

Technical specifications

Egon+ board

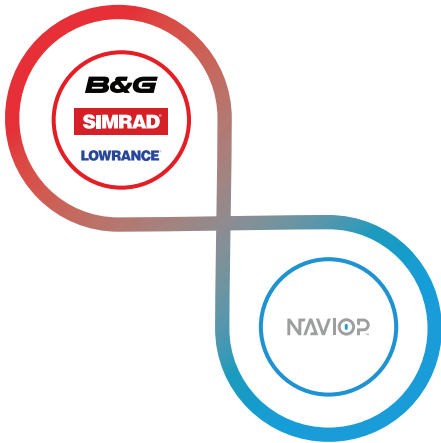
Environmental		Electrical	
Operating temperature	-40°C to 85°C	Power supply voltage	12 V DC (8-16 V DC)
Storage temperature	-40°C to 125°C	Dielectric voltage withstanding	80 V DC
Mechanical shock	SAE J2030 (RDEC2002), Section 6.16	Current consumption	1.5 mA battery quiescent current
Bombardment test	24 hour of dust, sand and gravel	Total current limit	200 A
Salt fog	96 hour period of salt fog per ASTM B117-94	Total current limit per connector	100 A
Protection class	IP 66	Overload	135%
Vibration	SAE J1455 (R2006), Section 4.10.4.2	Temperature rise	60°C
Chemical resistance	Break fluid, AT fluid, antifreeze fluid, windshield wash fluid, PS fluid and oil.	Insulation resistance	10 MOhm
Abnormal conditions		Max load	
Revers polarity protection	- 24 V DC, SAE J1455 (RJUN2006) - duration of 5 minutes	Fuse channels	30 A at 12 V DC
Short circuit protection		Relay and fuse channels (at 12 V DC)	20 A (resistive load)/16 A (inductive, motor, pump load)
Short to ground	5 minutes, ER455 (R2008) Section 5.10.4	Maximum board load	200 A
Short to 16 V DC	5 minutes, ER455 (R2008) Section 5.10.4	Power connector	2x M8 input studs, each rated at 100 A maximum
Power up operation	Ramp battery voltage from 0 to min. operating voltage at 1 V/ms, EP455 (R2008) Section 5.10.7	Power wire size	Calculated based on total board consumption
		Output wire size	1.31 mm² - 5.26 mm² (#10-16 AWG)
		Fuses	Mini blade fuse
		Relays	280 footprint, 4 pin relay

Warning: IGNITION PROTECTED ONLY WHEN EQUIPPED WITH IGNITION PROTECTED FUSES AND COVER CLOSED. ANY REPLACEMENT FUSES MUST BE IGNITION PROTECTED. COVER MUST BE CLOSED IN EVERY OPERATIONAL CONDITION!

OP-Box Loop M/M+

Interface	
Ethernet port	2 (port 0 - 10/100, port 1 - 10/100)
USB port	1 (Host v. 2.0, max. 100 mA)
Serial port	2 (RS-232, RS-485, RS-422, software configurable, optical isolation)
CAN bus port	2 (optical isolation – 1kV)
SD Card	-
Expansion	-
LED indicators	5 (Power, Ethernet status)
Ratings	
Power supply	9 to 32 V DC
Current consumption	0.15A max. at 24 V DC
LEN	0
Input protection	Electronic
Battery	Yes
Environment conditions	
Operating temperature	-15°C to +55°C
Storage temperature	-20°C to +70°C
Operating / Storage humidity	5 - 85% RH, non-condensing
Protection class	IPx7

Loop M
INSTALLATION GUIDE



For product manuals, technical specifications, certificates and declarations refer to the product website:

www.lowrance.com
www.simrad-yachting.com
www.bandg.com

Compliance statements

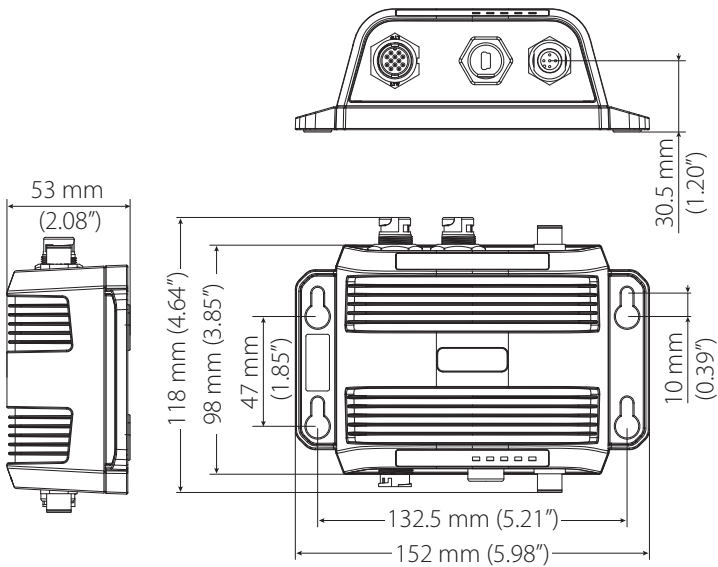
This product complies with:

- CE under EMC Directive 2014/30/EU
- the requirements of level 2 devices of the Radio communications (Electromagnetic Compatibility) standard 2017

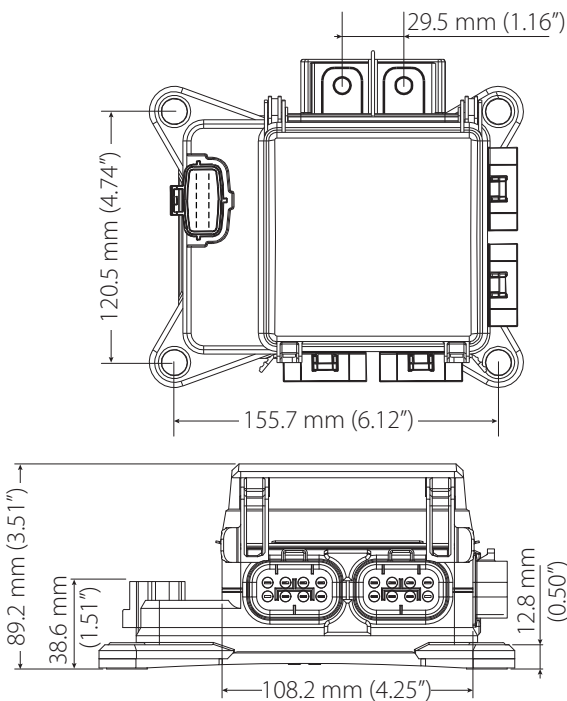
Warning: The user is cautioned that any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Dimensional drawings

OP-Box Loop M/M+



Egon+ board

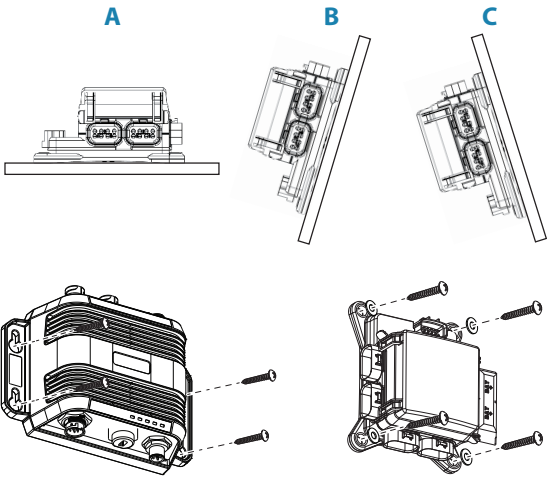


Mounting guidelines

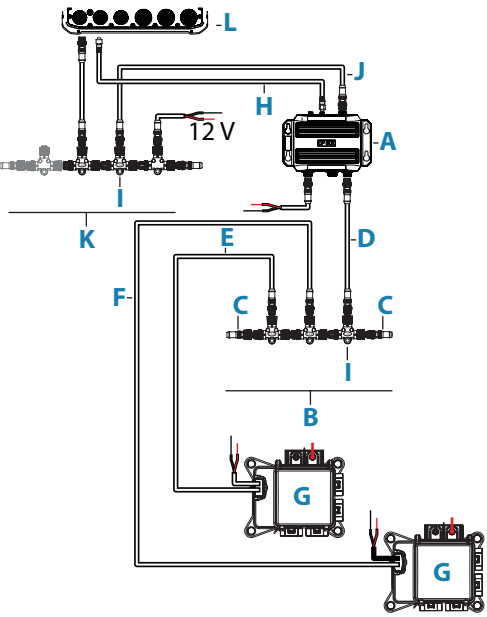
Egon+ board and OP-Box Loop M/M+

The recommended mounting orientation for the Egon+ board and the OP-Box Loop M/M+ is horizontal (A). If horizontal mounting is not possible, it is recommended that devices are mounted at an angle of 0-90° from horizontal (B). It is NOT recommended to mount the devices at an angle greater than 90° from horizontal (C) due to drainage issues.

The OP-Box Loop M/M+ shall be mounted with 4 screws (not included in the kit). The EGON+ board shall be mounted with 4 screws and 4 washers or brass grommets (not included in the kit).



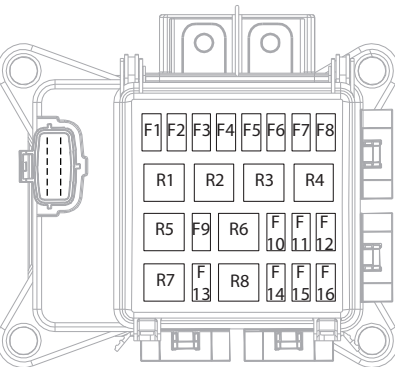
System overview



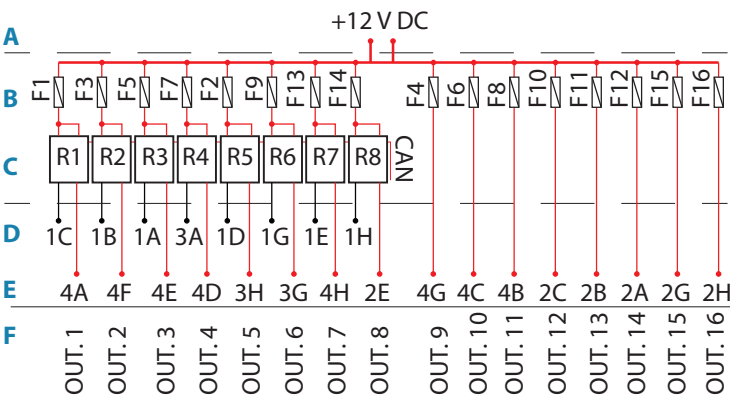
- A. OP-Box Loop M/M+
- B. Naviop CAN network backbone
- C. Terminators
- D. Naviop CAN drop-cable
- E. Egon+ drop-cable CAN ID:1
- F. Egon+ drop-cable CAN ID:2 (only available for Loop M+)
- G. Egon+ boards (maximum 2 Egon+ boards can be installed)
- H. Ethernet network (to MFD or Ethernet expansion device)
- I. T-connectors
- J. NMEA 2000 drop-cable
- K. NMEA 2000 backbone
- L. MFD

System IDs

System	Egon + boards	Controlable outputs	Monitored power outputs	Drop-cable ID
Loop M	1	8	8	CAN ID:1
Loop M+	2	16	16	CAN ID:1 CAN ID:2



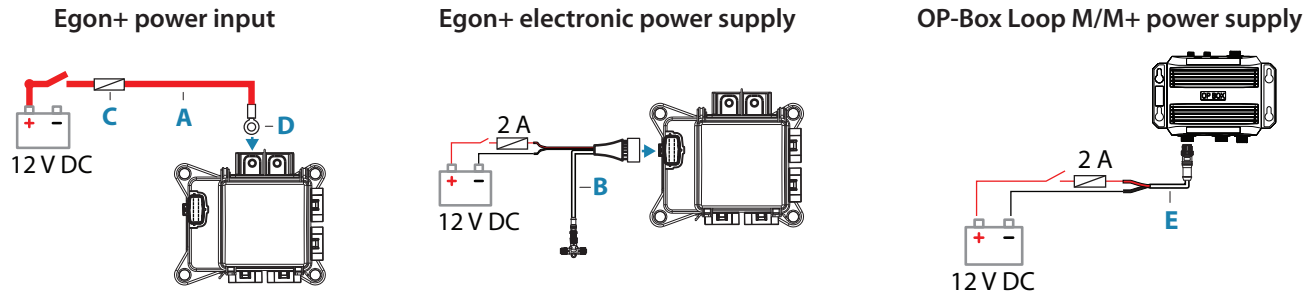
- A. Main power input
- B. Fuses
- C. Relays
- D. Override pins for relay outputs
- E. Output pins for relays and fuses
- F. Output number



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Wiring

Power wiring



- A. Power input cable (the cable must be able to carry the maximum current of all loads)
- B. Egon+ drop-cable
- C. Overcurrent protection (fuse or circuit breaker)
- D. M8 ring terminal (not included in the box)
- E. OP-Box Loop M/M+ power supply cable

Output connectors



Output 1 (black)	Output 2 (gray)	Output 3 (blue)	Output 4 (green)
1A - bypass for relay R3	2A - output fuse F12	3A - bypass for relay R4	4A - output relay R1 (fuse F1)
1B - bypass for relay R2	2B - output fuse F11	-	4B - output fuse F8
1C - bypass for relay R1	2C - output fuse F10	-	4C - output fuse F6
1D - bypass for relay R5	-	-	4D - output relay R4 (fuse F7)
1E - bypass for relay R7	2E - output relay R8 (fuse F14)	-	4E - output relay R3 (fuse F5)
-	-	-	4F - output relay R2 (fuse F3)
1G - bypass for relay R6	2G - output fuse F15	3G - Output relay R6 (fuse F9)	4G - output fuse F4
1H - bypass for relay R8	2H - output fuse F16	3H - Output relay R5 (fuse F2)	4H - output relay R7 (fuse F13)

Bypassing a relay

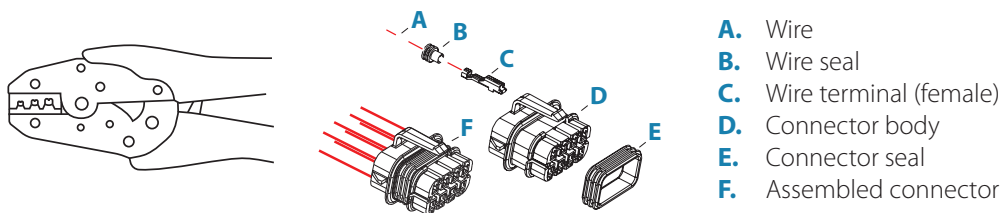
The bypass is an override and it cannot be used as a parallel control. By connecting the bypass pin of a relay to DC negative the relay is closed and the output activated. The main important appliances (bilge pumps, navigation lights, blower, horn etc) must be equipped with a bypass for the safety of the boat.

Output connector wiring

The electrical wiring, connections and installation shall be in accordance with the requirements of ISO10133, ABYC E-11, AC and DC electrical system on boats. The wire size should be calculated based on the channels total load and the cable length. For bypass wires a #16 AWG cable is sufficient.

A proper crimping tool for barrel open terminals should be used to crimp the cables to the wire terminals.

Always use a fuse that is appropriate for the connected load. The fuses supplied may have to be replaced to match the outputs connected load.



System configuration

Before the Loop system can be operated from the MFD, it has to be configured. The web based Loop SetApp is used to generate the configuration files and can be downloaded from one of the 3 brand websites: www.lowrance.com, www.bandg.com, www.simrad-yachting.com

Warning: The Loop system must only be configured by a competent installer. If your Loop system has not been pre-configured for you, please contact your dealer for advice on how to have the Loop system configured by a competent installer.