

PLUS+1™ Inverter MI06-S-XX/400

AC Motor Controller

The PLUS+1 Inverter family is designed to control AC-motors in all types of electric vehicles. Adaptable motor control, using a Flux Vector Control algorithm, offers best performance for drive systems, while plug in data files enable easy matching and optimization of PLUS+1 compliant TSA AC induction motors and the MI 06 inverter.

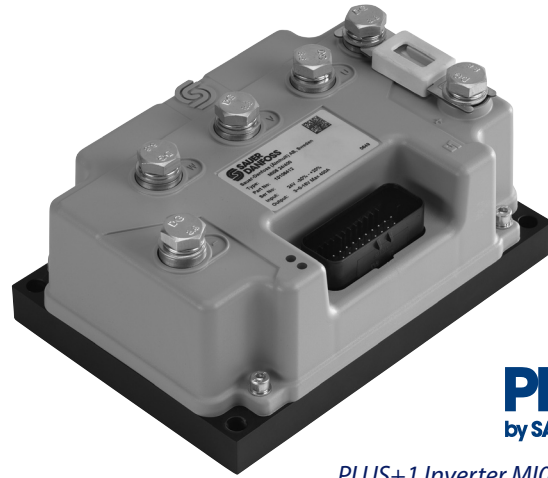
Mobile Machine Management

The PLUS+1 MI06 Inverter is both a motor inverter and a vehicle controller in one unit. With configurable I/O functionality and analog, digital, and CAN communication ports, the inverter is able to interface with a wide range of external devices.

Vehicle Application Development

Users develop MI06-S-XX/400 applications with PLUS+1 GUIDE. This user-friendly, Microsoft Windows based development environment features a field proven graphical programming tool, application downloader, and service tool. Software application blocks for typical applications are available in the Sauer-Danfoss software library and can be simply adapted and expanded for individual vehicle applications.

Local Address:



PLUS+1™
by SAUER-DANFOSS

PLUS+1 Inverter MI06-S-48/400-P

Displayed fuse not included

Features

- Advanced motor control performance
 - Flux Vector Control for best drive performance in all speed modes and minimal power losses in the drive system
 - Easy Motor Characterization for any AC motor using the PLUS+1 Service tool
 - Plug and perform motor setup for Sauer-Danfoss PLUS+1 Compliant AC motors (type TSA), using the web application downloader
- Designed for quality and reliability
 - Superior thermal performance with SMD technology and copper based IMS (Insulated Metal Substrate) power electronics
 - Single AMPSEAL connector for high machine reliability
 - Sealed to IP 64 with breathable membrane
 - Enhanced EMC Performance
 - Operating ambient temperature range -40°C to +50°C
 - Redundant watchdog timers
 - Protected I/O and Wire Off detection
 - Powerful computing capability with DSP (Digital Signal Processor)
- Integrated vehicle control functionality
 - All functions are user-programmable with PLUS+1 GUIDE (Graphical User Integrated Development Environment)
 - Easy to handle and flexible control configuration for managing sensors and actuators
 - Database of predefined Function Blocks for typical functions and applications (traction application, pump application, battery state of charge algorithm, hour meter, vehicle safety and fault management...)
- Comprehensive interface concept
 - CAN 2.0 B port, use for different protocols (CAN, J1939, CANopen, ...)
 - High number of I/Os
 - Configurable I/O functionality for improved flexibility in adapting to different applications
 - “Safety” outputs with redundant transistors for advanced safety requirements.
 - I/O supply voltage independent from battery
- Compact design with different cooling alternatives for flexible packaging (conduction cooling, air cooling)
- Easy access to service, status and diagnostic information
 - PC Service Tool for field service (Parameter up/down-load, Oscilloscope, Data logging, ...)
 - Status and fault monitoring with two LED indicators

Technical Data

Power Section

Type: MI06-S-	24/400-	48/400-
Nominal voltage	24 Vdc	36 - 48 Vdc
Input voltage range	16...36 Vdc	18...62 Vdc
Nominal current	200 Arms	200 Arms
Maximum current S2 - 2min	400 Arms	400 Arms
Peak current	420 Arms	420 Arms
Output voltage	3 x 0...16 V (@24V input V)	3 x 0...24 (@36V input V) 3 x 0...32 (@48V input V)
Dimensions	W H D	140 mm [5.51 in] 200 mm [7.87 in] 98 mm [3.86 in] (plate version), 118 mm [4.65 in] (finned version)
Power connectors	M10	
Weight	3.5 kg [7.72 lb] (plate version) 3.7 kg [8.16 lb] (finned version)	

Interface

	Number in default configuration	Maximum number
Digital input	8	15
Analog input unipolar 0...10V	1	
Analog input bipolar ± 10V	2	
Digital output	5	7
Digital output for safety relevant components	1	
Current controlled output 0...2A	1	
Current controlled output for safety relevant components 0...2A	1	
Motor temperature sensor	1	
Incremental encoder	1	2
CAN interface	1	

Product Part Number

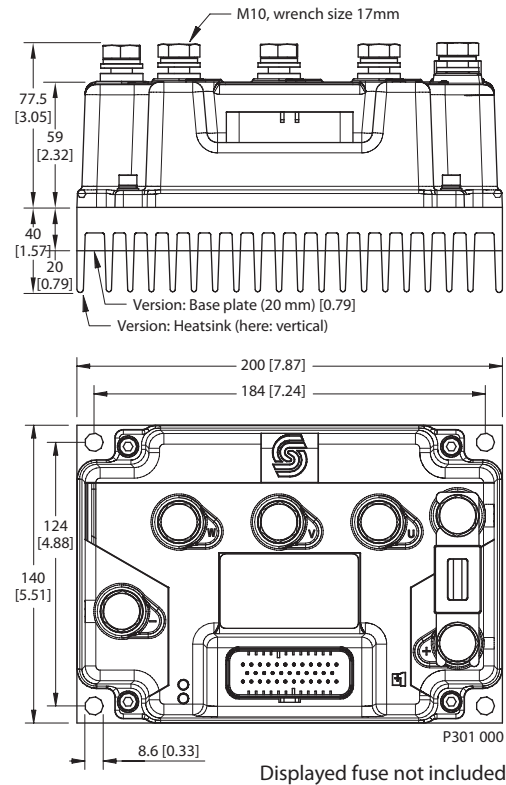
MI06-S-24/400-P	Plate-Type Heat Sink	10107497
MI06-S-24/400-FH	Finned-Type Heat Sink (Horizontal)	10107498
MI06-S-24/400-FV	Finned-Type Heat Sink (Vertical)	10107499
MI06-S-48/400-P	Plate-Type Heat Sink	10107500
MI06-S-48/400-FH	Finned-Type Heat Sink (Horizontal)	10107501
MI06-S-48/400-FV	Finned-Type Heat Sink (Vertical)	10107502

Related Products Part Number

35 pin AMPSEAL Mating Connector Bag Assembly	10107896
CG150 CAN/USB Gateway	10104136
Optional bolt connected power fuses for different current ratings	on request

Dimensions

in millimeters [inches]



⚠ Caution:

PLUS+1 devices are not field serviceable. Opening the device housing will void the warranty.

Others

Switching frequency	8kHz standard; adjustable 4, 8, 12, 16 kHz
Efficiency	min 98% at nominal output
Output frequency	0...300 Hz
Ambient temperature range	-40°C ... 50°C [-40°F...122°F]
Maximum heat-sink temperature @ full current	85°C [185°F]
Operation signal	2 built-in LEDs (red and green)
Signal line connectors	AMPSEAL 35 pins
IP protection	IP64 with membrane
EMC / ESD	50V/m / 15kV
Safety	EN 1175
Vibration / Shock	5g / 50g
UL	UL583

Comprehensive technical information: *PLUS+1 MI06 Technical Information, 11047294*
Sauer-Danfoss product literature on line at: www.sauer.danfoss.com