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IQAN-MDL2 Display Modules

Electronic Control Systems

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Application

The IQAN-MDL2 is a central unit that works with a variety of expansion modules in an IQAN control system. The IQAN-MDL2 works as a master, displays information, provides a data gateway and has a variety of flexible I/O channels.

The IQAN-MDL2 is intended for the in-cab environment and will display vehicle data and system information. In most applications the display will replace all mechanical dial type instruments.

The IQAN-MDL2 has multiple inputs and outputs for measurement and control of hydraulic systems. The different input types are voltage, on/off, directional frequency (quadrature) and frequency. The outputs are proportional and on/off. The unit also has 4 CAN interfaces, all of which are user configurable.

The IQAN-MDL2 has a large internal memory for events and logging that is power fail-safe protected.

Design and function

The IQAN-MDL2 has a 6.5" transflective TFT color display.

The IQAN-MDL2 has two (2) *proportional outputs* that can be configured as current mode (current closed-loop) or PWM mode (voltage open-loop) signals. These outputs can control two bi-directional valve sections or two single solenoid devices (ie. proportional cartridge valves). The parameters are configured using IQAN software. For flexibility these outputs may also be configured as up to two (2) *on-off outputs* and up to four (4) *on-off inputs*.

The unit also has six (6) *on-off outputs* that are high-side power outputs. The high-side outputs may not be configured as proportional.

The IQAN-MDL2 has eight (8) *voltage inputs* to accept 0-5V signals from input devices or sensors. These inputs can also be set up as *on-off inputs*. There are four (4) digital *on-off inputs* for switches. The digital inputs may be configured to accept one frequency or one directional frequency (quadrature) input.

The IQAN-MDL2 is connected to other units by four CAN buses. All CAN buses may be configured as ICP (IQAN CAN Protocol), SAE J1939 or Generic CAN (user defined). The unit supports RS232 for external modem, IQAN-GA connection and USB, RS232 or CAN for communication with a PC.

The IQAN-MDL2 is made using selected components and conforms to strict international requirements.

General

Weight	0.9 Kg
Temperature range	
Operating, ambient (no external loads, backlight off)	-30 to +70 °C
Storage, ambient	-40 to +80 °C
Protection	in-cab use
Voltage supply	11- 32 Vdc
Current consumption (idle, backlight on, outputs off)	320 mA (28 Vdc) 580 mA (14 Vdc)

Performance

Processor	32-bit (144 MHz)
Logging	16Mbyte flash
Sample time	Min 10 ms
Software tools	IQANdesign family

Outputs

Proportional outputs[1]	2 double
Type current mode	current - closed-loop
PWM mode	voltage - open-loop
Signal range	100 - 2000 mA
Dither frequency	25 - 333 Hz
Resolution	1 mA
Digital outputs	
Type	high side switch
Max load	2 A

Inputs

Voltage inputs[2]	8
Signal range	0 - 5 Vdc
Resolution	5 mV
Frequency inputs[3]	1
Signal range (speed mode)	2 - 30000 Hz
(position mode)	0 - 30000 Hz
Directional frequency inputs[3]	1
Signal range (speed mode)	2 - 30000 Hz
(position mode)	0 - 30000 Hz
Digital inputs	4 (16)
DIN-A thru -D[3], DIN-M thru -P[1]	
Signal high	>2 Vdc
Signal low	<0.8 Vdc
DIN-E thru -L[2]	
Signal high	>3 Vdc
Signal low	<2.5 Vdc

1) The proportional outputs and digital inputs share the same physical pins. The user defines the channels/pins with IQANdesign.

2) The voltage inputs and digital inputs share the same physical pins. The user defines the channels/pins with IQANdesign.

3) The frequency and digital inputs share the same physical pins. The user defines the channels/pins with IQANdesign.

Ordering part numbers

IQAN-MDL2	20075847

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Electronic Controls Division
Mölnlycke, Sweden

Communication interfaces

CAN (ISO 11898)	4
Protocols	ICP, SAE J1939, Generic (user defined)
RS-232	2 (1 each in C1 and C2 connectors)
Protocols	AT-Hayes,GSM07.07, GSM07.05, IDP
USB 2.0 (full speed)	1

Environmental Protection[1]

EMI
ISO 14982:1998, Radiated emission
EN 55025:2003, Conducted emission (CISPR 25)
ISO 11452-2:1998, Radiated Susceptilbility
ISO 11452-4:1998, Conducted Susceptibility
ISO 7637-2:2004, Transient susceptibility on power
ISO 7637-3:2007, Transient susceptibility on signal

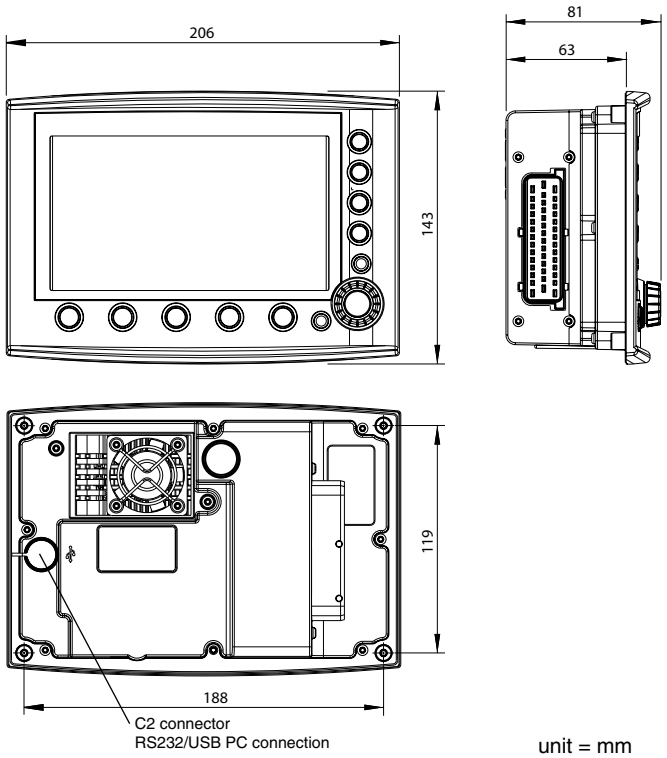
ESD
ISO 10605:2001, Handling

Mechanical environment
IEC 60068-2-64:1993 Fh, Random vibration
IEC 60068-2-29:1987 Eb, Bump

Climate environment
IEC 60529:2001, Enclosure protection (IPx3)
IEC 60068-2-1:1990 Ab, cold
IEC 60068-2-2:1974 Bb, heat
IEC 60068-2-30:1985 Db, Damp heat cyclic
IEC 60068-2-78:2001, Damp heat, steady state

Chemical environment
IEC 60068-2-52:1996 Kb (salt mist, cyclic)

1) Please refer to Instruction book HY33-8401-IB/UK for more information



unit = mm

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