



PLUS+1™

MC012-010, MC012-012, MC012-016, and MC012-019 Controllers

Mobile Machine Management

MC012-010, 012, 016, and 019 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

All four controllers employ a Digital Signal Processor (DSP), providing the controllers with extremely fast single cycle processing speed, and 128K internal flash. The MC012-016 and MC012-019 controllers have a higher maximum operating temperature of 105°C (221°F). The MC012-012 and MC012-019 controllers have an application key that enables the use of Sauer-Danfoss developed GUIDE machine control solutions. The same GUIDE HWD file is used with all four controllers.

Application Development

Users develop all four controller's 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:



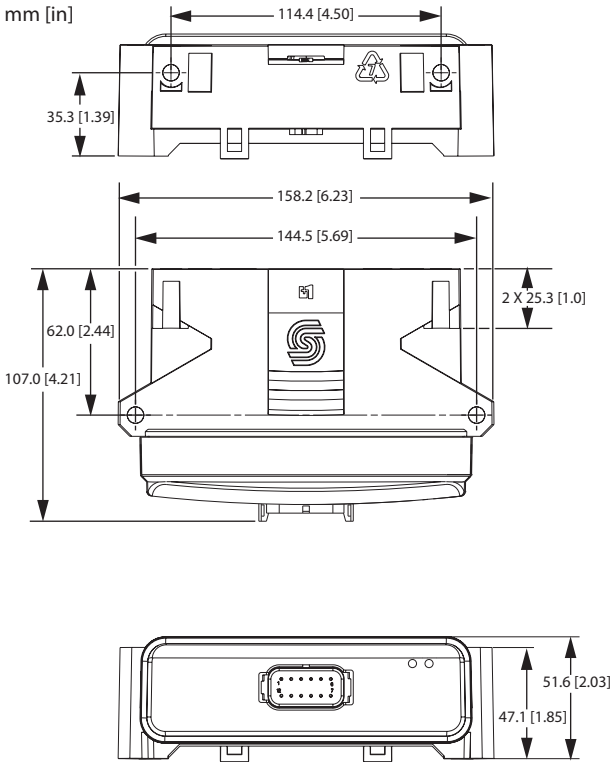
PLUS+1™
by SAUER-DANFOSS

MC012-010, 012, 016, and 019 Controllers

Features

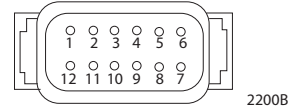
- User-programmable with PLUS+1 GUIDE (Graphical User Integrated Development Environment)
- MC012-016 and MC012-019 controllers have a maximum operating temperature of 105°C (221°F)
- 32 bit fixed-point DSP running at 150 MHz
 - 12 bit analog-to-digital converter
 - 16 bit timers/counters
- 12 pin Deutsch® DTM connector
- 4 inputs
 - (3) 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
 - (1) fixed range analog (AIN/CAN shield) 0 to 5.25 Vdc or CAN shield pin
- 2 outputs
 - (2) universal (PWMOUT/DOU/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/DOU/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 100 mA and regulated internally
- 2 LEDs under user control
- 3 mounting alternatives: stack, end, or side
- MC012-012, MC012-019 controllers contain application key required to run Sauer-Danfoss developed machine control application software
- CE compliant

Dimensions and Pin Assignments



2199A

12 Pin Connector



Connector

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

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

Caution

This device is not field serviceable. Opening the device housing will void the warranty.

Specifications

Supply voltage	9 to 36 Vdc
Operating temperature (ambient) MC012-010, MC012-012	-40°C to 70°C [-40°F to 158°F]
Operating temperature (ambient) MC012-016, MC012-019	-40°C to 105°C [-40°F to 221°F]
Storage temperature MC012-010, MC012-012	-40°C to 85°C [-40°F to 185°F]
Storage temperature MC012-016, MC012-019	-40°C to 105°C [-40°F to 221°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

Ordering Information

MC012-010 part number	10103773
MC012-012 part number	11013721
MC012-016 part number	11063538
MC012-019 part number	11079291

Related product	Sauer-Danfoss part numbers	
CG150 CAN/USB Gateway	10104136	
Deutsch® mating connector bag assembly	10102025 (16 to 20 AWG)	10100944 (20 to 24 AWG)
PLUS+1 GUIDE single user license	10101000	

Sauer-Danfoss comprehensive technical information *PLUS+1 Controller Family Technical Information*, **520L0719** and *MC012-010, 012, 016, 019 Application Program Interface (API) Document* are on line at: www.sauer-danfoss.com and/or embedded in product HWD file.