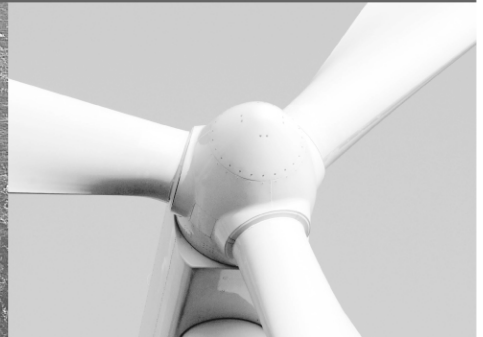
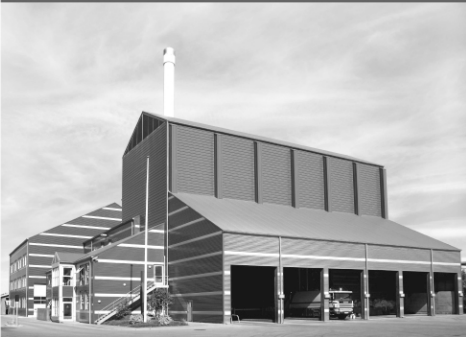




-power in control



## DATA SHEET



### **CIO 208 | 8 relay outputs CAN bus-based I/O module**

- 8 relay outputs
- 240 V AC or 30 V DC relay contacts
- 8 A relay rating
- CAN bus interface
- LEDs to indicate status and output state
- 12/24 V DC supply



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**Application**

The CIO series is a range of external I/O modules for some DEIF controllers, in case the demand for inputs and outputs exceeds the capacity of the controller.

**Host controllers**

The CIO modules need a host controller to send and receive their information.  
The controllers that are listed below support CIO modules:

Type	SW version	CIO 116 quantity	CIO 208 quantity	CIO 308 quantity
AGC 200	From v. 4.59.x	3	3	3
AGC-4	From v. 4.59.x	3	3	3

**Common functions****Status output**

The status output is active when the CIO module works correctly and communication to the host controller is established.  
The microprocessor is supervised by a watchdog.

**Note:**

The status output can be re-configured as a configurable output. In this case, the states above may not be true.  
Re-configuration of the status output is not possible on marine-approved DEIF host controllers (PPM and PPU).

**Status LED**

The status LED (LED1) indicates the operation status of the module and the status output.

**CAN LED**

The CAN LED (LED2) indicates the status of the CAN bus communication to the host controller.

**CAN bus end resistor**

The CIO module has a built-in 120 ohm end-termination for the CAN bus line, which can be activated via the switch (S1).

**Output LEDs**

All 8 outputs have a green LED to indicate the state of the relay. The LED is visible through the inspection window on the front of the CIO module.

**ID selector**

The ID selector is used to give CIO modules of the same type different IDs.

All three types of CIO modules can use IDs from 1 to 15, and different module types may use the same ID.

**USB connection**

The USB port can only be used to update the firmware of the module. Configuration is not possible via this port.

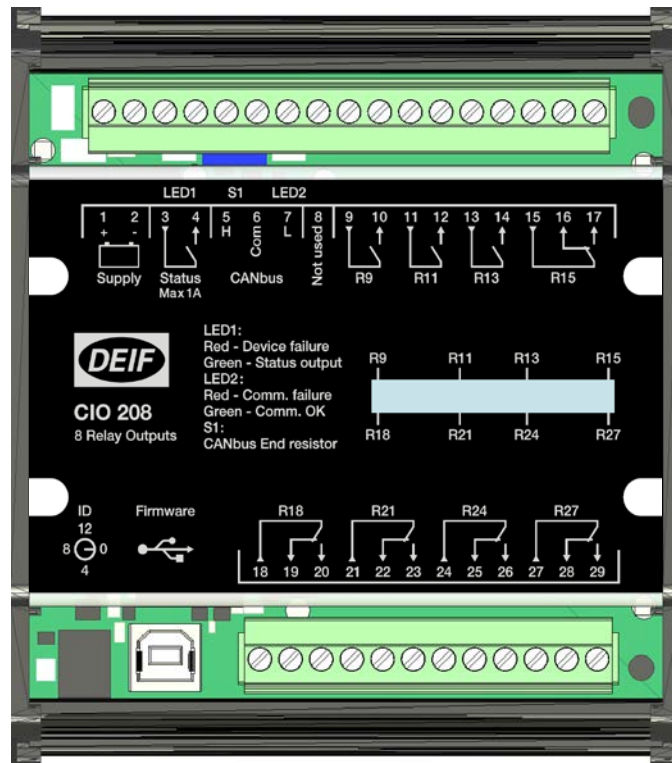
**Note:**

To update the firmware, the CIO module ID switch must be set to ID 0.

**CAN bus**

The CAN bus interface is intended for DEIF host controllers only. It is possible to have additional CAN bus communication devices (J1939) on the same CAN bus line, but they cannot act as host for the CIO module. It is described in the manual of the host controller if it supports this feature.

CIO 208 hardware



Terminal	Name	Description	Comment	
1	+	+12/24 V DC	Power supply	
2	-	0 V DC		
3	Status	Common	Status output (configurable)	
4		Normally open		
5	H	CAN H	CAN bus interface	
6	Com	CAN Com		
7	L	CAN L		
8	Not used			
9	R9	Common	Relay 9	Relay group 1
10		Normally open		
11	R11	Common	Relay 11	
12		Normally open		
13	R13	Common	Relay 13	
14		Normally open		
15	R15	Common	Relay 15	
16		Normally closed		
17		Normally open		
18	R18	Common	Relay 18	Relay group 2
19		Normally closed		
20		Normally open		
21	R21	Common	Relay 21	
22		Normally closed		
23		Normally open		
24	R24	Common	Relay 24	
25		Normally closed		
26		Normally open		
27	R27	Common	Relay 27	
28		Normally closed		
29		Normally open		

**Available variants**

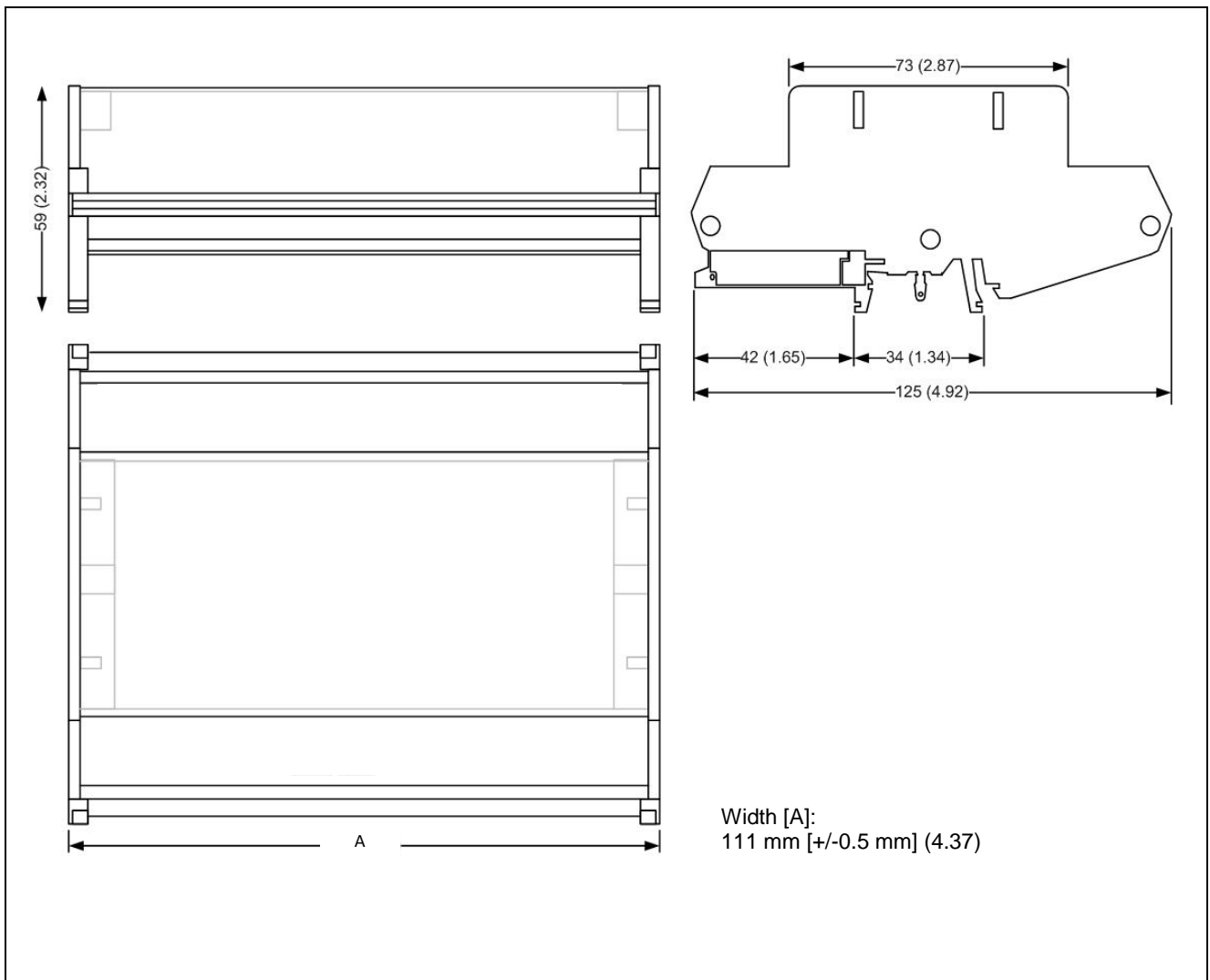
Type	Variant no.	Description	Item no.	Note
CIO 208	01	CIO 208 – 8 relay outputs	2912890250	8 x relay outputs

Technical specifications

<b>Operating temp.:</b>	-40 to +70 °C (-40 to 158 °F) to IEC 60068-2-1/2  <b>UL/cUL Listed:</b> Max. surrounding air temperature 55 °C (131 °F)
<b>Storage temp.:</b>	-40 to +70 °C (-40 to +158 °F)
<b>Climate:</b>	97 % RH to IEC 60068-2-30
<b>Operating altitude:</b>	Max. 4000 meters above sea-level  Derated relay voltage above 2000 meters (see relay output specification)
<b>Aux. supply:</b>	Nominal 12/24 V DC (operational 6.0 to 36 V DC)  Able to survive 0 V DC for minimum 50 ms when coming from at least 12 V DC with 4 relays active (cranking dropout) Able to survive 0 V DC for minimum 30 ms when coming from at least 12 V DC with 8 relays active (cranking dropout)  The aux. supply input is to be protected by a 2 A slow-blow fuse If protection against load dump is required, use a 12 A slow-blow fuse  <b>UL/cUL Listed:</b> 10 to 32.5 V DC
<b>Consumption:</b>	Min. 0.7 W Max. 3.2 W
<b>Load dump:</b>	ISO 16750-2 Test A (24 V DC system) SAE J1113-11 Pulse 5 A Power supply ports: Test 1 – 123 V at 1 Ω for 100 ms Test 2 – 174 V at 8 Ω for 350 ms
<b>Status output:</b>	Solid state output Maximum 30 V AC or DC Temperature from -40 to +40 °C max. 1 A resistive load Temperature from +40 to +70 °C max. 0.8 A resistive load
<b>Relay outputs:</b>	Electrical rating: 8 A resistive, B300 Pilot Duty
Note:	If all relay outputs are continuously ON: Max. 4 A at 55 °C surrounding air Max. 2 A at 70 °C surrounding air
Note:	0-2000 meters 250 V AC/30 V DC 2000-4000 meters 150 V AC/30 V DC
CAUTION:	Relays with working voltages >150 V AC must be operated within the same relay group and not next to relays with 30 V DC working voltage  <b>UL/cUL Listed:</b> 250 V AC/30 V DC, 4 A resistive load 250 V AC/30 V DC, 4 A pilot duty
<b>Galvanic separation:</b>	Between relays within one group: 2200 V 50 Hz for 1 minute Between relay group and other I/Os: 3250 V 50 Hz for 1 minute Between CAN bus interface and other I/Os: 600 V 50 Hz for 1 minute Between status relay output and other I/Os: 600 V 50 Hz for 1 minute
<b>Mounting:</b>	DIN rail mounting inside a cabinet or other enclosure Compatible DIN rails: - TS35/top hat 35 mm (this rail type is used in all product tests) According to EN 50022 - G-type rail According to EN 50035, BS 5825, DIN 46277-1  <b>UL/cUL Listed:</b> To be installed in accordance with the NEC (US) or the CEC (Canada)

<b>Connections:</b>	<p>Minimum 0.2 mm<sup>2</sup> (24 AWG) multi-stranded  Maximum 2.5 mm<sup>2</sup> (12 AWG) multi-stranded  Firmware port: USB-B</p> <p><b>UL/cUL Listed:</b>  Use min. 90 °C copper conductors only</p>
<b>Terminals tightening torque:</b>	<p>Minimum 0.5 Nm (4.4 lb-in)  Maximum 0.6 Nm (5.3 lb-in)</p> <p><b>UL/cUL Listed:</b>  0.5 Nm (4.4 lb-in)</p>
<b>Approvals:</b>	<p>CE  UL/cUL Listed to UL508 and CSA C.22.2 No. 142-M1987  UL/cUL Recognized to UL6200 and CSA C.22.2 No. 14-13 (pending)</p>
<b>Weight:</b>	320 g (0.71 lbs)
<b>Safety:</b>	IEC/EN 60255-27, CAT III, 300 V, pollution degree 2
<b>Protection:</b>	<p>IP20 - IEC/EN 60529  NEMA type 1</p> <p><b>UL/cUL Listed:</b>  Type complete device, Open Type 1</p>
<b>EMC/CE:</b>	<p>EN 61000-6-1/2/3/4  IEC/EN 60255-26  IEC 60533 power distr. zone  IACS UR E10 power distr. zone</p>
<b>Vibration:</b>	<p>Test performed with CIO module mounted on top hat 35 mm DIN rail</p> <p>3 to 13.2 Hz: 2 mm<sub>pp</sub>  13.2 to 100 Hz: 0.7 g  To IEC 60068-2-6  To IACS UR E10</p> <p>10 to 58.1 Hz: 0.15 mm<sub>pp</sub>  58.1 to 150 Hz: 1 g  To IEC 60255-21-1 Response (class 2)</p> <p>10 to 150 Hz: 2 g  To IEC 60255-21-1 Endurance (class 2)</p> <p>3 to 8.15 Hz: 15 mm<sub>pp</sub>  8.15 to 35 Hz: 2 g  To IEC 60255-21-3 Seismic (class 2)</p>
<b>Shock:</b>	<p>Test performed with CIO module mounted on top hat 35 mm DIN rail</p> <p>10 g, 11 msec, half sine  To IEC 60255-21-2 Response test (class 2)</p> <p>30 g, 11 msec, half sine  To IEC 60255-21-2 Withstand test (class 2)</p> <p>50 g, 11 msec, half sine  To IEC 60068-2-27</p>
<b>Bump:</b>	<p>Test performed with CIO module mounted on top hat 35 mm DIN rail</p> <p>20 g, 16 msec, half sine  To IEC 60255-21-2 (class 2)</p>
<b>Material:</b>	All plastic materials are self-extinguishing according to UL94 (V1)

**Unit dimensions in mm (inches)**



**Order specifications**

Variants:

Mandatory information		
Item no.	Type	Variant no.

Example:

Mandatory information		
Item no.	Type	Variant no.
2912890250-01	CIO 208	01

Due to our continuous development we reserve the right to supply equipment which may vary from the described.



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