

M-Bus separation board (FCR2)

The M-Bus separation board is used to galvanic separate the M-Bus loop from the calculator. The board can be used in F3 and F4 calculators.

[Data sheet/Manual](#)

Function

The M-Bus separation board galvanic separates the calculator from the M-Bus loop. Galvanic separation is recommended to minimize communication disturbance and zero sequence current, this to achieve better communication quality. The board will use the calculator's communication addressing and baud rate.

This board does not offer a secondary M-Bus output. When a second M-Bus output is required, use additional M-Bus board FCMB.

There are two different types of the M-Bus separation board:

FCR2-B, for battery supplied calculators

If the battery life expectancy shall be valid, as a maximum one reading per day on the M-Bus output is allowed.

This board can also be used in mains supplied calculators. The maximum reading frequency is once every 20 minutes. This board will continue to work when power fails in mains supplied calculators.

FCR2-M, for mains supplied calculators

This board shall be used in calculators which are read frequently using M-Bus. The board will only function in mains supplied calculators and will be disabled at power failure.

Extra capacitance losses

Slot	Capacitance	Equals to cable length in a M-Bus loop
A	-	-
B	10nF	50m
E	10nF	50m

Table 1, Capacitance losses depending on used card slot

Card slots

This board can be installed in card slot A, B or E.

Connection

The M-Bus loop shall be connected to the terminals marked with the same letter as the slot, e.g. if the board is installed in slot A the loop shall be connected to the terminals marked A. See fig. 1 below.

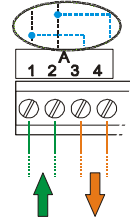


Fig. 1, Connection terminals for card slot A

Terminal number 1 and 3 respectively 2 and 4 are connected in parallel. This makes it possible to connect the incoming cable to terminal 1 and 2, and the outgoing cable to terminal 3 and 4.

Note: Do not use the ordinary M-Bus terminals when this board is installed.



Indication diodes

There are two diodes on the board:

1. LD2 indicates an active M-Bus loop
2. LD4 indicates communication

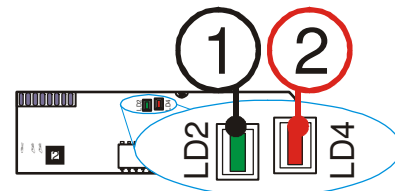


Fig. 2, Indication diodes

Installation

Important! Only one option board may be installed at the same time or else the installation will malfunction. Please follow this procedure:

1. Short circuit "Save data" to force the calculator to store all important data.
2. Turn of the power by removing the 4-wire connectors "K3" and "K2".
3. Install the option board with the component side turned towards the terminals, e.g. align the board (facade side) to the right side of the calculator box. Ensure that all the pins are connected.
4. Turn the power on by reconnecting the 4-pole connector "K3" (back-up battery) and then "K2" (RawV).

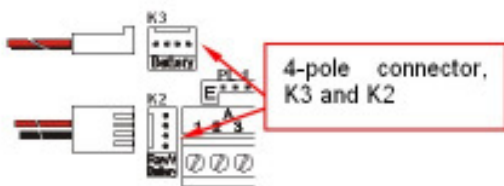


Fig. 3, 4-wire voltage connectors K3 and K4

Ordering

Product designation: **FCR2**
 Delivery options: **ABC**

Position	Value	Description
A	B	For battery supplied
A	M	For mains supplied
B	1	Board delivered separately
B	4	Board mounted inside F4
C	A	Standard

Table 2, Ordering key

Example: FCR2-M4A, M-Bus separation board for mains supplied calculator delivered installed in the calculator.

Ordering key

FCR2-	A	B	C
			A

Table 3, Ordering key template