**Digital mobile electronics CL-449**

- Robust construction with plug-in connection for mobile applications
- Protection class IP68
- Multi-functional pin assignment, up to 8 I/Os
- CAN connection
- Freely programmable

**DESCRIPTION**

Microcontroller based control with multifunctional inputs/outputs of the PME devices family (Programmable Mobile Electronics). Delivered in a robust and compact plastic housing, it is designed for the hard use in working devices and is perfectly suitable for various open loop and closed loop control tasks.

**FUNCTION**

The control can be used and programmed as a stand alone unit, or as part of a distributed, decentralised system architecture. The variably usable inputs and outputs enable reading and controlling sensors and actuators of all kinds. The free programmability enables maximum flexibility for the adaptation to any desired machine function.

**APPLICATION**

This mobile electronics is used mainly in the mobile field because of the compact construction, protection class IP67 as well as the extensive operating temperature range and the selected plug connection. Customer-specific requirements can easily be implemented.

**CONTENT**

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**TYPE CODE**

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<td>Master I/O Module</td>
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**GENERAL SPECIFICATIONS**

Execution: Plastic molded housing
Dimensions: 103 x 79 x 45 mm (see Dimensions)
Mounting: Mounting flange, screwed on
Weight: 210 g
Device receptacle: Deutsch DTF15-12PA pin header
Mating connector: Deutsch DT06-12SA
Working temperature: -40…+70°C
MTBF: 139 years (Telcordia SR-332)

**ELECTRICAL SPECIFICATIONS**

- Protection Class: IP68
- Supply Voltage: 8…32 VDC
- No-load current: 23mA at 13.8 V, 13mA at 28 V
- Number of inputs: up to 4
- Input voltage range: 0…5.5 V
- Input resistance: 57 kOhm
- Input range current: 0…22.1mA
- Input resistance: 201.3 Ohm
- Resolution: 12 bit
- Number of outputs: up to 4
- Protection: Short to GND
- Short to Battery
- Overcurrent: 3.0 A (individual)
- PWM Pulse Width Modulation Outputs: 2.5 A (grouped)
- Maximum current: 3.0 A (individual)
- Minimum current: 2.0 A (grouped)
- ECC Estimated Current feedback: 0.2–4.1 A / 12 bit
- Accuracy ECC: +/- 50mA at 2 A
- Sensor output: (only with CL-449-101)
  - Supply: 5 V +/- 5 %, 250 mA
  - CAN: 40 kbit/s to 500 kbit/s
- STB switch to battery input
  - Input resistance: 1.4 kOhm
  - Switching threshold: positive >6.5V, negative <3.5V
- STG Switch To Ground input
  - Pull-up resistor: 560 Ohm to internal 5V
  - Switching threshold: positive >3.25V, negative <1.75V
- FREQ Frequency Input
  - Switching threshold: positive >3.5V, negative <1.0V
  - Pull-up resistor: 4.7kOhm to internal 5V
  - Resolution: < 5 Hz
  - Frequency Range: max. 10 kHz (open drain, sinking sensor)

**Software**

Apart from the programming tools, a software for diagnostics and error eliminating for the commissioning of the system is available.
ACCESORIES

- Mating connector
- Wedge lock
- Crimp socket AWG 16-20, 0.5-1.5 mm²
  or crimp socket AWG 14, max. 2mm²
- Sealing plug
- or snapping sealing plug

- Orchestra Software Suite
  Art. no. 740.1000
  Project management software
  Ladder-Logic and C-Code
  Display GUI Programming incl. Conductor Software

- Conductor Software
  Art. no. 740.1001
  Standalone diagnostics and set-up tool

- NXP (Freescale) CodeWarrior
  3rd party tool
  C-Code Programming tool/Compiler
**X1, gray, 12-Pin, Connector A-coded**

**Pin** | **Function**
--- | ---
1 | Input #1 STB / STG / VTD (CL-449-103: 20mA) / FREQ / PWM / Encoder(1A)
2 | Input #2 STB / STG / VTD (CL-449-103: 20mA) / FREQ / PWM / Encoder(1B)
3 | Input #3 STB / STG / VTD (CL-449-103: 20mA) / FREQ / PWM / Encoder(2A)
   | Only CL-449-101: Output 5 VDC Sensor supply
4 | Input #4 STB / STG / VTD (CL-449-103: 20mA) / REQ / PWM / Encoder(2B)
   | Only CL-449-101: Sensor supply GND
5 | CAN1-L
6 | CAN1-H
7 | Input #6 STB / Output #1 DOUT(+) / PWM(+) / ECC(+) (2 : 1)
8 | Input #7 STB / Output #2 DOUT(+) / PWM(+) / ECC(+) (2 : 1)
9 | Input #8 STB / Output #3 DOUT(+) / PWM(+) / ECC(+) (2 : 1)
10 | Input #9 STB / Output #4 DOUT(+) / PWM(+) / ECC(+) (2 : 1)
11 | BAT(-) Module
12 | BAT(+) Module and Output 1-4 / Input #5 Battery Voltage VTD (0-32 VDC)

**Legend:**
- **DOUT** = digital output
- **ECC** = estimated current feedback
- **PWM** = pulse with modulation
- **AIN** = analog input
- **STB** = switch to battery (input)
- **STG** = switch to ground (input)
- **FREQ** = frequency input
- **VTD** = voltage to digital (input)
- **20mA = 0..20mA / 4..20mA current input instead of voltage input**