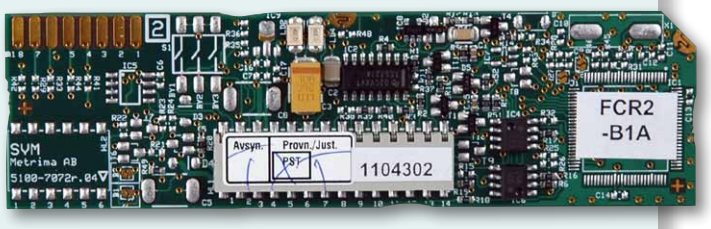
SVM M-Bus Isolation board (FCR2)

DATA SHEET

- **Galvanic isolation of the built-in M-Bus**
- **2 versions, for battery or mains supplied F4 calculator**
- **LEDs indicating M-Bus activity**
- **Easy to install**



M-Bus isolation board (FCR2)

Calculator F4 can be equipped with option boards for extended functionality.

The M-Bus isolation board, FCR2, provides the built-in M-Bus with a galvanic isolation from the rest of the calculator. This ensures a stable operation of the calculator since electrical currents between the M-Bus loop and other sections are eliminated.

The option board FC2N can be ordered for both mains or battery supplied calculators. The installation is very simple since the option board does not need to be installed in the meter memory. Also when the board is removed, no uninstallation from the meter memory is required.

When the calculator F4 is equipped with an FCR2 option board, the ordinary terminals labelled “M-BUS” may not be used. The M-Bus should instead be connected to the terminals corresponding to the card slot in use. For example, if the FCR2 option board is installed in slot A, the terminals labelled “A” shall be used.

The FCR2 option board is equipped with two LEDs, where the first one indicates whether there is an M-Bus connection, and the other indicates M-Bus activity.

The FCR2 option board offers galvanic isolation of the built-in M-Bus. If galvanic isolation of pulse inputs and outputs is required, the F4 may be equipped with an FCRC option board for this purpose. The option board for an additional M-Bus, FCMB, offers galvanic isolation of the additional M-Bus output.

Kamstrup

Tullgatan 5 · SE-371 39 Karlskrona · Tel: +46 455 33 19 00 · Fax: +46 455 33 19 01 · karlskrona@kamstrup.se · www.kamstrup.se

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Application

The M-Bus isolation board provides a galvanic isolation of the built-in M-Bus output from the F4 calculator. This eliminates the risk of electric currents that may occur when there is a difference in potential between sections in electrical systems, e.g. the M-Bus loop and the temperature sensors.

The FCR2 option board does not offer an additional M-Bus output. If an additional M-Bus output is required, use the option board FCMB.

Capacitive losses

The FCR2 option board causes increased capacitive losses in the M-Bus loop if the board is installed in card slot B or E, cf. Table 1.

Slot	Capacitance	Equivalent cable length in an M-Bus loop
A	-	-
B	10nF	50m
E	10nF	50m

Table 1, Capacitive losses depending on selected card slot

Card slots

The M-Bus isolation board should preferably be installed in card slot A. Card slot B or E may also be used, if additional capacitive losses can be accepted, cf. Table 1.

Delivery options

The M-Bus isolation board is delivered in two different versions:

FCR2-B. Option board for battery supplied F4 calculators. This version allows maximum one reading per day in order to preserve the battery. Only one FCR2 option board may be installed. This version may also be used in mains supplied calculators, allowing read-outs as often as every 20 minutes.

FCR2-M. Option board for mains supplied F4 calculators only. This version offers unlimited number of readings per day, and is equipped with a voltage regulator. This board will be disabled during power failure.

Connection to M-Bus

The M-Bus loop shall be connected to the terminals corresponding to the selected card slot. If the FCR2 option board is installed in slot A, the terminals labelled "A" shall be used, cf. Fig. 1. Terminals 1 and 3, and also 2 and 4 are connected in parallel, and thus the terminals can be used in pairs, e.g. 1 and 2 as input, and 3 and 4 as output.

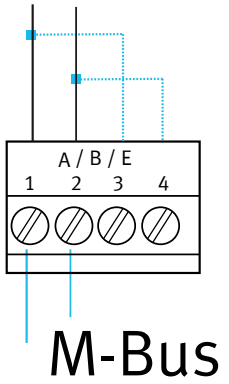

Fig. 1, Connection terminals for M-Bus

Note: Do not use the regular M-Bus terminals labelled "M-BUS" when an FCR2 option board is installed.

LED indicators

The FCR2 option board is equipped with two LEDs.

1. LD2 indicates whether the M-Bus is connected.
2. LD4 indicates any M-Bus communication.

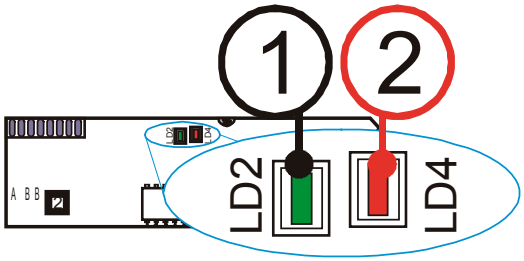

Fig. 2, LED indicators

Installation

NOTE: Cut the power from mains and battery before installation to avoid damaging the meter or the option board.

NOTE: Disconnect any flow sensor connected to the meter, see below for more information.

NOTE: Install only one card at a time.

Recommended installation procedure:

1. Save data by short circuiting the “Save data” circuit.
2. Disconnect the flow sensor by removing at least one of the flow sensor cables.
3. Cut the power by disconnecting the four-pole connectors K2 and K3, cf. Fig.3.
4. Install the option board into slot A, B or E. The component side shall be turned towards the terminals. Align the chambered end of the board with the right side of the calculator box. Ensure that all pins on the option board are properly connected.
5. Turn power on, reconnect the four-pole connectors.’K3’ (battery) first and then “K2” (RawV).
6. If another board is being installed, cf. the installation procedure for that specific board.
7. Reconnect the flow sensor.

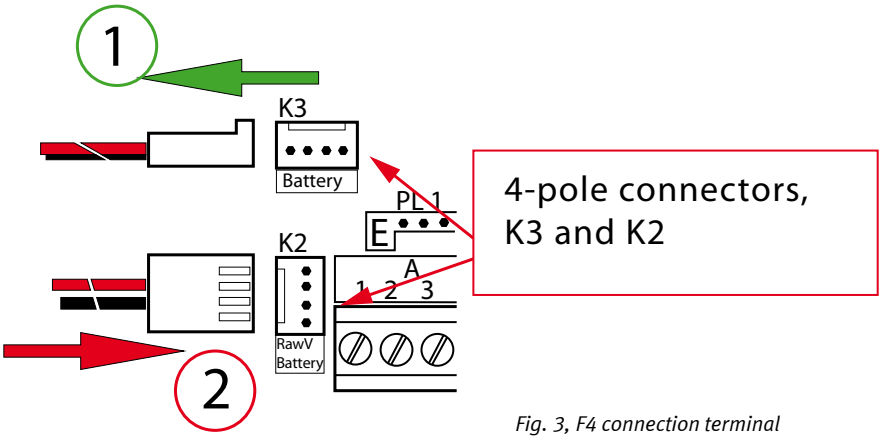

Fig. 3, F4 connection terminal

Ordering

The article number consists of the Product designation and Delivery options.

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

FCR2	A	B	C
F4 calculator	B		
F4 calculator	M		
Board delivered separately		1	
Board installed in F4		4	
Standard			A

Table 2, Delivery options

Example: M-Bus isolation board, for mains supplied F4 calculator, delivered separately, standard configuration.

Article number: FCR2-M1A

Article number key

FCR2-	A	B	C
			A

Table 3, Article number key