Data Sheet

PLUS+1® Controllers
MC024-018 Extended Memory

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 members of a distributed machine control system, with intelligence in every node, or as stand-alone controllers.

Product Highlights

The MC024-018 Extended Memory Controller is pin compatible with the PLUS+1® MC024-010 Controller. It employs a Digital Signal Processor (DSP), providing the controller with extremely fast single cycle processing speed and 256K internal flash. Extended Memory features include support of unlimited read-write FRAM, 2 MB flash vault memory, and an application key that enables the use of Danfoss developed GUIDE machine control solutions.

Application Development

The MC024-018 employs an application key that enables the use of Danfoss developed PLUS+1® GUIDE machine control solutions.

Users develop MC024-018 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
- 32 bit fixed-point DSP at 150 MHz
  - 12 bit analog-to-digital converter
  - 16 bit timers/counters
- 2 MB flash vault memory

- 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
- 2 LEDs under user control

- Power supply for external sensors rated at 5 Vdc to 300 mA and regulated internally
- 3 mounting alternatives: stack, end, or side
- 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	0°C to 70°C [32°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
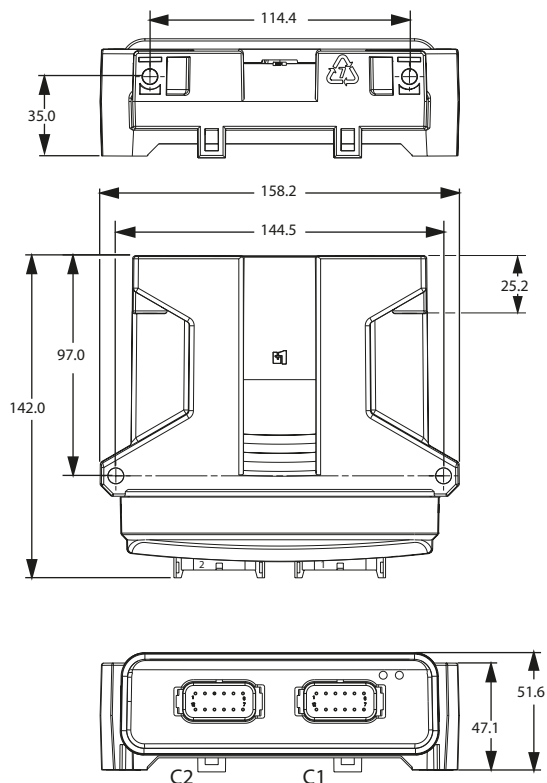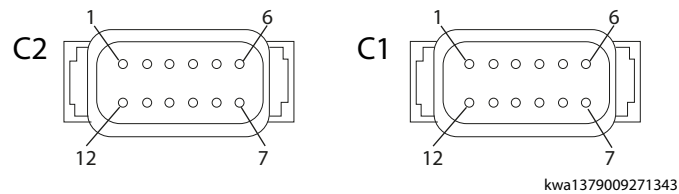
Pin	Controller function	Pin	Controller function
C2-P1	DIN	C1-P1	Power ground -
C2-P2	DIN/AIN/FreqIN	C1-P2	Power supply +
C2-P3	DIN/AIN/FreqIN	C1-P3	CAN +
C2-P4	DIN/AIN/FreqIN	C1-P4	CAN -
C2-P5	DIN/AIN/FreqIN	C1-P5	AIN/CAN shield
C2-P6	DIN/AIN/FreqIN	C1-P6	DIN
C2-P7	AIN/Temp/Rheo	C1-P7	DIN
C2-P8	AIN/Temp/Rheo	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

MC024-018	11106664

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	