EC-MMS-0713-H MACHINE MANAGEMENT SYSTEM

DESCRIPTION
MMS (Machine Management System) controller with built-in advanced driving and fault-detection features to be used as a stand-alone unit or in connection with other CANbus units (e.g. joysticks, MLTs, radio, other MMS).

OPERATION
EC-MMS-0713 can be used as a stand-alone controller for applications with a single PWM or dual proportional manifolds where the functions are operated in meter-in configuration. Its CANbus interface allows it to be used as a part of complex CAN networks e.g. equipped with radio systems. EC-MMS-0713 is provided with display and push-buttons to configure the control characteristics (Imin/Imax, ramps, deadbands, dither) of its PWM output channels.

FEATURES
- Power supply line is protected against reversed polarity and overvoltage.
- Inputs are protected against short circuits to GND and supply.
- Outputs are protected against short circuits, over-current and over-temperature.
- CANbus (CAN 2.0B) interface
- Internal measurement of battery voltage.
- The current in the proportional solenoids is independent of change in the coil resistance and supply voltage variations.
- Especially designed for applications with manifolds in meter-in configuration (single or dual proportional).

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Operating voltage</td>
<td>8.5÷32 VDC</td>
</tr>
<tr>
<td>Max current consumption</td>
<td>0.25 A (no load applied)</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-25°C / +85°C</td>
</tr>
<tr>
<td>Degree of protection</td>
<td>IP 65 (with housing)</td>
</tr>
<tr>
<td>Analogue inputs</td>
<td>1, 10-bits resolution</td>
</tr>
<tr>
<td>Analogue input type</td>
<td>0÷20 mA or 0÷5 V selectable by sw (HW option 0÷10 V)</td>
</tr>
<tr>
<td>Digital inputs</td>
<td>6</td>
</tr>
<tr>
<td>Input impedance</td>
<td>100kΩ (internal pull-down)</td>
</tr>
<tr>
<td>Max current load on all outputs</td>
<td>10 A</td>
</tr>
<tr>
<td>High Side power outputs</td>
<td>13 (3.5A max each) (HW option: 14-one digital input not available)</td>
</tr>
<tr>
<td>Current output range (PWM)</td>
<td>3 A</td>
</tr>
<tr>
<td>Available current feedbacks</td>
<td>2 (on the high side) (HW option: 4)</td>
</tr>
</tbody>
</table>

APPLICATIONS
- 12 VDC and 24 VDC systems.
- For hand held terminal cable/radio applications.
- Field - adjustable applications.
- Machine management systems based on CANbus.

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CIRCUIT BOARD PINOUT - WIRING DIAGRAM

- **Connector type:** Deutsch - DTM12

A (GREY)
1. DI1 (DIGITAL INPUT)
2. EVP1 (HS OUTPUT WITH CURRENT FEEDBACK)
3. -V (POWER SUPPLY - GND)
4. EVP2 (HS OUTPUT WITH CURRENT FEEDBACK)
5. HS11 (HIGH SIDE OUTPUT)
6. +V (POWER SUPPLY - POSITIVE)
7. HS1 (HIGH SIDE OUTPUT)
8. HS2 (HIGH SIDE OUTPUT)
9. HS3 (HIGH SIDE OUTPUT)
10. HS4 (HIGH SIDE OUTPUT)
11. HS5 (HIGH SIDE OUTPUT)
12. HS6 (HIGH SIDE OUTPUT)

B (BLACK)
1. HS7 (HIGH SIDE OUTPUT)
2. HS8 (HIGH SIDE OUTPUT)
3. DI2 (DIGITAL INPUT)
4. DI3 (DIGITAL INPUT)
5. HS9 (HIGH SIDE OUTPUT)
6. HS10 (HIGH SIDE OUTPUT)
7. CAN HIGH
8. CAN LOW
9. AIN (ANALOGUE INPUT)
10. DI4 (DIGITAL INPUT)
11. DI5 (DIGITAL INPUT)
12. DI6 (DIGITAL INPUT)

ADJUSTMENTS
Adjustments through integrated display and pushbuttons

APPLICATION EXAMPLE
One MMS connected to a portable control unit through a CANbus line.
Radio connection available.

ORDERING INFORMATION
EC-MMS-0713-H
0713 = 7 inputs - 13 outputs
H = potted plastic Housing for panel mounting