MD300io-r
Rack Mounted IO unit

CGI

The MD300 range of RTUs is purpose-built for harsh substation and industrial environments.

CGI provides resilient building blocks that help our clients design flexible distributed control systems. Our RTU solutions support innovative modelling, control and data capture in complex operational environments. Designed and manufactured in Australia, our products evolve through long-term partnerships with electricity utilities. These relationships ensure ongoing product currency and practical innovation. We partner with utilities as they adopt more intelligent, automated and data-centric grid solutions.

Remote I/O concept

The MD300 range employs the concept of remote I/O. This architecture splits the CPU and software from the I/O subsystem and connects them using high speed dedicated serial links. This architecture has the following advantages:

- It does not require the overhead of an additional CPU.
- Redundant scanning of I/O is made possible.
- Distributed I/O can mix with centralised I/O without the need for distributed software or configuration.

Processor option – PM302

The PM302 utilises a Linux kernel hosting CGI's SMS/RTU applications. This processor increases the communications options adding Ethernet and serial ports and provides capability for the MD300io-r to be deployed as a standalone RTU solution.

Use cases may include, but are not limited to:

- Substation Management Unit (SMU)
- Distributed Intelligence Unit (DIU)
- Remote I/O or Marshalling IED
- Gateway or Protocol Converter
- Local webserver HMI (HTTPS)
- Intelligent Grid Solutions

With or without the processor module, the MD300io-r may be combined with other MD300 RTU range products to provide a large scale solution.

Installation does not require any changes to the racks, so existing deployments can be easily upgraded to include the processor.

Key features

- No moving parts (fan and disk-less)
- Redundant communications channels
- Fiber and RJ45 communication options
- 16 I/O slots
- Up to 256 I/O points
- 1ms sequence of events support
- Standalone RTU capability
- Industry standard protocols
- Operating temp -20ºC to 70ºC
- Power range 24 – 125 V DC
- Redundant power supply option
- Mounted: 19" Rack 3RU
- Wiring: 5mm-pitch, up to 2.5mm2

Regulatory compliance

- EMI: CISPR 22 / EN55022 Class A
- EMC: AS 60870.2.1 (Level 3)
- IEC 61000-4-2/4-3/4 -4/4-5/4-6/4-8

Safety

- Designed in accordance with:
- IEC 61010-1, IEC 61010-2-201

Modules available

The MD300io-r caters for a configurable mix and quantity of I/O. The chassis provides all communications, power and LED indications for the associated I/O modules installed within.

Module	Description
E50 PSU	Power supply unit
CM301 or PM302	Communications module 2 copper and 2 optical ports Processor Module (optional)
DIM302	16 channel digital input card
DOM302	8 channel digital output module
AIM302	8 channel analogue input module
AOM302	4 channel analogue output module
XYM302	X-Y Control Module
TM301/303	Termination Module

Communications architecture

Various architectures for connecting multiple MD300io-r units are supported - from a star configuration to a redundant ring. Up to four units can be connected to one processor providing capacity of up to 1024 I/O points.

Flexibility

There is no limitation as to the mix of I/O modules fitted. If, for example, a high digital input count is required, one MD300io-r can be fitted with 16 x DIM302 modules, each of which accepts 16 digital inputs. This gives a total of 256 digital inputs for the unit.

To ease installation and maintenance effort, all termination modules have separate disconnect link screw terminals with ribbon cable interconnection to I/O modules via the rear of the chassis.

Field wiring can be completed in advance and active modules replaced without disruption of the field terminations.

Technical

Power Supply

- 24 to 125 V DC range 50 Watt

Interfaces (CM301)

- 2 x RIO RJ45 or Optical Fibre

Processor (PM302)

- Vortex 86DX CPU at 833MHz
- 2 x 10/100Mbps Ethernet (TX or FX)
- 4 x Serial (RS485 or RS232) or
- 2 x Serial plus 2 x RIO
- Console and USB port
- Compact Flash storage

Digital Input Module

- 16 Channel
- Range 0 – 125 V DC
- Max current <4mA
- Input threshold 36 V (default)

Digital Output Module

- 8 Channel
- Pulsed or Latched
- Rated voltages up to 125 V DC
- Power 150W Analogue Input Module
- 8 Channel
- ±10V, 0-10V, ±5V, 0-5V
- 0-20mA, 4-20mA, 0-10mA, 0-12mA

Analogue Output Module

- 4 Channel
- 0-10V, 0-20mA

X-Y Controller Module

- Master Trip or Close control
- Max 96 relay coils:
- 8 control group addresses "X" and
- 12 modifiers "Y" to arrive at a point in an X-Y matrix.

Termination Module

- Wiring: 5mm-pitch, up to 2.5mm2
- Protection – common fuse

While every effort is made to ensure the information provided in this brochure is accurate, specifications are subject to change without notice.

For more information

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