Data Sheet

SC050-13H
PLUS+1® Safety Controller

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.

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.

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, 128 kB RAM
  - Secondary 512 kB flash, 64 kB RAM
  - Internal micro to micro UART
- 12 bit analog to digital converter
- 7 to 36 V_{DC} power supply, monitored internally
- 24 user-defined inputs
- 14 user-defined outputs

- Each PWM output may have a unique frequency
- 2 CAN 2.0 B ports, the shield pin can be configured as a DIN/AIN
- User-defined 3 to 12 V_{DC} 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 V_{DC} to 500 mA

- Operating temperature range: -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: 2010 Parts 1-7 and IEC 62061:2005+ A1:2012+ A2:2015

Comprehensive technical literature is online at *www.danfoss.com*

24 User-defined Inputs

- (6) Digital/Analog/Resistance/4-20 mA current
- (6) Digital/Analog /Frequency
- (2) Digital/Analog/CAN Shield
- (1) Digital/Analog/1.6 V_{DC} sensor power (for smart digital input capability)
- (1) Digital/Analog/3.3 V_{DC} sensor power (for smart digital input capability)
- (8) Digital/Analog

14 User-defined Outputs

- (6) 3 A Digital: configurable as source only
- (8) 3 A PWM: (33 to 4000 Hz or 20 kHz) configurable as open or closed loop with current control

Specifications

Product parameters

Supply voltage, minimum	7 to 36 V_{DC}
Operating (ambient) and storage temperature	–40 °C to 85 °C [–40 °F to 185 °F]
IP rating (with mating connector)	IP 67
EMI/RFI rating	150 V/M
Weight	0.53 kg [1.16 lb]
Vibration / Shock	IEC 60068-2: 64 / 27 test Ea
Max. current: sourcing / sinking	40 A / 8 A

Product part numbers

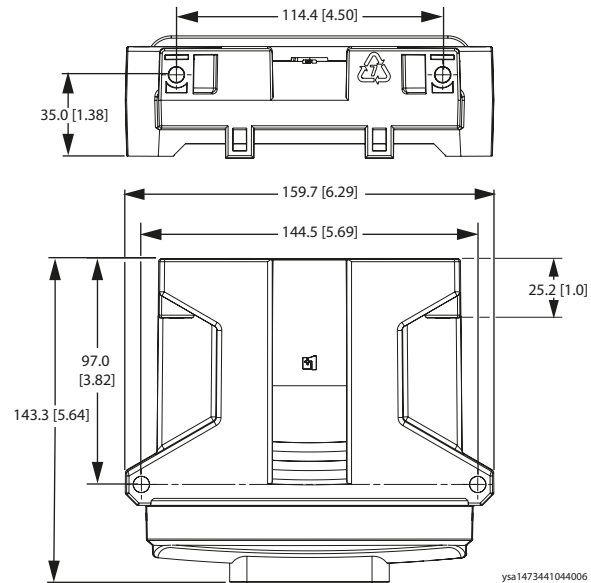| SC050-13H	11159704
CG150 CAN/USB Gateway	11153051
DEUTSCH mating connector (bag assembly)	10102024 (16 to 20 AWG)
PLUS+1® GUIDE (single user license)	10101000

⚠ Caution

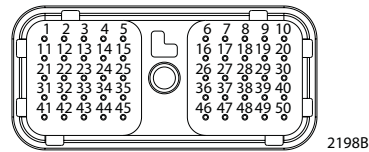PCB damage may occur. All device power supply + pins must be connected to battery +.

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

Use care when wiring mating connector. Pin-outs listed are for device pins.

Dimensions, mm [in]

114.4 [4.50]
35.0 [1.38]
159.7 [6.29]
144.5 [5.69]
25.2 [1.0]
97.0 [3.82]
143.3 [5.64]

ysa1473441044006

C1 controller 50-pin assignments

2198B

1 Power ground –

2 Power ground +

3 CAN0 +

4 CAN0 –

5 DIN/AIN/CAN shield

6 DIN/AIN/SnsrPwr1.6 V_{DC}

7 DIN/AIN/SnsrPwr3.3 V_{DC}

8 3-12 V_{DC} SnsrPwr +

9 SnsrPwr – (sensor ground)

10–17 DIN/AIN

18–19 DIN/AIN/ResIN/CrntIN

20 CAN1 +

21 CAN1 –

22 DIN/AIN/CAN shield

23–24 DIN/AIN/ResIN/CrntIN

25–30 DIN/AIN/FreqIN

31–32 DIN/AIN/ResIN/CrntIN

33–38 DOUT

39–46 PWMOUT/CrntOUT/DOUT

47–50 Power supply +