

Data Sheet

PLUS+1[®] Controllers

MC024-110 and MC024-112



Mobile Machine Management

Danfoss PLUS+1[®] controllers are elements of the flexible, powerful, expandable, and affordable family of mobile machine management products. These devices are general-purpose controllers that are equally suited for use as a member of a distributed machine control system, with intelligence in every node, or as a stand-alone controller.

Product Highlights

The MC024-110 employs a 32 bit Cortex-M3 Processor, providing the controller with extremely fast single cycle processing speed and 512K internal flash. The MC024-112 has an application key that enables the use of Danfoss developed GUIDE machine control solutions. The same GUIDE HWD file is used with both controllers.

Application Development

The MC024-112 employs an application key that enables the use of Danfoss developed PLUS+1[®] GUIDE machine control solutions. The same PLUS+1[®] GUIDE HWD file is used with both controllers.

Users develop MC024-112 applications with PLUS+1[®] GUIDE. This Microsoft Windows based development environment features a user-friendly, field proven, icon-based graphical programming tool, application downloader, and service/diagnostic tool.

Features

- User-programmable with PLUS+1[®] GUIDE (Graphical User Integrated Development Environment)
- 24 pins: (2) individually keyed DEUTSCH DTM 12 pin connectors
- ARM 32 bit Cortex-M3 RUNNING AT 120 MHz
 - 12 bit analog-to-digital converter
 - 16 bit timers/counters
- FRAM non-volatile memory
- 9 to 36 Vdc power supply, monitored internally
- 1 CAN 2.0 B port, the fixed range analog input can be configured as the shield pin
- Power supply for external sensors rated at 5 Vdc to 300 mA and regulated internally
- 2 LEDs under user control
- 3 mounting alternatives: stack, end, or side
- Contains application key required to run Danfoss developed machine control application software
- CE compliant



14 Inputs

- (5) universal (DIN/AIN/FreqIN) that are user-defined as either
 - *Analog*: with configurable ranges 0 to 5.25 Vdc (with over range protection) or 0 to 36 Vdc
 - *Digital*: pull up (5 Vdc), pull down (0 Vdc), or pull to center (2.5 Vdc)
 - *Frequency* (timing): 1 Hz to 10 kHz
- (6) digital (DIN) configurable as pull up (5 Vdc) or pull down (0 Vdc)
- (2) analog (AIN/Temp/Rheo) 0 to 5.25 Vdc or 0 to 10,000 ohm rheostat
- (1) fixed range analog (AIN/CAN shield) 0 to 5.25 Vdc or CAN shield pin

4 Outputs

- (4) universal (PWMOUT/DOUT/PVGOUT) that are user-defined as either
 - *Digital*: (3 A), configurable as source or sink
 - *PWM*: (30 to 4000 Hz), configurable as open or closed loop with current control
 - *Analog voltage*: open loop PWM at 4000 Hz
- Any PWMOUT/DOUT/PVGOUT can be used to provide reference power to one PVG valve

Specifications

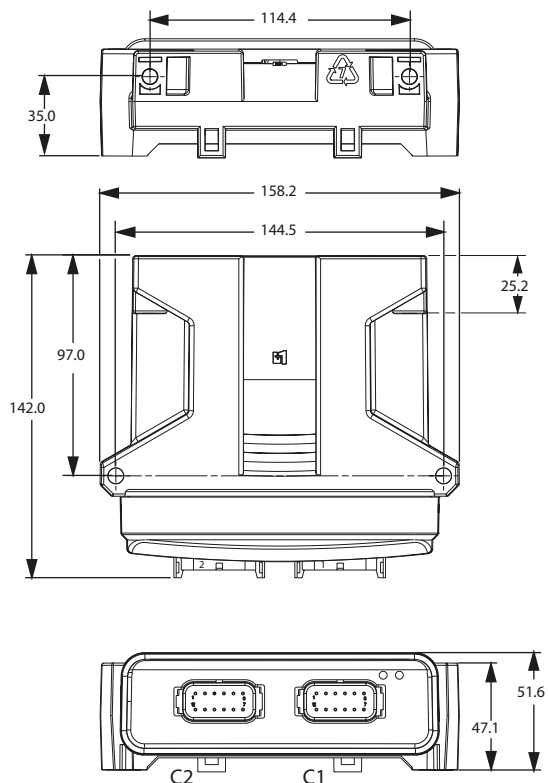
Product parameters

| | |
|---|--------------------------------|
| Supply voltage | 9 to 36 Vdc |
| Operating temperature (ambient) | -40°C to 70°C [-40°F to 158°F] |
| Storage temperature | -40°C to 85°C [-40°F to 185°F] |
| Programming temperature | -40°C to 70°C [-40°F to 158°F] |
| IP rating (with mating connector attached) | IP 67 |
| EMI/RFI rating | 100 V/M |
| Weight | 0.40 kg [0.88 lb] |
| Vibration | IEC 60068-2-64 |
| Shock | IEC 60068-2-27 test Ea |
| Maximum current, sourcing | 8 A |
| Maximum current, sinking | 8 A |

Dimensions and pin assignments

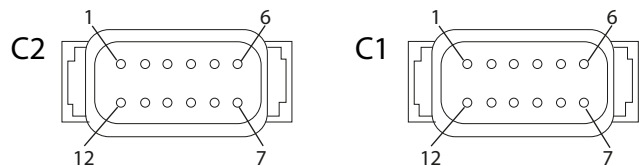
Mounting dimensions and pin assignments

Dimensions in mm [in]



kwa1379009262068

Pin connector



kwa1379009271343

| Pin | Controller function | Pin | Controller function |
|--------|------------------------|--------|-----------------------|
| C2-P1 | DIN | C1-P1 | Power ground - |
| C2-P2 | DIN/AIN/FreqIN | C1-P2 | Power supply + |
| C2-P3 | DIN/AIN/FreqIN | C1-P3 | CAN + |
| C2-P4 | DIN/AIN/FreqIN | C1-P4 | CAN - |
| C2-P5 | DIN/AIN/FreqIN | C1-P5 | AIN/CAN shield |
| C2-P6 | DIN/AIN/FreqIN | C1-P6 | DIN |
| C2-P7 | AIN/Temp/Rheo | C1-P7 | DIN |
| C2-P8 | AIN/Temp/Rheo | C1-P8 | 5 Vdc sensor power + |
| C2-P9 | PWMOUT/DOUT/ PVGOUT | C1-P9 | Sensor power ground - |
| C2-P10 | PWMOUT/DOUT/ PVGOUT | C1-P10 | DIN |
| C2-P11 | PWMOUT/DOUT/ PVGOUT | C1-P11 | DIN |
| C2-P12 | PWMOUT/DOUT/ PVGOUT | C1-P12 | DIN |

Caution

This device is not field serviceable. Opening the device housing will void the warranty.

Use care when wiring mating connector. Pinouts listed are for device pins.



Ordering information

Product part number

| | |
|------------------|----------|
| MC024-110 | 11130919 |
| MC024-112 | 11130920 |

Related products part numbers

| | | |
|--|----------------------------|----------------------------|
| CG150 CAN/USB Gateway | 11153051 | |
| DEUTSCH mating connector bag assembly | 10102023 (16 to 20 AWG) | 10100945 (20 to 24 AWG) |
| PLUS+1[®] GUIDE Professional | 11179523 | |

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