

PLUS+1™ MC024-011 and MC024-014 Controllers

Mobile Machine Management

MC024-011 and MC024-014 controllers are elements of the flexible, powerful, expandable, and affordable PLUS+1 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 MC024-011 employs a Digital Signal Processor (DSP), providing the controller with extremely fast single cycle processing speed and 256K internal flash. The MC024-014 has an application key that enables the use of Sauer-Danfoss developed GUIDE machine control solutions. The same GUIDE HWD file is used with both controllers.

Application Development

Users develop MC024-011 and MC024-014 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.

Local Address:



PLUS E1™
by SAUER-DANFOSS

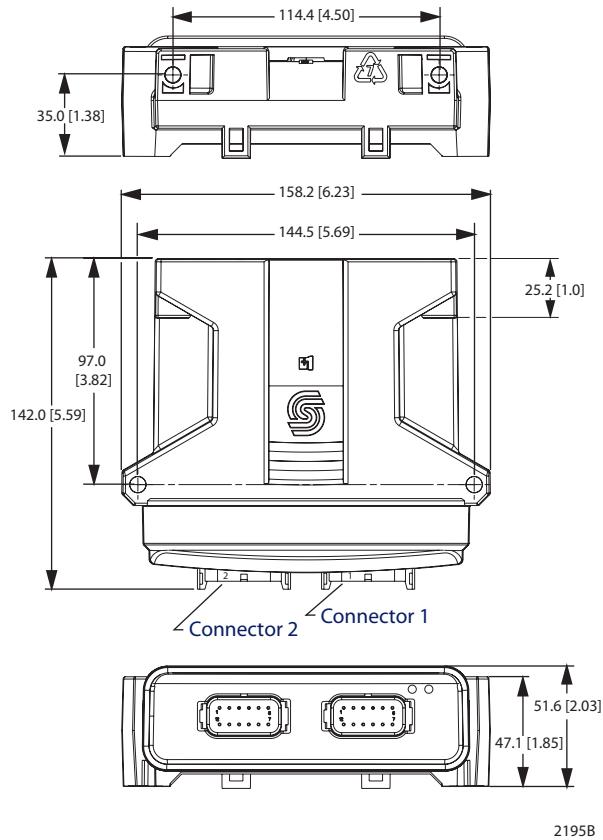
MC024-011 and MC024-014 Controllers

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 running at 150 MHz
 - 12 bit analog-to-digital converter
 - 16 bit timers/counters
- 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), pull down (0 Vdc) or pull to center (2.5 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
- 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
- MC024-014 contains application key required to run Sauer-Danfoss developed machine control application software
- CE compliant

Dimensions and Pin Assignments

MC024-011 and MC024-014 Mounting Dimensions
in Millimeters [Inches]



Caution

This device is not field serviceable. Opening the device housing voids the warranty.

Specifications

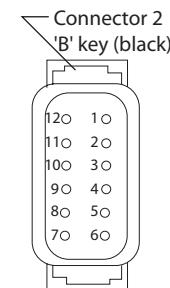
Product Parameters

| | |
|---------------------------------|--|
| 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 | IP 67 (with mating connector attached) |
| 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 |

MC024-011 and MC024-014 24 Pin Connectors

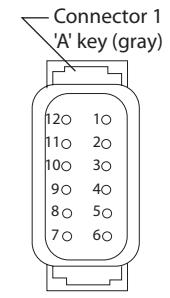
Connector 2

| Pin | Controller function |
|--------|---------------------|
| C2-P1 | DIN |
| C2-P2 | DIN/AIN/FreqIN |
| C2-P3 | DIN/AIN/FreqIN |
| C2-P4 | DIN/AIN/FreqIN |
| C2-P5 | DIN/AIN/FreqIN |
| C2-P6 | DIN/AIN/FreqIN |
| C2-P7 | AIN/Temp/Rheo |
| C2-P8 | AIN/Temp/Rheo |
| C2-P9 | PWMOUT/DOUT/PVGOUT |
| C2-P10 | PWMOUT/DOUT/PVGOUT |
| C2-P11 | PWMOUT/DOUT/PVGOUT |
| C2-P12 | PWMOUT/DOUT/PVGOUT |



Connector 1

| Pin | Controller function |
|--------|-----------------------|
| C1-P1 | Power ground - |
| C1-P2 | Power supply + |
| C1-P3 | CAN + |
| C1-P4 | CAN - |
| C1-P5 | AIN/CAN shield |
| C1-P6 | DIN |
| C1-P7 | DIN |
| C1-P8 | 5 Vdc sensor power + |
| C1-P9 | Sensor power ground - |
| C1-P10 | DIN |
| C1-P11 | DIN |
| C1-P12 | DIN |



2196B

Use care when wiring mating connector. Above pinouts are for device pins.

Product Part Numbers

| | |
|-----------|----------|
| MC024-011 | 11043192 |
| MC024-014 | 11054442 |

Related Products Part Numbers

| | |
|--|---|
| CG150 CAN/USB Gateway | 10104136 |
| Deutsch® mating connector bag assembly | 10102023 (16 to 20 AWG) 10100945 (20 to 24 AWG) |
| PLUS+1 GUIDE single user license | 10101000 |

Comprehensive technical information: *PLUS+1 Controller Family Technical Information, 520L0719*;

MC024-011 Application Program Interface (API) Document; MC024-014 API Document

Sauer-Danfoss product literature on line at: www.sauer-danfoss.com