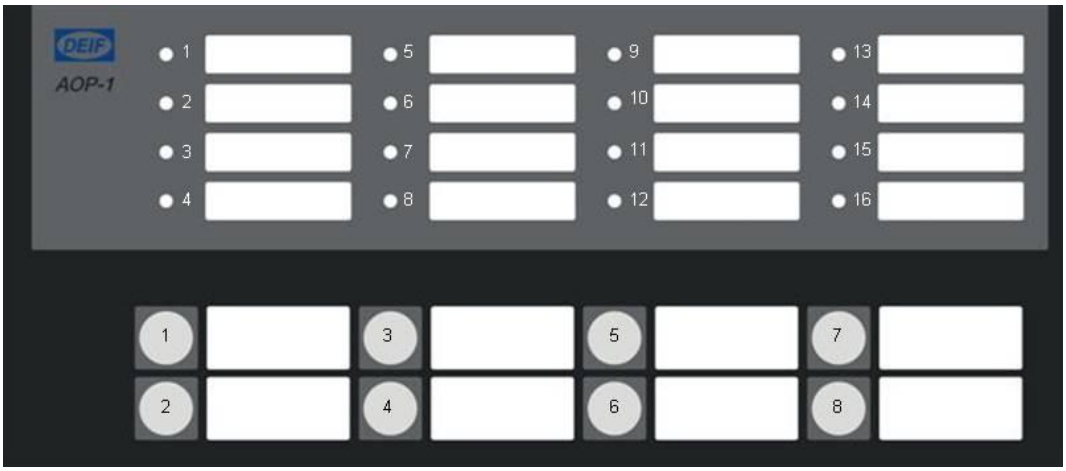
Set-up variants	Functionality of the primary DU-2	Functionality of the secondary DU-2	CAN bus ID of DU-2 connected to ML-2	CAN bus ID of secondary DU-2
	Read/write	-	0	-
	Read/write	Read	1	2
	Read/write	Read	1	2, 3

INFO
Pressing the "View" button for three seconds and entering the customer password on any secondary display will turn this DU-2 into the primary display and enable reading/writing from this display. There can only be one primary display in a set-up, so when turning a secondary display into primary, the former primary will automatically be switched to a secondary display.

INFO
For information on passwords, see the Designer's reference handbook.

4.3 Additional operator panel - AOP-1

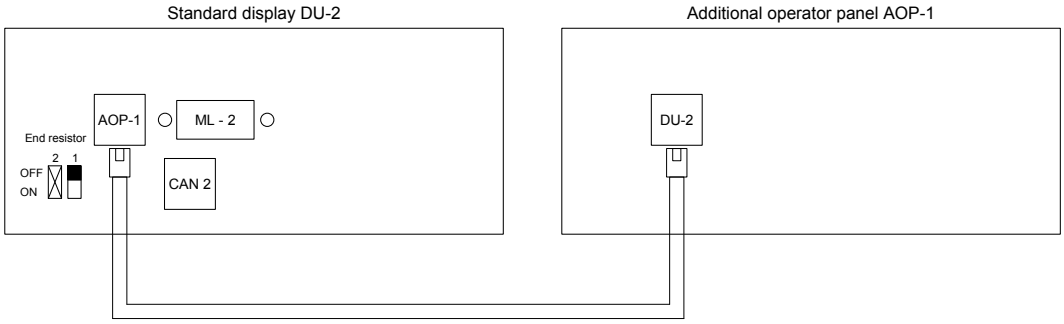
4.3.1 Front side view



As shown on the drawing, the configurable LEDs are named 1 to 16, and the buttons are named 1 to 8.

4.3.2 Wiring

The AOP-1 is connected to the connection on the DU-2 named AOP-1 by means of the enclosed cable. This connection handles the communication and power supply.



INFO
The maximum distance between the DU-2 and the AOP-1 is 0.5 m.

INFO
The cable for connection between the AOP-1 and DU-2 is included in the AOP-1 delivery.

4.3.3 CAN ID configuration

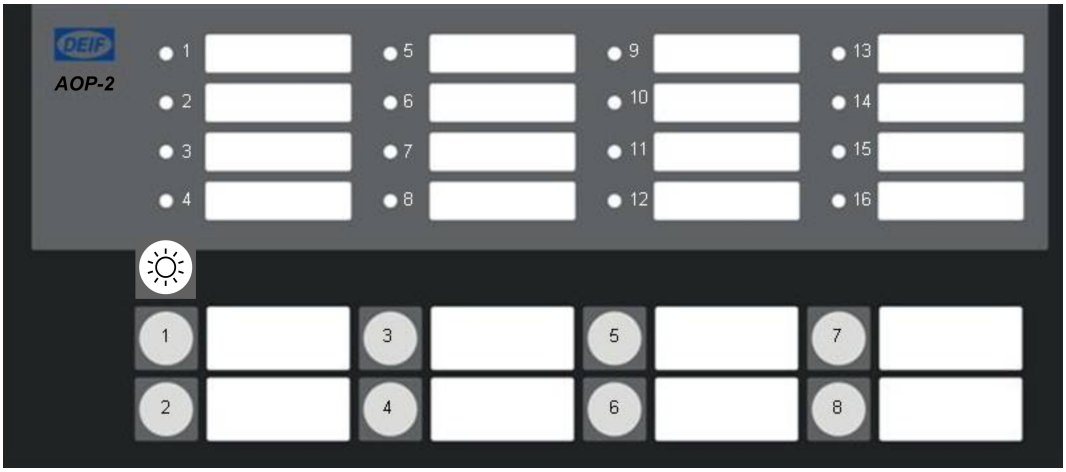
The ID of the AOP-1 is decided by the DU-2 unit to which it is connected.

4.3.4 Programming

The programming of the AOP-1 is made with the PC utility software, which can be downloaded from www.deif.com. See the Help function in the PC utility software for programming instructions.

4.4 Additional operator panel - AOP-2

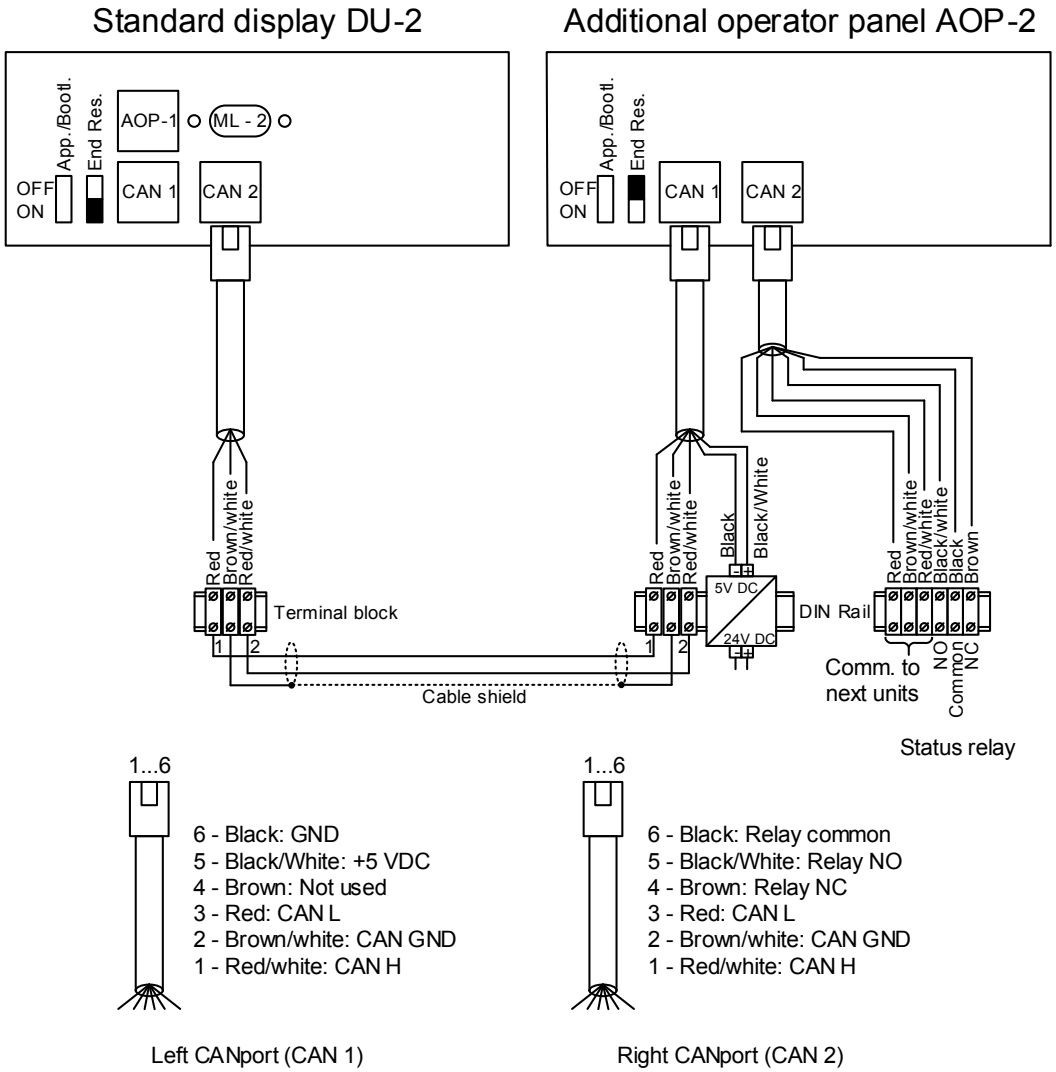
4.4.1 Front side view



As shown on the drawing, the configurable LEDs are named 1 to 16, and the buttons are named 1 to 8.

4.4.2 Wiring - cable type 1

INFO
Be aware that two cables can be chosen, and that there is a difference in the colour codes of the wires. The diagrams below show how to wire up both cable types.



Left CANport (CAN 1)

Right CANport (CAN 2)