User Manual

Remote Control
MPCAN Receiver
**Revision history**

Table of revisions

<table>
<thead>
<tr>
<th>Date</th>
<th>Changed</th>
<th>Rev</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 2019</td>
<td>Rebranded to Danfoss Power Solutions</td>
<td>0101</td>
</tr>
</tbody>
</table>
MPCAN general safety

The following safety instructions must be read carefully in order to install and use the product properly and to keep it in perfect working condition and to reduce the risk of misuse.

Potential damage to operator and product.
Do not use this product on machines in potentially explosive atmospheres unless the model is ATEX/RATEX certified to do so.

• Strictly adhere to the installation instructions contained in this document.
• Make sure that professional and competent personnel carry out the installation.
• Ensure that all site and prevailing safety regulations are fully respected.
• Make sure that this document is permanently available to the operator and maintenance personnel.
• Keep the transmission key when the set is not in use.
• On starting each working day, check to make sure that the STOP button and other safety measures are working.
• When in doubt, press the STOP button.
• Whenever several sets have been installed, make sure the transmitter is the right one. Identify the machine controlled on the label for this purpose on the transmitter or by using the display (in case it has one).
• Service the equipment periodically.
• When carrying out repairs, only use spare parts from Danfoss.

MPCAN safety warnings

Potential damage to operator and product.
Follow the guidelines below to reduce risk of injury to the operator and the product.

• Use the device with the manufacturer’s battery and battery charger (if applicable).
• Only allow qualified personnel to operate the equipment.
• Always set the STOP button in the off position when not in use.
• Always press STOP before plugging in tether cable (if applicable).
• Do not operate product when visibility is limited.
• Make sure product is compatible with the machine.
• Avoid knocking or dropping the product.
• Do not use the product if a failure is detected.

Changes or modifications not approved by Danfoss can void the user’s authority to operate this product.
Safety instructions

Quick reference precautions

- Remove the transmission key only when the set is not in use or to deny the access
- When in doubt, press the STOP button
- Make sure the transmitter works with the machine to be handled
- After use set the contact key and the STOP button
- Do not use the set when visibility is limited
- Avoid knocking or dropping the set
Technical description

MPCAN dimensions

Dimensions in mm
Technical description

MPCAN hardware description

1. Fixing slots (fixed assembly or anti-vibration)
2. External antenna (optional)
3. Removable internal EEPROM
4. External LEDs
5. TR800-CE MCX radio
6. CAN bus termination
7. DEUTSCH connector pinout
8. Tether connection
9. STOP relays
10. Internal fuse, 7.5A
Installation

MPCAN receiver installation

The below information describes hazards to be aware of during installation and steps to locate the receiver.

Risk of shock
Completely shut down the machine when installing the receiver.
Check the power supply and shut off the main switch to disconnect the interface cable between the receiver and the machine's electrical box.

1. Find an easily accessible and clear location with a direct vision between the receiver's antenna and the transmitter's working area.

2. Optional: If it is difficult to achieve direct vision between the receiver's antenna and the transmitter's working area, it is recommended to use an extended antenna in a clear location (only for models that allow an antenna).
In areas of high vibration, the use of dampers is advised.

3. Proceed to connect the power supply. Use the connection block diagram provided with the system, where the correspondence between the transmitter maneuvers and the receiver's outputs are detailed.

4. Check if the electrical installation and verify if there's an option to connect the neutral or the ground cable. In that case, don't forget to connect the ground cable.
The use of fireproof or flame retardant cables are recommended for the connection.
Installation

MPCAN input and output configuration

This receiver has four digital outputs or four digital inputs. The hardware is shared by these inputs and outputs and they are chosen by EEPROM configuration.

Each input and output cannot be configured together at the same time.

The MPCAN includes a 7.5A internal fuse.

MPCAN STOP category 3 PLd

Stop function is performed by two relays in serie or parallel.

A10 and A9 pins should not be connected directly to GND.
Installation

Parallel

MPCAN pinout

<table>
<thead>
<tr>
<th>Pin</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vin</td>
</tr>
<tr>
<td>2</td>
<td>CANH</td>
</tr>
<tr>
<td>3</td>
<td>KSTOP 2.2</td>
</tr>
<tr>
<td>4</td>
<td>KSTOP 1.2</td>
</tr>
<tr>
<td>5</td>
<td>K4/IN4</td>
</tr>
<tr>
<td>6</td>
<td>K3/IN3</td>
</tr>
<tr>
<td>7</td>
<td>K1/IN1</td>
</tr>
<tr>
<td>8</td>
<td>K2/IN2</td>
</tr>
<tr>
<td>9</td>
<td>KSTOP 1.1</td>
</tr>
<tr>
<td>10</td>
<td>KSTOP 2.1</td>
</tr>
<tr>
<td>11</td>
<td>CANL</td>
</tr>
<tr>
<td>12</td>
<td>GND</td>
</tr>
</tbody>
</table>
## Troubleshooting

### MPCAN troubleshooting

<table>
<thead>
<tr>
<th>LED</th>
<th>Characteristic</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>Green; pulsing</td>
<td>Receiver is starting up</td>
<td>Wait until start-up process is finished</td>
</tr>
<tr>
<td>HARDOK</td>
<td>Green; continuous</td>
<td>Receiver hardware OK</td>
<td>Operate</td>
</tr>
<tr>
<td></td>
<td>Red; pulsing</td>
<td>EEPROM error; data corruption; CAN bus error (if CANERR activates)</td>
<td>Reprogram EEPROM</td>
</tr>
<tr>
<td></td>
<td>Red; other</td>
<td>Electronic board hardware breakdown</td>
<td>Replace electronic board</td>
</tr>
<tr>
<td>SIGNAL</td>
<td>LED off</td>
<td>No radio signal detected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LED on + transmitter switched off</td>
<td>Radio channel occupied</td>
<td>Change transmitter’s frequency channel</td>
</tr>
<tr>
<td></td>
<td>LED on + DATA switched off</td>
<td>Radio channel occupied by non Danfoss system</td>
<td>Change transmitter’s frequency channel</td>
</tr>
<tr>
<td>DATA</td>
<td>LED off + SIGNAL LED on</td>
<td>Radio error</td>
<td>Replace radio</td>
</tr>
<tr>
<td></td>
<td>Green; pulsing</td>
<td>Receiving good frames</td>
<td>OK</td>
</tr>
<tr>
<td>ID</td>
<td>LED off + DATA LED on</td>
<td>No valid ID; Danfoss system nearby</td>
<td>If channel not occupied, check chosen ID in the transmitter or reset the receiver</td>
</tr>
<tr>
<td></td>
<td>LED on + SIGNAL LED on + DATA LED on</td>
<td>Valid frames received from the transmitter; correct link</td>
<td>OK</td>
</tr>
<tr>
<td>RELAY</td>
<td>Green</td>
<td>STOP relay activated</td>
<td></td>
</tr>
<tr>
<td>ORDER</td>
<td>Green</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>CAN_RUN</td>
<td>Green; switched on</td>
<td>Operational state</td>
<td>OK</td>
</tr>
<tr>
<td></td>
<td>Green; pulsing</td>
<td>Activating operational state</td>
<td></td>
</tr>
<tr>
<td>CAN_ERR</td>
<td>Red; switched on</td>
<td>CAN bus error</td>
<td>Check CAN connection</td>
</tr>
<tr>
<td></td>
<td>Red; pulsing</td>
<td>No bus connection</td>
<td>Check bus termination resistance</td>
</tr>
<tr>
<td></td>
<td>LED off</td>
<td>Correct communication</td>
<td>OK</td>
</tr>
</tbody>
</table>
Danfoss Power Solutions is a global manufacturer and supplier of high-quality hydraulic and electric components. We specialize in providing state-of-the-art technology and solutions that excel in the harsh operating conditions of the mobile off-highway market as well as the marine sector. Building on our extensive applications expertise, we work closely with you to ensure exceptional performance for a broad range of applications. We help you and other customers around the world speed up system development, reduce costs and bring vehicles and vessels to market faster.

Danfoss Power Solutions – your strongest partner in mobile hydraulics and mobile electrification.

Go to www.danfoss.com for further product information.

We offer you expert worldwide support for ensuring the best possible solutions for outstanding performance. And with an extensive network of Global Service Partners, we also provide you with comprehensive global service for all of our components.

Local address:

Comatrol
www.comatrol.com

Turolla
www.turollaocg.com

Hydro-Gear
www.hydro-gear.com

Daikin-Sauer-Danfoss
www.daikin-sauer-danfoss.com

Danfoss can accept no responsibility for possible errors in catalogues, brochures and other printed material. Danfoss reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequent changes being necessary in specifications already agreed.

All trademarks in this material are property of the respective companies. Danfoss and the Danfoss logotype are trademarks of Danfoss A/S. All rights reserved.

© Danfoss | January 2019

Danfoss Power Solutions (US) Company
2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515 239 6000

Danfoss Power Solutions GmbH & Co. OHG
Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss Power Solutions ApS
Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

Danfoss Power Solutions Trading (Shanghai) Co., Ltd.
Building #22, No. 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 3418 5200

BC29257393619en-000101