



-power in control

DEIF A/S

Type Certificate

4124030082B / ref. SOJ

Type:	CANbus based IO modules. CIO 116, CIO 208, CIO 308
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Technical specifications

Auxiliary supply: CIO 116	Nominal: 12/24V DC, max. 2W consumption.
Cranking dropout: CIO 208	Able to survive 0V for 50ms when dropping from at least 12V DC. Nominal: 12/24V DC, max. 3W consumption.
Cranking dropout: CIO 308	Able to survive 0V for 30ms when dropping from at least 12V DC. Nominal: 12/24V DC, max. 2W consumption.
Cranking dropout:	Able to survive 0V for 30ms when dropping from at least 12V DC.
All variants:	Reverse polarity protected.
* Digital input: CIO 116	Optocoupler, bi-directional. ON: 8...36V DC. OFF: 0...2V DC. Impedance: 4.7k Ω .
Voltage withstand:	± 36 V DC.
* Relay outputs:	
CIO 116, 208, 308 CIO 208	30V AC/DC / 1A resistive (Solid state) 250V AC / 30V DC / 8A resistive, B300 Pilot duty. Refer to separate module datasheet for de-rating specification.
* Analogue multi-functional inputs:	
CIO 308	Current: 0...20mA or 4...20mA. $\pm 10\mu\text{A} + 0.25\%$ of actual reading. Pt100/Pt1000 (Low range): -50...250°C. $\pm 1^\circ\text{C} + 0.25\%$ of actual reading. Pt100/Pt1000 (High range): -200...850°C. $\pm 2^\circ\text{C} + 0.25\%$ of actual reading. RMI (2-wire): 0...2500 Ω . $\pm 1\Omega + 0.25\%$ of actual reading. RMI (1-wire): 0...2500 Ω . $\pm 5\Omega + 0.25\%$ of actual reading. Voltage: 0...10V DC. $\pm 10\text{mV} + 0.25\%$ of actual reading. Digital: Dry contact with wire supervision. Max. Resistance for ON detection: 100 Ω .
Voltage withstand:	± 36 V DC.

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<p>* Thermocouple inputs:</p> <p>CIO 308</p> <p>Internal sensor for cold junction compensation:</p>	<p>E: -200...1000°C $\pm 2^{\circ}\text{C} + \pm 0.25\%$ of actual reading. J: -210...1200°C $\pm 2^{\circ}\text{C} + \pm 0.25\%$ of actual reading. K: -200...1372°C $\pm 2^{\circ}\text{C} + \pm 0.25\%$ of actual reading. N: -200...1300°C $\pm 2^{\circ}\text{C} + \pm 0.25\%$ of actual reading. R: -50...1768°C $\pm 2^{\circ}\text{C} + \pm 0.25\%$ of actual reading. S: -50...1768°C $\pm 2^{\circ}\text{C} + \pm 0.25\%$ of actual reading. T: -200...400°C $\pm 2^{\circ}\text{C} + \pm 0.25\%$ of actual reading.</p> <p>Accuracy: $\pm 1^{\circ}\text{C}$ in the operating temperature range: $-40^{\circ}\text{C} \dots 70^{\circ}\text{C}$</p>
<p>* Galvanic separation:</p> <p>CIO 116</p> <p>CIO 208</p> <p>CIO 308</p>	<p>Between Status OK relay and other I/O's: 600V, 50Hz, 60 s. Between CAN bus and other I/O's: 600V, 50Hz, 60 s Between Digital input group 1 and other I/O's: 600V, 50Hz, 60 s Between Digital input group 2 other I/O's: 600V, 50Hz, 60 s Power supply and USB has no galvanic separation.</p> <p>Between Status OK relay and other I/O's: 600V, 50Hz, 60 s. Between CAN bus and other I/O's: 600V, 50Hz, 60 s Between Relays and LV groups: 3250V, 50Hz, 60 s. Between Relay and adjacent relay: 2200V, 50Hz, 60 s. Between Relays and housing: 2200V, 50Hz, 60 s. Power supply and USB has no galvanic separation.</p> <p>Between Power supply input and other I/O's: 600V, 50Hz, 60 s. Between Status OK relay and other I/O's: 600V, 50Hz, 60 s. Between CAN bus and other I/O's: 600V, 50Hz, 60 s. Multi-functional inputs and USB has no galvanic separation.</p> <p>Note: "Other I/O's" includes housing or frame ground. "LV groups" means Power supply, Status OK relay, CANbus and USB.</p>

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Type test specifications		Tested according to:
Temperature:	15...30°C (Reference) -40...70°C (operating) -40...80°C (storage)	IEC 60068-2-1/2-2 IEC 60255-1
Humidity:	97% RH Cyclic 93% RH Steady state	IEC 60068-2-30, test Db. IEC 60068-2-78, test Cab. IEC 60255-1
Change of temperature:	70°C ...-40°C 1°/minute	IEC 60255-1 IEC 60068-2-14, test Nb.
Operating altitude:	0-4000m	Refer to separate module datasheets for altitude de-rating above 2000m.
Vibration:	Operation: 3...8Hz: 17mm _{pp} 8...100Hz: 4g 100...500Hz 2g Response: 10...58.1Hz 0.15mm _{pp} 58.1...150Hz 1g Endurance: 10...150Hz 2g Seismic: 3...8.15Hz 0.15mm _{pp} 8.15...35Hz 2g	IEC 60068-2-6 & IACS UR E10 IEC 60255-21-1 (Class 2) IEC 60255-21-1 (Class 2) IEC 60255-21-3 (Class 2)
Type test specifications		
Shock:	Base mounted: 10g, 11msec. half sine 30g, 11msec. half sine 50g, 11msec. half sine Tested with 3 impacts in each direction in all 3 axes. Total 18 impacts per test.	IEC 60255-21-2 Response (Class 2) IEC 60255-21-2 Endurance (Class 2) IEC 60068-2-27, test Ea.
Bump	20g, 16msec. half sine Tested with 1000 impacts in each direction in all 3 axes. Total 6000 impacts per test.	IEC 60255-21-2 (Class 2)
Safety:	Installation CAT. III 300V Pollution degree 2	IEC/EN 60255-27
Impulse:	1kV (<36VDC groups) 5kV (>36VDC groups)	IEC/EN 60255-27
Load dump:	10 pulses of 123V/1Ω/100ms 10 pulses of 174V/8Ω/350ms	ISO 16750-2 Test A (24VDC system) SAE J1113-11 Pulse 5a



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EMC:		EN 61000-6-3 EN 61000-6-2 IEC/EN 60255-26 IEC 60533 power distr. zone IACS UR E10 power distr. zone
Flammability:	All plastic parts are self-extinguishing to UL94-V0	UL94 IEC/EN 60695-11-5 (Needle flame test)
Ingress protection:	IP20	IEC/EN 60529

*) Routine tested on all units according to specifications.
Remaining specifications are tested regularly by test sampling.

5th October 2016

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