

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

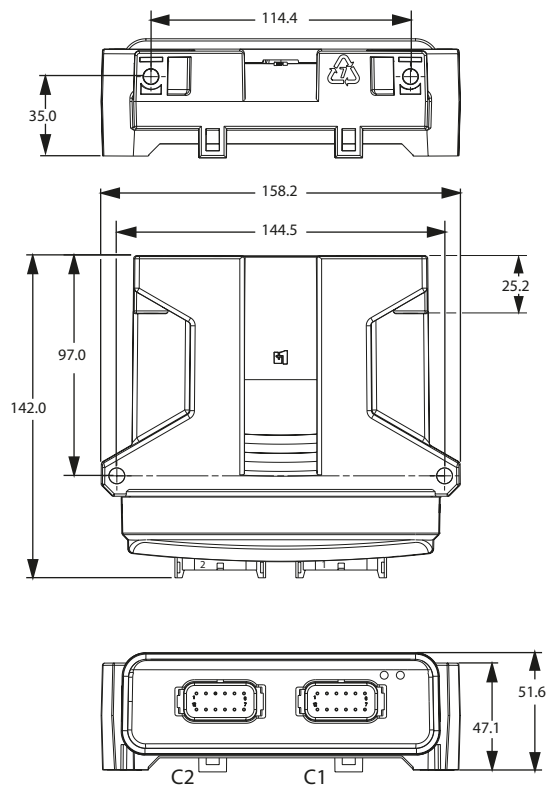
Product parameters

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

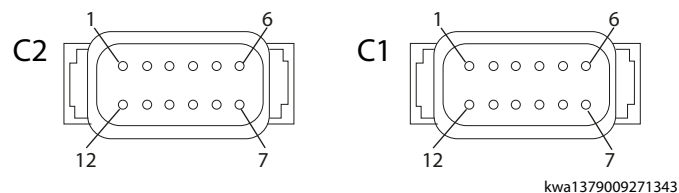
Mounting dimensions and pin assignments

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	