

Data Sheet

# PLUS+1<sup>®</sup> Controllers

## MC012-026 and MC012-029



### Mobile machine management

Danfoss PLUS+1<sup>®</sup> 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

Both controllers employ a Digital Signal Processor (DSP) providing the controllers with extremely fast single cycle processing speed and 128K internal flash. Both controllers feature multifunction input pins that are capable of receiving inputs from RTD temperature sensors. The MC012-026 and MC012-029 have a maximum operating temperature of 105° C (221° F).

### Application development

The MC012-029 employs an application key that enables the use of Danfoss developed PLUS+1<sup>®</sup> GUIDE machine control solutions. The same PLUS+1<sup>®</sup> GUIDE HWD file is used with both controllers.

### Features

- User-programmable with PLUS+1<sup>®</sup> GUIDE (Graphical User Integrated Development Environment)
- 32 bit fixed-point DSP running at 150 MHz
  - 12 bit analog-to-digital converter
  - 16 bit timers/counters
- 12 pin DEUTSCH DTM connector
- 9 to 36 Vdc power supply, monitored internally
- 1 CAN 2.0B port, the fixed range analog input can be configured as the shield pin
- Power supply for external sensors rated at 5 Vdc to 100 mA and regulated internally
- 2 LEDs under user control
- 3 mounting alternatives: stack, end , or side
- The MC012-029 controller contains the application key required to run Danfoss developed machine control application software
- CE compliant

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

**4 inputs**

- (3) universal (DIN/AIN/FreqIN/Rheo) 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
  - *Resistance*: 0 to 10,000 ohm
- (1) fixed range analog (AIN/CAN shield) 0 to 5.25 Vdc or CAN shield pin

**2 outputs**

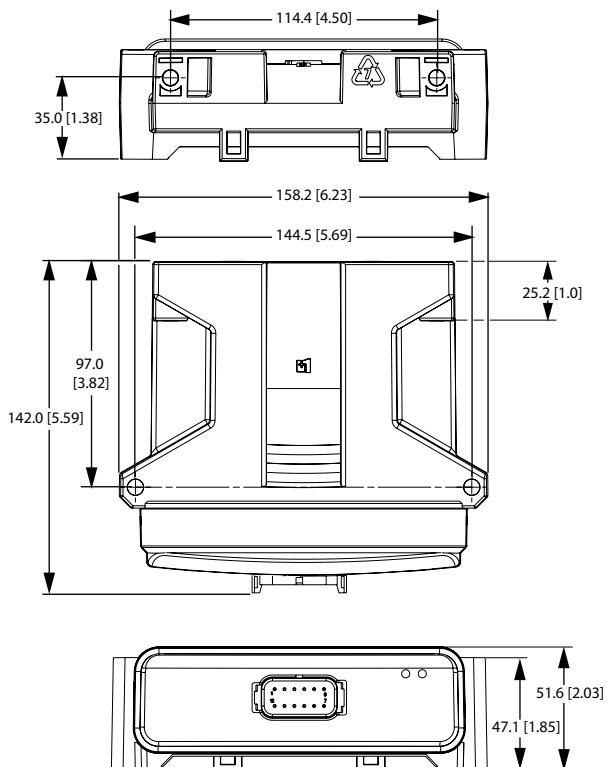
- (2) universal (PWMOUT/DOOUT/PVGOUT) that are user-defined as either:
  - *Digital*: (3 A), configurable as source or sink
  - *PWM*: (30 to 4000 Hz), configurable as open or closed loop with current control
  - *Analog voltage*: open loop PWM at 4000 Hz
- Any PWMOUT/DOOUT/PVGOUT can be used to provide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

**Characteristics**

<b>Supply voltage</b>	9 to 36 VDC
<b>Operating temperature (ambient)</b>	– 40°C to 105°C [– 40°F to 221°F]
<b>Storage temperature</b>	– 40°C to 105°C [– 40°F to 221°F]
<b>Programming temperature</b>	0°C to 70°C [32°F to 158°F]
<b>IP rating (with mating connector attached)</b>	IP 67
<b>EMI/RFI rating</b>	100 V/M
<b>Weight</b>	0.40 kg [0.88 lb]
<b>Vibration</b>	IEC 60068-2-64
<b>Shock</b>	IEC 60068-2-27 test Ea
<b>Maximum current, sourcing</b>	8 A
<b>Maximum current, sinking</b>	8 A

**Dimensions and pin assignments**

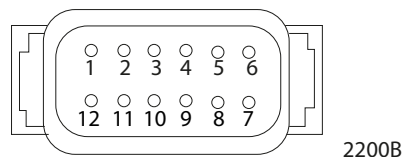
Dimensions in mm [in]



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

**C1**

DEUTSCH DT Series 12 pin



Pin	Controller function	Pin	Controller function
1	Power ground-	7	Sensor power ground-
2	Power supply+	8	DIN/AIN/FreqIN/Rheo
3	CAN+	9	DIN/AIN/FreqIN/Rheo
4	CAN-	10	DIN/AIN/FreqIN/Rheo
5	AIN/CAN shield	11	PWMOUT/DOUT/ PVGOUT
6	5 Vdc sensor power+	12	PWMOUT/DOUT/ PVGOUT

**! Caution**

Warranty will be voided if device is opened.  
 Device is not field serviceable. Do not open the device.



**Ordering information**

*Product part number*

<b>MC012-026 part number</b>	11075252
<b>MC012-029 part number</b>	11075253

*Related products part numbers*

<b>CG150 CAN/USB Gateway</b>	11153051	
<b>DEUTSCH mating connector bag assembly</b>	10102025 (16 to 20 AWG)	10100944 (20 to 24 AWG)
<b>PLUS+1<sup>®</sup> GUIDE Professional</b>	11179523	

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