

## Data Sheet

# MC024-118 Extended Memory PLUS+1® Controller



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.

The MC024-118 Extended Memory Controller is pin compatible with the PLUS+1® MC024-110 Controller. It employs a 32 bit Cortex-M3 Processor, providing the controller with extremely fast single cycle processing speed and 1024K internal flash. Extended Memory features include support of unlimited read-write FRAM, 2 MB flash vault memory for application data logging, and an application key that enables the use of Danfoss developed GUIDE machine control solutions.

The MC024-118 employs an application key that enables the use of Danfoss developed PLUS+1® GUIDE machine control solutions.

Users develop MC024-118 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
- FRAM non-volatile memory
- 2 MB flash vault memory
- CE compliant
- ARM 32 bit Cortex-M3 at 120 MHz
  - 12 bit analog-to-digital converter
  - 16 bit timers/counters
- 9 to 36 V<sub>DC</sub> power supply, monitored internally
- 2 LEDs under user control
- 3 mounting alternatives
- 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 V<sub>DC</sub> to 300 mA regulated internally

Comprehensive technical literature is online at [www.danfoss.com](http://www.danfoss.com)

## Technical Specifications

<b>Supply voltage</b>	9 to 36 V <sub>DC</sub>
<b>Operating (ambient) / Programming temperature</b>	-40°C to 70°C [-40°F to 158°F]
<b>Storage temperature</b>	-40°C to 85°C [-40°F to 185°F]
<b>IP rating (with mating connector)</b>	IP 67
<b>EMI/RFI rating</b>	100 V/m
<b>Weight</b>	0.40 kg [0.88 lb]
<b>Vibration/Shock</b>	IEC 60068-2: 64/27 test Ea
<b>Max. current (source/sink)</b>	8 A

## 14 Inputs

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

## Ordering Information

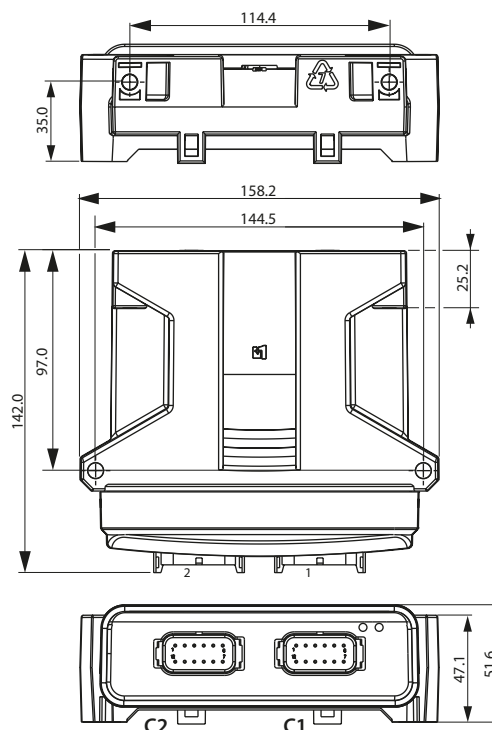
<b>MC024-118</b>	<b>11130921</b>
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## Related products part numbers

<b>CG150 CAN/USB Gateway</b>	11153051	
<b>DEUTSCH mating connector bag assembly</b>	10102023 (16 to 20 AWG)	10100945 (20 to 24 AWG)
<b>PLUS+1<sup>®</sup> GUIDE Professional</b>	11179523	

## Dimensions

### Mounting dimensions (mm)



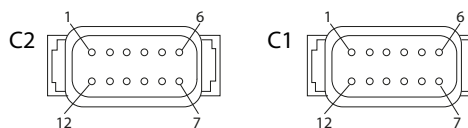
### Caution

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.

## Pin assignments

### 12-pin connectors: C2/C1



<b>C2 controller 12-pin functions:</b>	<b>C1 controller 12-pin functions:</b>
1. DIN	1. Power ground –
2. DIN/AIN/FreqIN	2. Power supply +
3. DIN/AIN/FreqIN	3. CAN +
4. DIN/AIN/FreqIN	4. CAN –
5. DIN/AIN/FreqIN	5. AIN/CAN shield
6. DIN/AIN/FreqIN	6. DIN
7. AIN/Temp/Rheo	7. DIN
8. AIN/Temp/Rheo	8. 5 V <sub>DC</sub> Sensor power +
9. PWMOUT/DOUT/PVGOUT	9. Sensor power ground –
10. PWMOUT/DOUT/PVGOUT	10. DIN
11. PWMOUT/DOUT/PVGOUT	11. DIN
12. PWMOUT/DOUT/PVGOUT	12. DIN

