

Data Sheet

# PLUS+1<sup>®</sup> Controllers

## HMC 211-010 and HMC 211-012



### 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 an IP 69K front panel with a non-contact, step-less rotary input dial, non-contact pushbutton switch, and dual color LED.



### Application development

The HMC 211-012 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.

Users develop HMC 211-010 and HMC 211-012 applications with PLUS+1<sup>®</sup> 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<sup>®</sup> GUIDE (Graphical User Integrated Development Environment)
- 32 bit fixed-point DSP running at 150 MHz
- 12 bit analog-to-digital resolution
- IP 69K housing with the following human machine interfaces:
  - 1 non-contact push button switch (digital input)
  - 1 stepless non-contacting rotary switch (analog input)
  - 1 dual color (yellow/red) LED
- 9 to 36 Vdc supply power
- 1 CAN 2.0B port. The fixed range analog (AIN/ CANShield) pin may be configured as a shield pin
- 5 Vdc power supply for external sensors rated at 70 mA, monitored and regulated internally
- 18-pin DEUTSCH DT16-18S connector
- HMC 211-012 contains application key required to run Danfoss developed machine control application software
- CE compliant

**7 inputs**

- 2 universal (DIN/AIN/FreqIN) that are user defined as either:  
*Digital:* pull up (5 Vdc), pull down (0 Vdc) or pull to center (2.5 Vdc)  
*Analog:* with user-defined ranges of either: 0 to 5.25 Vdc or 0 to 36 Vdc  
*Frequency:* 1 Hz to 10 KHz
- 4 digital/analog (DIN/AIN) that are user defined as either:  
*Digital:* pull up (5 Vdc), pull down (0 Vdc) or pull to center (2.5 Vdc)  
*Analog:* with user defined ranges of either: 0 to 5.25 Vdc or 0 to 36 Vdc
- 1 fixed range analog (AIN/CAN shield) that is user defined as either a 0 to 5.25 Vdc range analog input or CAN shield pin

**6 outputs**

- (2) 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
- 4 Digital (DOUT) (2A) Configurable as source only

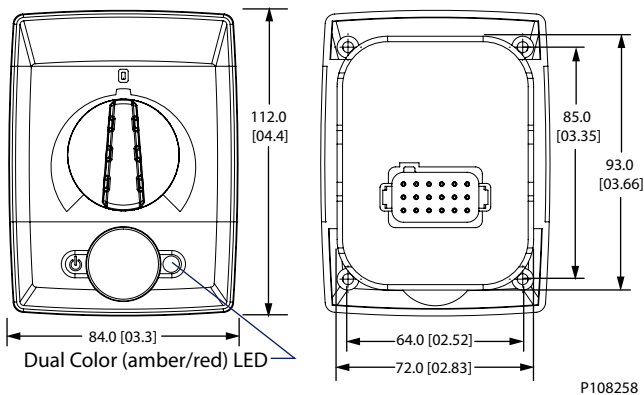
**Caution**

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

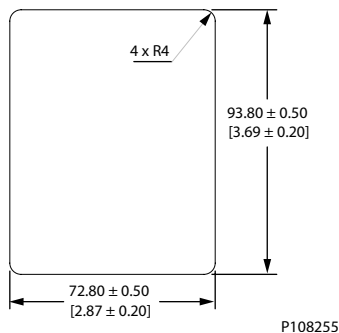
**Dimensions and pin assignments**

*Mounting dimensions and pin assignments*

Dimensions in mm [in]

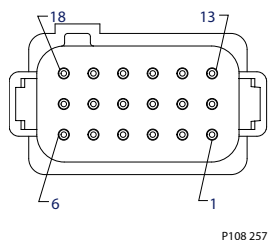


*Panel cutout*



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

Pin connector



18 pin connector - C1

Pin	Controller function	Pin	Controller function
C1-P1	Power ground -	C1-P10	DIN/AIN
C1-P2	Power supply +	C1-P11	DIN/AIN
C1-P3	CAN +	C1-P12	DIN/AIN
C1-P4	CAN -	C1-P13	PWMOUT/DOUT/ PVGOUT
C1-P5	AIN/CAN shield	C1-P14	PWMOUT/DOUT/ PVGOUT
C1-P6	5 Vdc sensor power +	C1-P15	DOUT
C1-P7	DIN/AIN/FreqIN	C1-P16	DOUT
C1-P8	DIN/AIN/FreqIN	C1-P17	DOUT
C1-P9	DIN/AIN	C1-P18	DOUT

**Product parameters**

<b>Supply voltage</b>	9 to 36 Vdc
<b>Operating temperature (ambient)</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>Programming temperature</b>	0°C to 70°C [32 °F to 158°F]
<b>IP rating (with mating connector attached)</b>	IP 69 (front) IP 67 (rear)
<b>Weight</b>	0.23 kg [0.50 lb]
<b>Maximum current, sourcing</b>	11.5 A
<b>Maximum current, sinking</b>	11.5 A

**Ordering information**

<b>HMC 211-010</b>	11071494
<b>HMC 211-012</b>	11071495

*Related products part numbers*

<b>CG150-2 CAN/USB Gateway</b>	11153051
<b>PLUS+1<sup>®</sup> GUIDE Professional</b>	11179523

<b>DEUTSCH mating connector bag assembly (16 to 20 AWG)</b>	11012648
<b>Panel mounting kit</b>	11083012