



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:



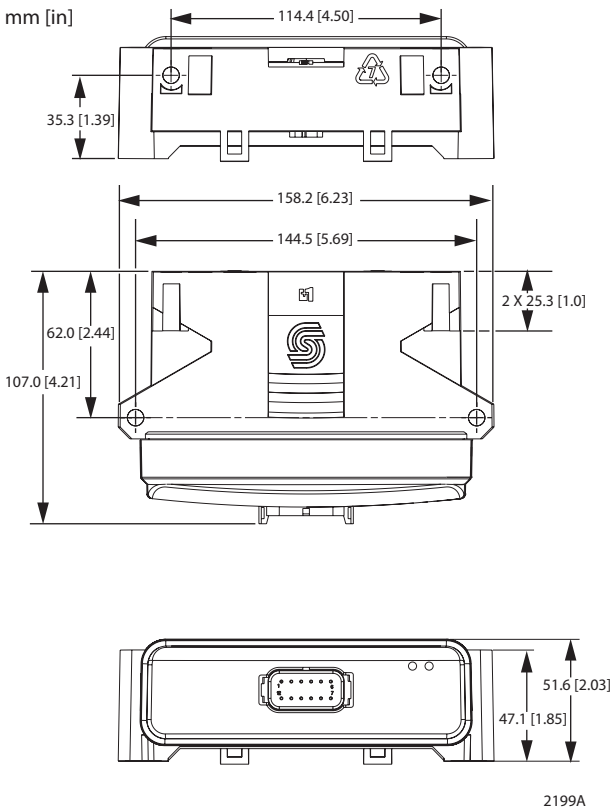
PLUS+1™
by SAUER-DANFOSS

MC012-010, 012, 016, and 019 Controllers

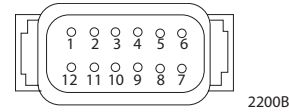
Features

- 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/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
- 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



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.