



Data Sheet

PLUS+1[®] SC Controller SC050-13H



Advanced Mobile Machine Management

These PLUS+1[®] SC controllers are advanced elements of the PLUS+1[®] family of mobile machine management products. The design of this general purpose controller includes features required for sophisticated machine control strategies. It is equally suited for use in safety related or general machine control applications.

Product Highlights

These controllers are pin compatible with the PLUS+1[®] MC equivalent controller. These controllers have dual processors with the secondary processor having access to all controller inputs and supervisory control of outputs. These controllers support smart digital inputs. Current measurement capability has been added to some multifunction inputs. Device outputs can be individually controlled by the secondary processor. These controllers support low power capability.

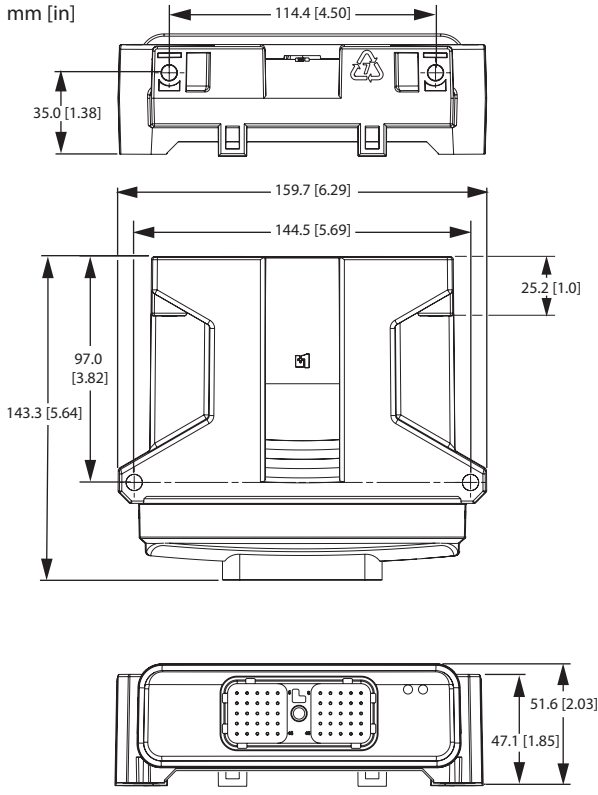
Application Development

The user can develop applications for these controllers using the PLUS+1[®] GUIDE development environment. Application code can be written for both the primary and secondary processors.

Features

- Programmable in PLUS+1[®] GUIDE
- Same general I/O content as the PLUS+1[®] MC050-020 controller
- Dual processors:
 - Primary 1 MB flash, 128kB RAM
 - Secondary 512kB flash, 64kB RAM
 - Internal micro to micro UART
- 12 bit analog to digital converter
- 7 to 36 Vdc power supply, monitored internally
- (24) user-defined inputs
 - (6) Digital/Analog/Resistance/4-20mA current
 - (6) Digital/Analog /Frequency
 - (2) Digital/Analog/CAN Shield
 - (1) Digital/Analog/1.6 Vdc sensor power (for smart digital input capability)
 - (1) Digital/Analog/3.3 Vdc sensor power (for smart digital input capability)
 - (8) Digital/Analog
- (14) user-defined outputs
 - (6) 3A Digital: Configurable as source or sink
 - (8) 3A PWM: (33 to 4000 Hz or 20 kHz) configurable as open or closed loop with current control
- Each PWM output may have a unique frequency
- (2) CAN 2.0B ports, the shield pin can be configured as a DIN/AIN
- User-defined 3 to 12 Vdc regulated power supply for external sensors
- (2) LEDs under user control
 - Both have alternate yellow color under kernel control to indicate low-level software/hardware failures
- Power supply for external sensors rated at 5 Vdc to 500 mA
- Operating temperature range is -40°C to +85°C
- EMC rating is 150 V/m
- CAN 0 and 1 can be accessed by both micros
- CE Compliant
- Certified SIL 2 Capable per IEC 61508

Mounting Dimensions and Pin Assignments



P200 077

Caution
PCB damage may occur. All device power supply + pins must be connected to battery +.

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

Specifications

Product Parameters

| | |
|---|--------------------------------|
| Supply voltage | 7 to 36 Vdc |
| Operating temperature (ambient) | -40°C to 85°C [-40°F to 185°F] |
| Storage temperature | -40°C to 85°C [-40°F to 185°F] |
| IP rating (with mating connector attached) | IP 67 |
| EMI/RFI rating | 150 V/M |
| Weight | 0.53 kg [1.16 lb] |
| Vibration | IEC 60068-2-64 |
| Shock | IEC 60068-2-27 test Ea |
| Maximum current, sourcing | 40 A |
| Maximum current, sinking | 8 A |

Danfoss Power Solutions US Company
2800 East 13th Street
Ames, IA 50010, USA
Phone: +1 515 239 6000

Danfoss Power Solutions GmbH & Co. OHG
Krokamp 35
D-24539 Neumünster, Germany
Phone: +49 4321 871 0

Danfoss Power Solutions ApS
Nordborgvej 81
DK-6430 Nordborg, Denmark
Phone: +45 7488 2222

Danfoss Power Solutions (Shanghai) Co. Ltd.
Building #22, No. 1000 Jin Hai Rd
Jin Qiao, Pudong New District
Shanghai, China 201206
Phone: +86 21 3418 5200

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Pin Connector

| Pin | Controller function | Pin | Controller function |
|--------|---------------------------|--------|----------------------|
| C1-P1 | Power ground - | C1-P26 | DIN/AIN/FreqIN |
| C1-P2 | Power supply + | C1-P27 | DIN/AIN/FreqIN |
| C1-P3 | CAN0 + | C1-P28 | DIN/AIN/FreqIN |
| C1-P4 | CAN0 - | C1-P29 | DIN/AIN/FreqIN |
| C1-P5 | DIN/AIN/CAN shield | C1-P30 | DIN/AIN/FreqIN |
| C1-P6 | DIN/AIN/SnsrPwr1.6Vdc | C1-P31 | DIN/AIN/ResIN/CrntIN |
| C1-P7 | DIN/AIN/SnsrPwr3.3Vdc | C1-P32 | DIN/AIN/ResIN/CrntIN |
| C1-P8 | 3-12Vdc SnsrPwr + | C1-P33 | DOOUT |
| C1-P9 | SnsrPwr - (sensor ground) | C1-P34 | DOOUT |
| C1-P10 | DIN/AIN | C1-P35 | DOOUT |
| C1-P11 | DIN/AIN | C1-P36 | DOOUT |
| C1-P12 | DIN/AIN | C1-P37 | DOOUT |
| C1-P13 | DIN/AIN | C1-P38 | DOOUT |
| C1-P14 | DIN/AIN | C1-P39 | PWMOUT/CrntOUT/DOOUT |
| C1-P15 | DIN/AIN | C1-P40 | PWMOUT/CrntOUT/DOOUT |
| C1-P16 | DIN/AIN | C1-P41 | PWMOUT/CrntOUT/DOOUT |
| C1-P17 | DIN/AIN | C1-P42 | PWMOUT/CrntOUT/DOOUT |
| C1-P18 | DIN/AIN/ResIN/CrntIN | C1-P43 | PWMOUT/CrntOUT/DOOUT |
| C1-P19 | DIN/AIN/ResIN/CrntIN | C1-P44 | PWMOUT/CrntOUT/DOOUT |
| C1-P20 | CAN1 + | C1-P45 | PWMOUT/CrntOUT/DOOUT |
| C1-P21 | CAN1 - | C1-P46 | PWMOUT/CrntOUT/DOOUT |
| C1-P22 | DIN/AIN/CAN shield | C1-P47 | Power supply + |
| C1-P23 | DIN/AIN/ResIN/CrntIN | C1-P48 | Power supply + |
| C1-P24 | DIN/AIN/ResIN/CrntIN | C1-P49 | Power supply + |
| C1-P25 | DIN/AIN/FreqIN | C1-P50 | Power supply + |

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

Product Part Number

| | |
|------------------|----------|
| SC050-13H | 11159704 |
|------------------|----------|

Related Products Part Numbers

| | |
|---|----------------------------|
| CG150-2 CAN/USB Gateway | 11153051 |
| Deutsch® mating connector bag assembly | 10102024 (16 to 20 AWG) |
| PLUS+1 GUIDE single user license | 10101000 |

Danfoss comprehensive *technical information* is on line at:
www.danfoss.com