

# Remote Control Panel for MCD 3000 Series Soft Starters

P/N FS-1148

## User Manual

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## REVISION NOTES

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## PREFACE

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## 1 INTRODUCTION

### 1.1 Important user information

The MCD 3000 Remote Control Panel allows remote control of the MCD 3000 series soft starters.



Observe all the necessary safety precautions when remotely controlling any MCD 3000 series device, including alerting personnel that the machinery may start without warning.

### 1.2 General

The MCD 3000 Remote Control Panels incorporate a serial communications facility that allows for the remote control and interrogation of the MCD 3000 in a way closely resembling the operation of the control panel on the MCD 3000 device.

With the Remote Control Panel, users can control the connected MCD 3000 device – start it, stop, reset trip conditions and read operational status, motor conditions or trip status.

The Remote Control Panels come in two variants – the basic model P/N FS1148, which constitutes a simple extension of the control panel and an advanced model P/N FS1149 that permits connection of the MCD 3000 device to a PROFIBUS, DeviceNet or MODBUS gateway/converter. **This manual applies to model FS1148 Only.**

### 1.3 The content of the manual

This manual describes how the Remote Control Panel operates and how to connect it to an MCD 3000 series soft starter.

When reading this manual, it may help to refer to the MCD 3000 Operating Instructions, Danfoss document no. AMB00000.

## 2 INSTALLING THE REMOTE CONTROL PANEL

### 2.1. Installation sequence.

To install a Remote Control Panel, you should follow these steps:

- a. mount the panel at the intended location,
- b. connect the panel to the source of DC power and to the relevant MCD 3000 device,
- c. configure the MCD 3000 device,
- d. configure the panel.

If you use the default setting of the MCD 3000 device (station address, baud rate), the step d. is not required and the installation procedure reduces to mechanical mounting, connecting and checking the setting of the MCD 3000 device.

### 2.2 Mounting the Remote Control Panel

Remote Control Panel is designed for mounting on a flat surface of a control cabinet or a control panel, with cable access from behind.

The Remote Control Panel unit is designed to meet IP65 protection requirements, providing it is installed in a way that preserves the protection, as described below.

The remote Control Panel is made of two parts connected using four M3 bolts. Neoprene gasket guarantees protection of inside of the panel.

As the first step in installing a panel, remove the four bolts and separate the two parts of the panel unit– the front part, containing all the circuitry, and the rear one, being just a plastic shell. This plastic shell should then be firmly attached to the surface on which the panel is being installed.

To install the rear shell, drill three holes as in fig. 1. The outside outline of the panel is shown in dotted line. The rear shell has matching holes and can be used as a template.

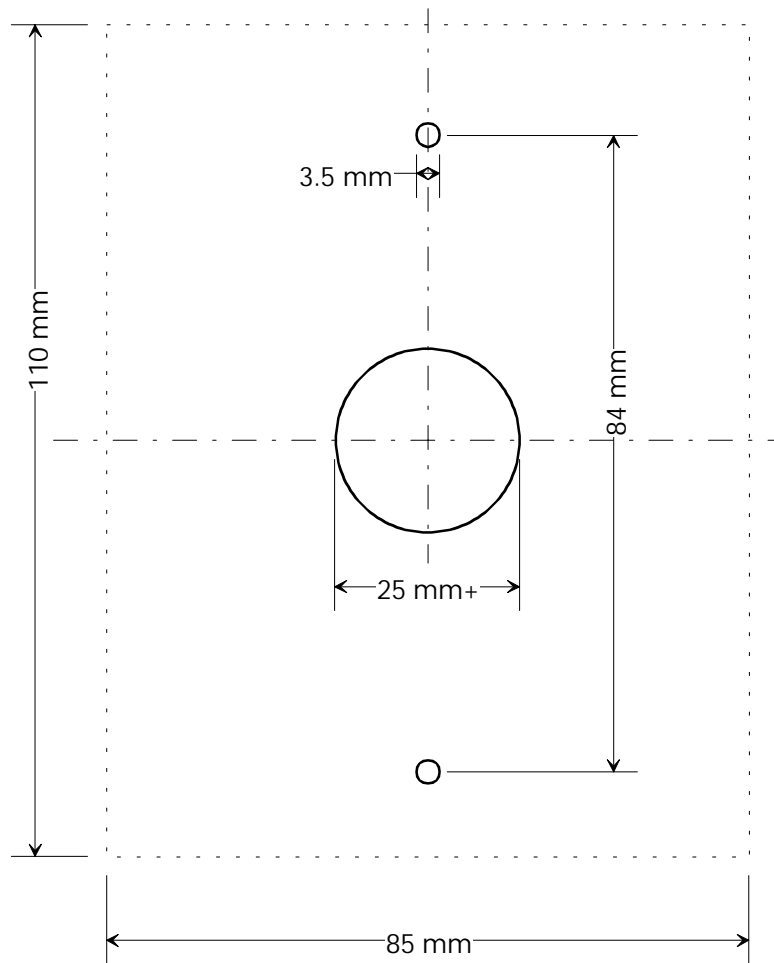


Fig. 1. Hole pattern for installation of a panel.

After drilling the holes and deburring them, install the rear part of the panel using the two M3 bolts and nuts provided.

### 2.3 Connecting the remote panel

The panel requires two connections – to the source of power and to the MCD 3000 device.

The panel requires a DC power, 12-32V, approx. 25 mA at 24V. Power should be connected to the terminal block at the back of the front part of the panel. Run a cable through the big central hole in the mounting surface,

matching the hole in the back shell of the panel. Pay attention to polarity of the power connection. Reversing the polarity will not damage the remote control panel, but it will not allow it to operate either.

Connection to the MCD 3000 device requires a two-wire data cable. We recommend a shielded cable, with the shield connected to the MCD 3000 device ground (connection point 61). The two data wires should be connected to connection points 68 and 69 on MCD 3000 device, see fig. 2. At the other end, these data wires should be connected to two connection points at the back of the front part of the panel, also labeled 68 and 69. Do not connect the cable shield at the remote panel end.

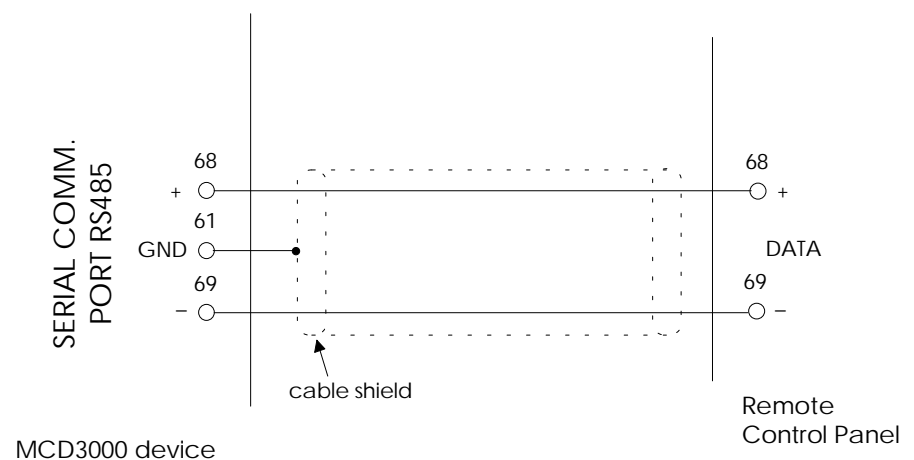


Fig 2. Connection diagram

After the cables have been connected, the installation of the panel is complete. The two parts of the panel can then be joined together using the four M3 bolts supplied. The heads of the bolts should be covered with the four black plastic covers. When installing these covers, make sure that the rounded corner is aligned with the corner of the panel.

## 2.4 Configuring the MCD 3000 device

MCD 3000 devices must be set for "Local" operation using the Local/Remote pushbutton on the front panel. When an MCD 3000 device is set for "Local", the LED labeled "REMOTE" on the front panel is off.

Each MCD 3000 Local/Remote Mode parameter (Parameter 20) must be set to 0, 1 or 2. Setting this parameter to 3 disables the RS-485 communications port.

Default value of Parameter 20 is 0. For more detailed explanation refer to the MCD 3000 Operating Instructions.



When the MCD3000 device is set for "Remote", it does not execute commands received over the RS-485 link. However, it still acknowledges these commands. Consequently, the Remote Control Panel cannot detect this condition. Make sure that the MCD 300 device is set for "Local". For working with the panel, we recommend to set the MCD 3000 Local/Remote Mode parameter (Parameter 20) to 2 – "Local control only". This will eliminate the possibility of the MCD3000 device being set for "Remote" accidentally or by mistake.

The MCD 3000 device can be configured using the keypad/ LCD display on its front panel. The remote control panel cannot be used for this purpose. The method of setting parameters is described in details in the MCD 3000 Series Soft Starter Operating Instructions.

## 2.5 Configuring the panel

**If you use the default configuration of the MCD 300 device, there is no need for configuring the panel. When you power both devices, they will operate as intended. You may ignore the rest of this section of the manual.**

When configuring the Remote Control Panel, you must define the station address of the panel and the baud rate on the RS-485 link between the panel and the MCD 3000 device.

The default station address is 20 for both the MCD 3000 device and a Remote Control Panel. The default baud rate for both devices is 9,600 bps.

Configuration procedure for the remote control panel is the same as for the MCD 3000 devices – by using the MENU function. For details of the procedure, refer to the "Programming procedure" section of the MCD 3000 Operating Instructions, Danfoss document no. AMB00000.

When using the Menu function of the remote control panel, you can access three parameters, identical in function and values to the parameters of MCD 3000 devices:

- a. Parameter 22, Serial Communications – Baud Rate.  
Valid values – 1 to 5, for baud rates of 1200, 2400, 4800, 9600 and 19200, respectively. Default – value of 4 for 9600 baud, the same as the default for MCD 3000.

- b. Parameter 23, Serial Communications – Satellite Address. Valid values – 1-99. Default value – 20, the same as default for MCD 3000.
- c. Parameter 45, Trip log. This is read only parameter, for retrieving the trip log record of the last 8 events.

Any changes to parameters 22 and 23 are stored in non-volatile memory and will be retained on loss of power.

### 3 OPERATION OF THE REMOTE CONTROL PANEL

The remote control panel mimics the operation of the control panel on MCD 3000 devices to the extent possible when using the communications link.

The layout and purpose of control buttons on the device panel and remote panel are almost identical. The only differences are:

- a. remote panel cannot be used for programming the MCD 3000 device. The Menu function on the remote panel applies to the remote panel only and NOT to the MCD 3000 device,
- b. it is not possible to change LOCAL/REMOTE mode using the remote panel. The LOCAL/REMOTE button on the MCD 3000 device has been replaced by LOCAL/BYPASS button. On remote panel model FS-1148 this button is unused.

Indicators on device and remote panels are also almost identical, with these differences:

- a. BYPASS LED has replaced the REMOTE LED. BYPASS LED is unused on this model of the remote control panel.
- b. The remote panel cannot show trip codes 0 (Shorted SCR), 1 (Excess start time), 5 (Supply frequency trip) and E (EEPROM Read/Write failure). Should any of the above occur, the remote control panel will simply indicate that the motor had stopped.
- c. If the remote panel cannot communicate with the MCD 3000 device, the indicators show four decimal dots flashing. This indication is specific to the remote panel.

The remote panel does not have to show the same data as the device panel. As an example, the device panel can be set to show temperature and at the same time the remote panel can be set to show current. However, if both panels are set to show the same data, they will show the same value.

## 4 SPECIFICATIONS

Item	Value
<b>Enclosure</b>	
- Width	85 mm
- Height	110 mm
- Depth	35 mm
<b>Mounting</b>	Directly on a flat surface
<b>MCD3000 Subnetwork Connection</b>	
- Connector Type	Terminal block, 2-pole
<b>Power</b>	
- Voltage	24V DC (16-32V DC)
- Consumption	0.6 Watts
- Connector Type	Terminal block
- Reverse Polarity Protection	Yes
<b>Other Items</b>	
- Weight	Approx. 350g
- Protection Class	IP 65 (if correctly mounted)

Table 1 – Gateway Specifications

## 5 TROUBLESHOOTING

Indications	Problem	Possible cause (check in the order listed)
All indicators off	No power	No power Incorrect polarity
All 7-segment displays showing only the decimal dot, flashing	No communication with the MCD 3000 device	Cable problem Different baud rate in the MCD 3000 and remote panel Different station address in the two devices

Table 2 – Troubleshooting guide