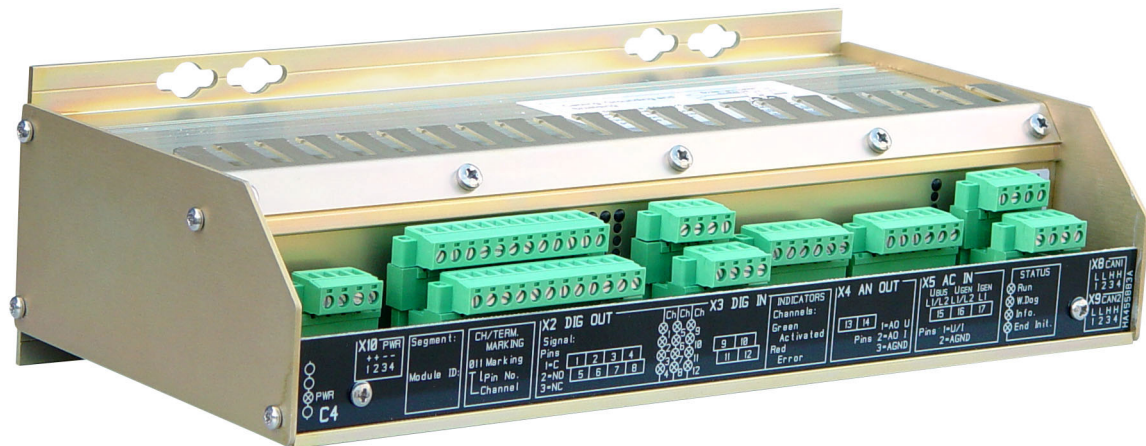




KONGSBERG

## RIO-C4 Distributed Processing Unit



### General description

The C4 module is a Distributed Processing Unit, dedicated to control of maritime generators and bustie breakers. The inputs and outputs are specialized for interfacing to voltage and current transformers as well as switchboard equipment. See technical description for detailed specification of the various channels.

The two CAN channels in the module are based on the ISO 11898 standard, with optical isolation. Short circuit or malfunction on one CAN channel does not affect the other CAN channel.

The protocol on CAN is based on CiA DS301, CANopen – Communication Profile for Industrial Systems.

### Features

- Built In Self Test (BIST)
- No serviceable parts
- All connections pluggable
- Indicating LED's
- All parameters stored in non-volatile memory in the module.

- All parameters can be inspected and changed from operator stations connected to the CAN (LOS, MOS or ROS).
- No hardware configuration.

### Functions

- Synchronize & connect of generator CB.
- Synchronize & connect of bustie CB
- Start & stop of auxiliary diesel engine
- RPM setpoint control of auxiliary diesel engine
- Optional control of primer pump for AE
- Optional control of fuel selection for AE
- Calculation of generator load (kW, kVAr)
- Driving MSB instruments (kW, kVAr)
- Load sharing between generators
- Optional AVR setpoint control

## Specifications

**Supply voltage:** 18 - 32 V DC  
**Power consumption:** 15W @ 24V DC

**Operating temperature:** -15°C to +70 °C  
**Storage temperature:** -25°C to +70°C  
 Max rel. Humidity: 96% non-condensing

**Mechanical environment:**  
 Maximum 4g (allows direct mounting on engines, compressors, etc.)

**EMC properties:** According to:  
 IACS E10 (2001)  
 IEC 60945 (1996/2002)

**Weight of unit:** 2.0 kg.  
**Mounting:** Screws (4 pcs M5)  
**Plugable screw terminals:** 2.5 mm<sup>2</sup>

**Serial interfaces:**  
 2 CAN ports for communication with host.

**BIST (Built In Self Test):**  
 Module temp, Sensor excitation overload.

**Isolation:**  
 Isolation pr module in power port:  
 50 VDC continues 50 VAC 1 minute.  
 3 ways isolation:  
 1. I/O Power.

2. I/O CAN bus  
 3. Power CAN bus

**8 Digital output:**  
 All outputs max. 3 Amps 250VAC (relay)  
 1 pole change over. Inductive load.

**2 ACV input (bus and generator):**  
 Input: Max. 35Vrms  
 Voltage scaling: 29 Volt  
 Frequency scaling: 0-90 Hz  
 Technical units: Free range  
 Accuracy: ± 1 [%]

**1 phase IAC. generator current input:**  
 Input: Max 15A  
 Current Scaling: 0-5 A  
 Maximum readable input: 5A.  
 Maximum input: 15A.max 0.5 s  
 Technical units: Free range  
 Accuracy: ± 1 [%]

**4 Digital inputs:**  
 Require dry contact or opto coupler.

**2 Analogue output:**  
 Range: ±22mA and ±11V  
 Accuracy with signal conditioning: ±1.0 [%]

**Type approval:**  
 ABS, BV, GL, KR, LR, RRS, NK, PRS, Rina, CCS, DNV

