

## Technical specifications

### Egon+ board

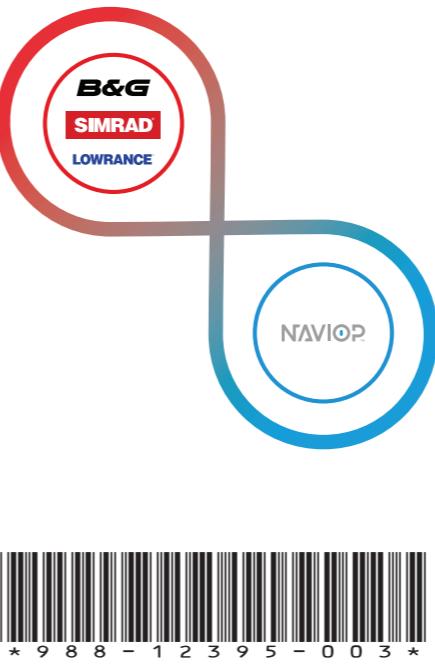
**⚠ Warning:** IGNITION PROTECTED ONLY WHEN EQUIPPED WITH IGNITION PROTECTED FUSES AND COVER CLOSED.  
ANY REPLACEMENT FUSES MUST BE IGNITION PROTECTED. COVER MUST BE CLOSED IN EVERY OPERATIONAL CONDITION!

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

### AT30

<i>Operating temperature</i>	-25°C to 65°C
<i>Power supply voltage</i>	8-16 V DC
<i>NMEA 2000 current consumption</i>	1 LEN
<i>CE</i>	EN 60945

## Loop S INSTALLATION GUIDE



\* 9 8 8 - 1 2 3 9 5 - 0 0 3 \*



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

[www.lowrance.com](http://www.lowrance.com)  
[www.simrad-yachting.com](http://www.simrad-yachting.com)  
[www.bandg.com](http://www.bandg.com)

## Compliance statements

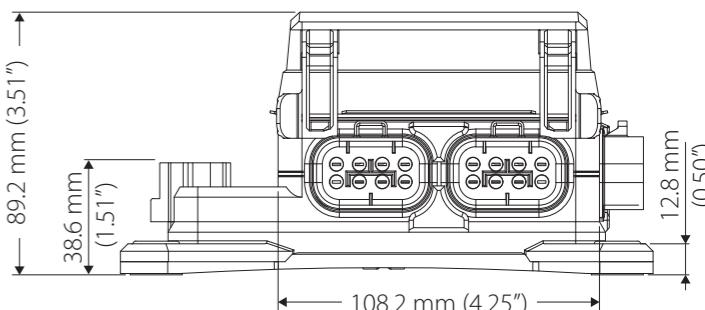
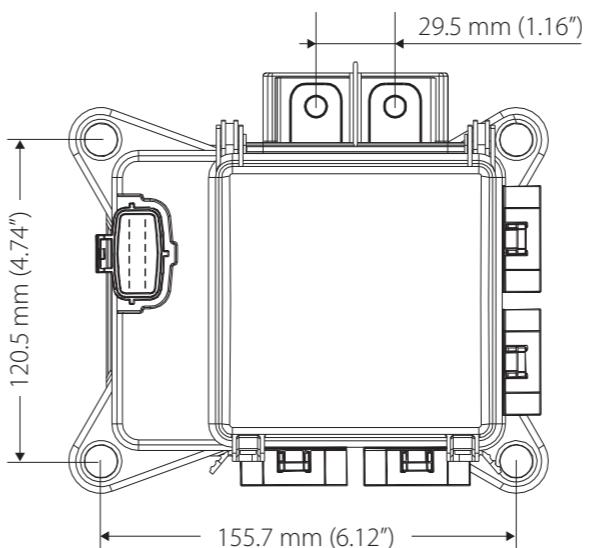
This product complies with:

- 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

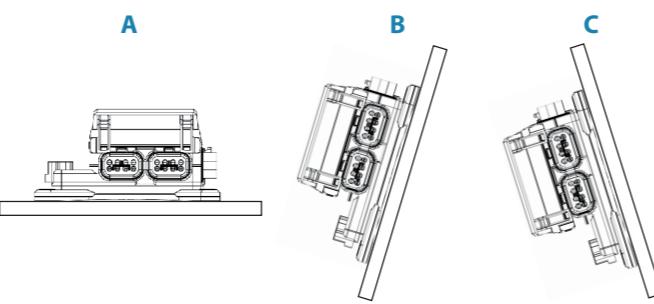
### Egon+ board



## Mounting guidelines

### Egon+ board

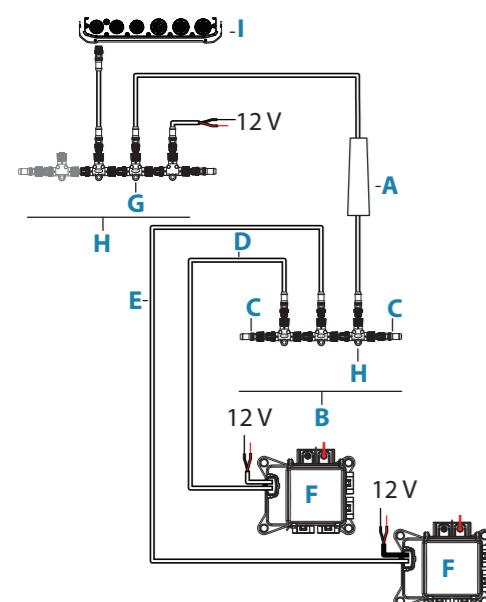
The recommended mounting orientation for the Egon+ board is horizontal (**A**). If horizontal mounting is not possible, it is recommended that device is mounted at an angle of 0-90° from horizontal (**B**). It is NOT recommended to mount the device at an angle greater than 90° from horizontal (**C**)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



### AT30 protocol converter

Check the labels on the AT30 protocol converter cable to ensure the correct connectors are attached to the NMEA 2000 network and to the Naviop CAN network.

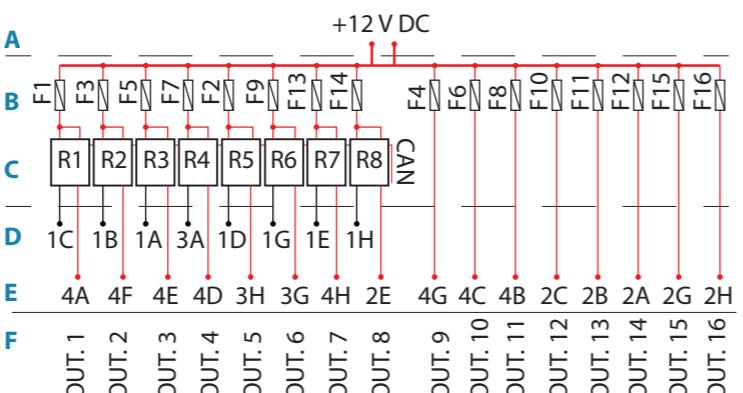
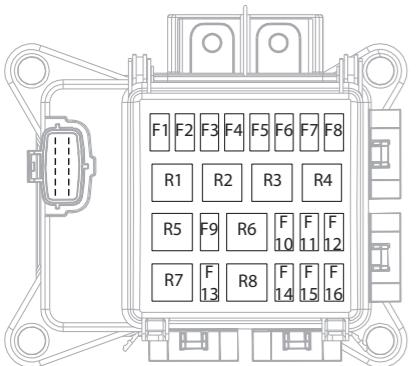
## System overview



- A. AT30 protocol converter (NMEA 2000 to Naviop CAN)
- B. Naviop CAN backbone
- C. Terminators
- D. Egon+ drop-cable CAN ID:1
- E. Egon+ drop-cable CAN ID:2 (only available for Loop S+)
- F. Egon+ boards (maximum 2 Egon+ boards can be installed)
- G. T-connectors
- H. NMEA2000 backbone
- I. MFD

### System IDs

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

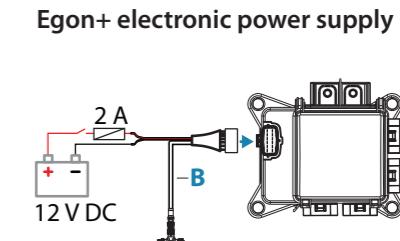
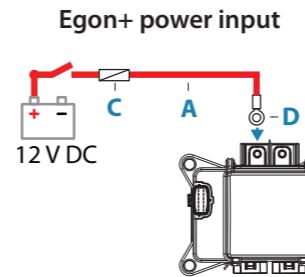


- A. Main power input
- B. Fuses
- C. Relays
- D. Override pins for relay outputs
- E. Output pins for relays and fuses
- F. Output number

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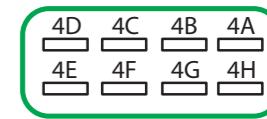
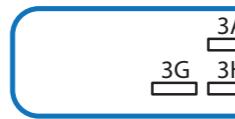
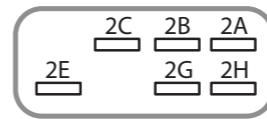
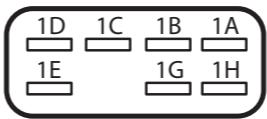
## Wiring

### 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)

### 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)

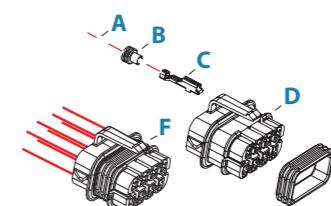
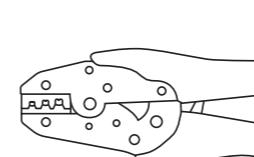
### Bypassing a relay

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.



- A. Wire
- B. Wire seal
- C. Wire terminal (female)
- D. Connector body
- E. Connector seal
- F. Assembled connector

## 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](http://www.lowrance.com), [www.bandg.com](http://www.bandg.com), [www.simrad-yachting.com](http://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.