

Relay option board (FCRC)

With the relay option board the F3/F4 pulse inputs, outputs and alarm output can be galvanic separated from the calculator.

[Datablad/Manual](#)

Function

The relay is of the type solid state with an optical signal trigger. It also has a transient protection, and provides maximal galvanic isolation. The board can be equipped differently, with different degree of protection and partly different functionality:

1. Pulse inputs, outputs and alarm output
2. Pulse outputs only
3. Pulse inputs, outputs and one extra pulse output (energy)¹

Note: The galvanic isolated inputs/outputs require an external power source. The pulse inputs are S0 compatible and require an external 24VDC for each input. The inputs/outputs are not galvanic separated from each other, e.g. they share a common “-”.

¹ The extra energy pulse output is obtained from the alarm output terminals, D1 and D2, see fig. 2.

Pulse output 1

At each increment on the last significant digit on the energy register (sequence “10”) one pulse will be emitted, see the display label for unit and resolution.

Pulse output 2

At each increment on the last significant digit on the volume register (sequence “11”) one pulse will be emitted, see the display label for unit and resolution.

Pulse input 1 and 2

The pulses will be accumulated in counters. Pulse input 1 in counter 1 (sequence “13”), and pulse input 2 in counter 2 (sequence “14”).

Alarm output

Normally one 250ms pulse will be emitted each hour as long as the mains power is cut on mains powered calculators. However the alarm output might be differently set depending on the calculator settings, please consult the service manual for further information.

Technical data

Pulse length (contact closure)	Approx. 200 ms (Min. 150 ms)
Max voltage	48 V
Max current	0.1 A
Max power	10 W
Max contact resistance	35 Ω

Table 1, Technical data

Card Slot

The relay option board shall be installed in **slot D**.

Connection

The pulse inputs shall be connected to the terminals marked IN 1 and 2. Please note that both inputs share the same “-” terminal.

The pulse outputs shall be connected to the terminals marked OUT 1 and 2. Please note that both outputs share the same “-” terminal.

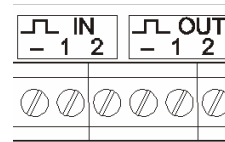


Fig. 1, Pulse in and pulse out connection terminals

The alarm output shall be connected to the terminals marked D1 (+) and D2 (-).

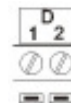


Fig. 2, Alarm out connection terminal

Installation

We recommend the following procedure to avoid damaging the calculator, see fig. 3 below.

1. Store data by short circuit “save data”.
2. Remove the power supply by removing the 4-wire cables “K2” and “K3”, see fig 3.
3. Install the board in Slot D.
4. Turn the power back on by connecting the 4-wire cables “K2” and “K3”, see fig 3.

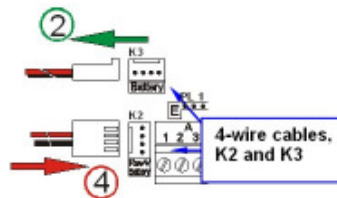


Fig. 3, Power connectors K2 and K3

Ordering

Ordering number: **FCRC- ABCD**

Position		Description
A	4	Standard for F3/4
B	1	Delivered separately
B	4	Mounted in calculator
C	D	Configured for slot D
D	1	Pulse in/out and alarm
D	2	Pulse out only
D	3	Pulse in/out and one extra pulse out

Table 2, Ordering key

Relay option board for F22 (FCRC)

The relay option board for F22 offers the same transient protection and galvanic isolation as the board for F3/F4.

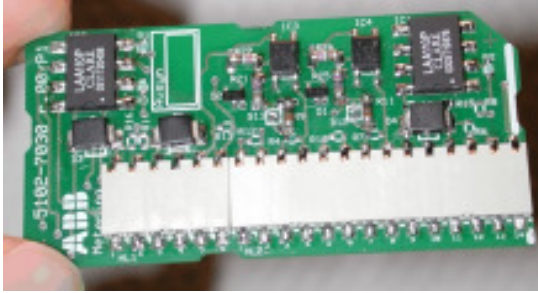


Fig. 4, F22 relay option board

Installation

The relay option board shall be installed in slot PL2.

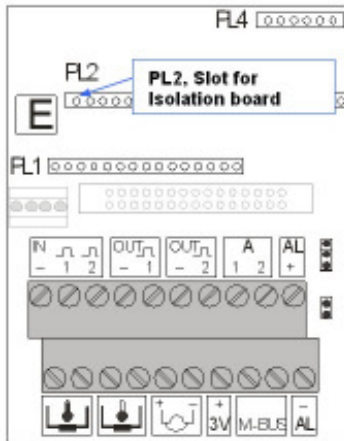


Fig. 5, F22 card slots

Ordering

Ordering number: **FCRC- ABCD**

Position		Description
A	2	Board for F22
B	1	Delivered separately
B	4	Mounted in calculator
C	D	Configured for PL2
D	1	Full, Pulse in/out and alarm

Table 3, Ordering key