

technical specification

TECHNICAL SPECIFICATION FOR LIGHTNING SYSTEM



LIGHTNING™
BY HUMPHREE

Technical specification for Lightning System

Lightning Control Unit description

The control unit contains advanced sensors, calculating algorithms and works on 10 – 30 VDC. The control unit handles the system functions, controls the interceptor servo motors and powers the control panel.



LCU Data

Dimension: Height: 80 mm Width: 187 mm Thickness: 44 mm (See Dimensions drawing)
 Weight: 0.5 kg
 Casing type: Clear diffuse black plastic with LED status indicators.
 Casing colour: Black
 Cable: 3m 2x2,5mm² (fixed in LCU, open in other end)
 Power inlet: 10 VDC – 30 VDC,
 Protection: Install according to connection diagram for polarity, overvoltage, overheating protection. 15-16A fuse (not included)

Power consumption: Complete system with one control panel, one control unit and two interceptors.

Operation mode	Input Voltage to LCU - 14,4 V Current Consumption (A)	Input Voltage to LCU - 28,8 V Current Consumption (A)	Power consumption 14,4/28,8 V (W)
Sleep	0,05	0,03	0,72 / 0,86
Standby (idle)	0,34	0,19	4,9 / 5,5
Running mode - average (Low load)	1,9	1,1	27 / 32
Running mode - max (High load)	16	8	230 / 230
Lights On	1,7	0,9	24,5 / 25,9

Internal communication: CAN, Humphree proprietary protocol.
 Temperature rating: -30°C to 80°C (storage), -20°C to 60°C (Operational)
 IP rating: Waterproof IP67
 EMC: SS-EN ISO 25197:2020
 Fire rating: Ignition proof tested according to ISO 8846:1990, SAE J1171

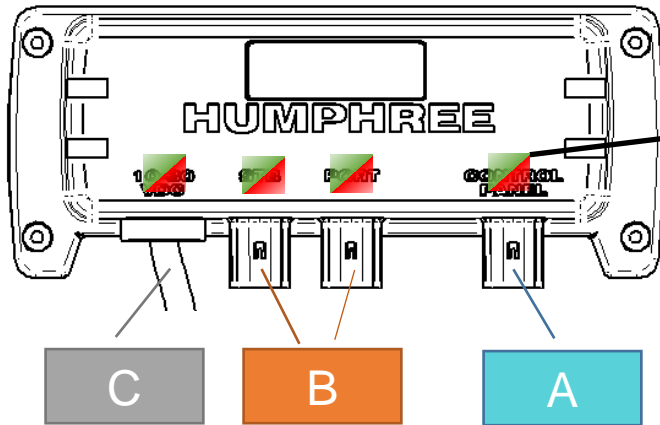
Equipment group: Lightning Control system

Date: 2023-11-20

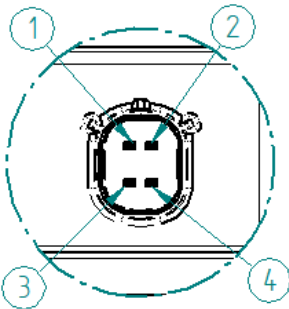
Version: 032425-P05

- Connections: 4 pc.
- Connection type:
- A. 1 pc. CONTROL PANEL: 4 pin Connector MOLEX 33472-0401 (MX150 key A), Sockets 33012-2002
 - B. 2 pc. Interceptor STB, Interceptor PORT: 4 pin Connector MOLEX 33472-0401 (MX150 key A), Sockets 33012-2002
 - C. 1 pc. POWER 10-30 VDC: Red = + , BLACK (BROWN) = GND

Connector position:

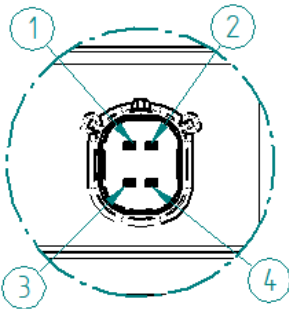


LED indicator:



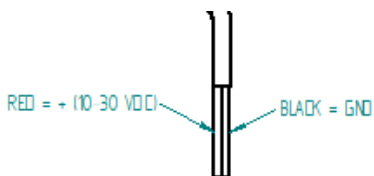
CONTROL BUS Molex MX150 pin (x3)	
1	VBAT
2	CAN LO
3	CAN HI
4	GND

- GREEN flashing 1s interval = Waiting for LCP
- GREEN fixed = Connection OK
- RED fixed = Connection error



CONTROL BUS Molex MX150 pin (x3)	
1	VBAT
2	CAN LO
3	CAN HI
4	GND

- GREEN flashing 1s interval = Waiting for Interceptor
- GREEN fixed = Interceptor OK
- RED fixed = Interceptor error



POWER 10-30 VDC	
RED	+ VBAT (10-30 VDC)
BLACK	- GND

- GREEN flashing 1s interval = Connection OK
- RED flashing 1s interval = Error

Lightning Control Panel description.

Control panel for monitoring and controlling the installed equipment connected to the LCS (Lightning Control System). Manual control of the system and possibility to adjust settings. Actual alarm and alarm history in menu. Dimmer function and night mode screens in different colors. Can be mounted in portrait or landscape orientation. Comes with protective cover.



LCP Data.

Dimensions:	Height 112mm, Width 86mm, thickness 46 mm. (See Dimensions drawing)
Weight:	0.1 kg
Panel type:	3.5" display TFT.
Panel display:	RGB 240x320 pixel with touch screen.
Touch:	PCAP
WiFi:	WiFi connection for programming and update.
Bluetooth:	Bluetooth connection for programming and update.
Ext. bus:	For external connections. RS422, RS232. Two or more panels can be used in tandem. Ext.bus can be connected to either panel.
Ethernet:	For connection to MFD displays and Ethernet networks.
NMEA2000:	For connection to NMEA2000 networks.
Power inlet:	10VDC to 30VDC. Power supplied from LCU.
Power consumption:	See LCU data.
Cable:	Humphree control bus cable.
Internal communication:	CAN, Humphree proprietary protocol.
Temperature rating:	-30°C to 80°C (storage), -20°C to 60°C (Operational)
IP rating:	Waterproof IP66 when mounted
EMC:	SS-EN ISO 25197:2020

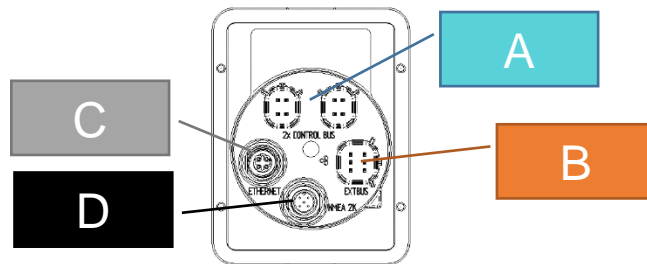
LCP description front side.

Dimension: High: 112 mm Wide: 86 mm thickness: 46 mm (See Dimensions drawing)
 Max thickness of dashboard: 16 mm. (For thicker panels a recess for the connectors is needed)
 Flush mount dashboard thicken.: 5-6 mm. (See installation manual for flush mount instructions)
 Access from underside: Yes. For cable connectors and for the mounting screws.
 Frame Material: Plastic.
 Frame colour: Black.
 Cover: Protective cover for front mount or flush mount.
 Cleaning: Do not use acid or base chemical which can harm the plastic, use lightly soaped water.

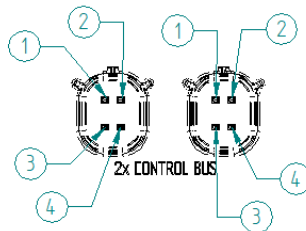
LCP description back side.

Connections: 5 pc.
 Connection type: A. 2 pc. CONTROL BUS: 4 pin Connector MOLEX 33472-0401 (MX150 key **A**), Sockets 33012-2002
 B. 1 pc. EXTBUS: 6 pin Connector MOLEX 33472-0601 (MX150 key **A**), Sockets 33012-2002, See Extbus document for the communication sentences.
 C. 1 pc. ETHERNET: M12 4pin D-code Female.
 D. 1 pc. NMEA2000: M12 5pin A-code Male.

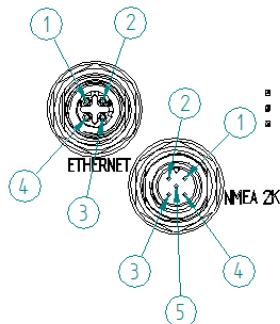
Connector position:



CONTROL BUS Molex MX150 4 pin (b2)	
1	VBAT
2	CAN LO
3	CAN HI
4	GND

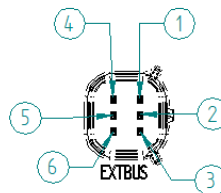


M12 4 pin D-code Female	
1	TD+
2	RD+
3	TD-
4	RD-



M12 5 pin A-code Male	
1	Shield
2	Power +
3	GND
4	CAN HI
5	CAN LO

EXTBUS Molex MX150 6 pin		
1	RX_H	RS232/422: Receive to CP Positive
2	TX_H	RS232/422: Transmit from CP Positive
3	RX_L	RS422: Receive to CP Negative
4	TX_L	RS422: Transmit from CP Negative
5	KEY	Keyswitch Positive
6	GND	Keyswitch Negative AND RS232/422 Ground



Seen from panel back side

L Interceptor description.

The Interceptor is mounted on the transom along the edge of the bottom hull. The Interceptor has a blade that intercepts the water flow creating a lifting force on the aft of the boat hull. The Interceptor has an internal servo unit that can change the blades deployment. The maximum Interceptor blade deployment is 50mm. The cable can be position behind the Interceptor or placed above the Interceptor. An included cable protection cover can be used to cover the cable. A chine Interceptor version is available in a starboard and port version and can be modified depending on the chine angle. The Interceptor has a LED RGBW light that can illuminate the water in the aft of the boat. The lightning interceptor is suitable for 20-45ft boats.



L Interceptor Data.

Dimensions:	L300, 300mm x 133mm x 102mm (WxHxD) (See Dimensions drawing) L300C, 300mm x 174mm x 102mm (WxHxD) (See Dimensions drawing) L450, 450mm x 133mm x 102mm (WxHxD) (See Dimensions drawing) L450C, 450mm x 174mm x 102mm (WxHxD) (See Dimensions drawing)
Weight:	L300=3.7kg, L300C=3.8kg, L450=4.7kg, L450C=4.8kg
Stroke length:	50mm deployment.
Custom:	Chine version.
Fastening to hull:	By Interceptor bracket and 15-16x screws ST6,3x32 ISO14585 A4 T30
Interceptor fastening to bracket:	By 2x M8 A4-80 75mm allen key bolts.
Cable length:	4m (waterproof IP68 from gland to Interceptor).
Transom hole:	28mm (for the cable gland)
Transom thickn. for cable gland:	8mm - 70mm
Power inlet:	10VDC to 30VDC. Power supplied from LCU.
Power consumption:	See LCU data
Under water lights:	LED 10 x 2.5W RGBW (3000K)
Internal communication:	CAN, Humphree proprietary protocol
Temperature rating:	-30°C to 80°C (storage), +1°C to 60°C (Operational)
IP rating:	Waterproof IP68
EMC:	SS-EN ISO 25197:2020

Maintenance schedule	Check interceptor for damage when you lift the boat, see service schedule in operator's manual.
Parts to maintain	Clean the blades from organic growth when needed, Use cleaning mode when possible.
Colour:	Black.
Painting:	Same anti fouling paint as hull can be used.
Cleaning:	Do not use acid or base chemical which can harm the plastic, use lightly soaped water.
Connections:	1pc
Connection type:	4 pin Connector MOLEX 334724101 (MX150 key A), Socket Molex 33012-2002.
Connector position:	End of Interceptor cable.



Molex pin	
1	VBAT
2	CAN LO
3	CAN HI
4	GND