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IQAN-MC31 Master Controller

Electronic Control Systems



ENGINEERING YOUR SUCCESS.

Application

The IQAN-MC31 is a master module in the IQANdesign platform. It can be used as a standalone controller, as a single bus master, or together with other IQAN master modules.

The unit is based on the IQAN-MC3 SIL2 rated controller and uses the same hardware, but with software optimized for higher speed and lower memory consumption.

The 32 bit architecture of the IQAN-MC31 provides computational capacity that allows it to perform high speed (ex. 3 ms) control loops for time critical functions. The unit is equipped with a Real Time Clock and can perform data logging functions.

Inputs

The IQAN-MC31 controller has 16 voltage inputs for connection of 0-5 Vdc signals and 8 frequency inputs for speed and position sensors.

The frequency inputs are multipurpose and for flexibility may be configured as up to 4 quadrature inputs for measuring directional frequency or as up to 8 on-off inputs for switches. Frequency and on-off inputs share pin positions.

Outputs

The IQAN-MC31 has 4 double proportional outputs for controlling valves. These outputs can control up to 4 bi-directional proportional valve sections or 4 single solenoid devices (ex. proportional cartridge valves).

The proportional outputs can be used in two different modes. Either Current mode (current closed-loop) or PWM mode (voltage open-loop) signals can be selected and the parameters configured using IQAN software.

The unit also has 5 dedicated on-off outputs that are high-side power outputs and 5 dedicated on-off outputs that are low-side outputs.

A bank of low-side, on-off outputs is typically connected to one or more of the high-side, on-off outputs and are used for low current functions.

Installation

The enclosure is designed to protect the electronics in a harsh environment on mobile machines. On the front of the unit, there are four sealed and individually keyed Deutsch DT connectors. The MC31 is designed for mounting outdoor on the chassis.

The IQAN-MC31 has addressing in the wiring harness with an idTag, the addressing allows for up to 8 modules of this type on the same CAN bus.

General

Weight	1.1 kg
Temperature range	
Operating, ambient	-40 to +85 °C
Storage, ambient	-40 to +100 °C
Protection	outdoor, chassis
Voltage supply	9 - 32 Vdc
Current consumption (idle)	160 mA (24V) 240 mA (12V)
CE marking	2004/108/EC

Communication interfaces

CAN buses	4
Protocols	Parker ICP (IQAN CAN Protocol) SAE J1939, Generic CAN

Performance

Processor	32-bit TriCore
Sample time	≥3 ms
Logging	80,000 records
Software tools	IQANdesign platform

Outputs

Proportional outputs	
Current output pairs	4
Type	current closed loop
Signal range	100-2000 mA
Dither frequency	70-333 Hz
Resolution	1 mA
Digital outputs	5
Type	high side switch
Max load	3 x 3 A 2 x 1.5 A
Digital outputs (LS)	5
Type	low side switch
Max load	3 x 3 A 2 x 1.5 A

Inputs

Max number of inputs	32
Voltage inputs	
Number	16
Signal range	0 - 5 Vdc
Resolution	1.2 mV
Frequency inputs	
Number	8 (0)
Signal high	4 Vdc - 32 Vdc
Signal low	0 - 1 Vdc
Alternative configurations	Quadrature in (4) Digital in (8)
Digital inputs	
Number	8
Signal high	4 Vdc - 32 Vdc
Signal low	0 - 1 Vdc

Connector

Type	4 x DT04-18P(key A-D)
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Ordering part numbers

IQAN-MC31	20077786
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Environmental protection

EMI

ISO 13766/ISO 14982 (radiated emission)
EN 55025:2003 (conducted emission)
ISO 11452-2:2004 (immunity vs EM field)
ISO 11452-4:2005 (immunity vs injected RF)
ISO 7637-2:2004 (immunity vs supply transients)
ISO 7637-3:2007 (immunity vs supply transients)

ESD

ISO 10605:2008 (external)

Mechanical environment

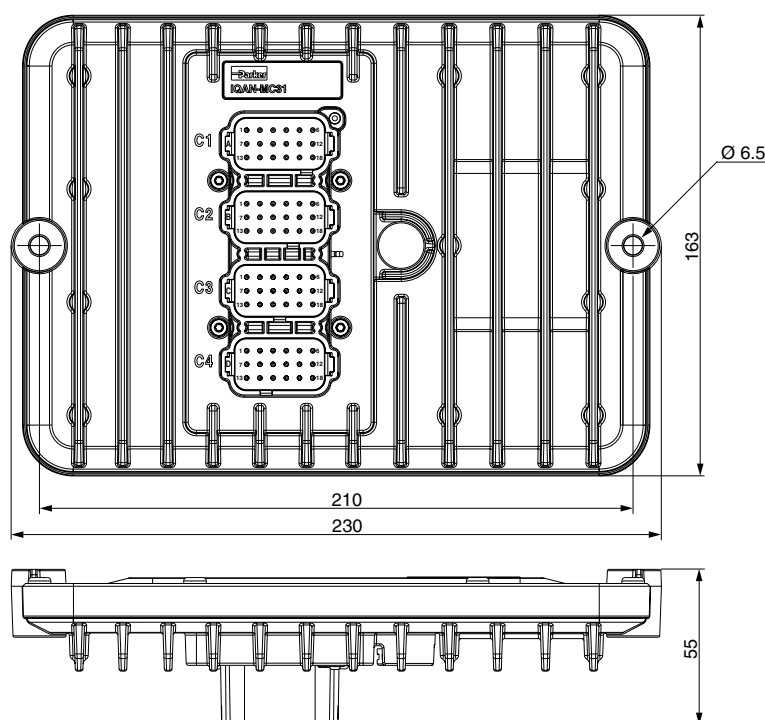
IEC 60068-2-64:2008 Fh (random)
IEC 60068-2-27:2008 Ea (bump)

Climate environment

IEC 60529:2001 IP67 (dust, water)
DIN 40050 Part 9:1993 IP6K9K (steam jet cleaning)
IEC 60068-2-30:2005 Db (damp heat, cyclic)
IEC 60068-2-78:2001 Cab (damp heat, steady state)
IEC 60068-2-2:2007 Bb (heat)
IEC 60068-2-1:1993 Ab (cold)
IEC 60068-2-14:1984 Nb (change of temperature)

Chemical environment

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



units = mm



WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

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Tel: +971 4 8127100
parker.me@parker.com

AT – Austria, Wiener Neustadt

Tel: +43 (0)2622 23501-0
parker.austria@parker.com

AT – Eastern Europe, Wiener Neustadt

Tel: +43 (0)2622 23501 900
parker.easteurope@parker.com

AZ – Azerbaijan, Baku

Tel: +994 50 22 33 458
parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles

Tel: +32 (0)67 280 900
parker.belgium@parker.com

BG – Bulgaria, Sofia

Tel: +359 2 980 1344
parker.bulgaria@parker.com

BY – Belarus, Minsk

Tel: +375 17 209 9399
parker.belarus@parker.com

CH – Switzerland, Etoy

Tel: +41 (0)21 821 87 00
parker.switzerland@parker.com

CZ – Czech Republic, Klecany

Tel: +420 284 083 111
parker.czechrepublic@parker.com

DE – Germany, Kaarst

Tel: +49 (0)2131 4016 0
parker.germany@parker.com

DK – Denmark, Ballerup

Tel: +45 43 56 04 00
parker.denmark@parker.com

ES – Spain, Madrid

Tel: +34 902 330 001
parker.spain@parker.com

FI – Finland, Vantaa

Tel: +358 (0)20 753 2500
parker.finland@parker.com

FR – France, Contamine s/Arve

Tel: +33 (0)4 50 25 80 25
parker.france@parker.com

GR – Greece, Athens

Tel: +30 210 933 6450
parker.greece@parker.com

HU – Hungary, Budaörs

Tel: +36 23 885 470
parker.hungary@parker.com

IE – Ireland, Dublin

Tel: +353 (0)1 466 6370
parker.ireland@parker.com

IT – Italy, Corsico (MI)

Tel: +39 02 45 19 21
parker.italy@parker.com

KZ – Kazakhstan, Almaty

Tel: +7 7273 561 000
parker.easteurope@parker.com

NL – The Netherlands, Oldenzaal

Tel: +31 (0)541 585 000
parker.nl@parker.com

NO – Norway, Asker

Tel: +47 66 75 34 00
parker.norway@parker.com

PL – Poland, Warsaw

Tel: +48 (0)22 573 24 00
parker.poland@parker.com

PT – Portugal, Leca da Palmeira

Tel: +351 22 999 7360
parker.portugal@parker.com

RO – Romania, Bucharest

Tel: +40 21 252 1382
parker.romania@parker.com

RU – Russia, Moscow

Tel: +7 495 645-2156
parker.russia@parker.com

SE – Sweden, Spånga

Tel: +46 (0)8 59 79 50 00
parker.sweden@parker.com

SK – Slovakia, Banská Bystrica

Tel: +421 484 162 252
parker.slovakia@parker.com

SL – Slovenia, Novo Mesto

Tel: +386 7 337 6650
parker.slovenia@parker.com

TR – Turkey, Istanbul

Tel: +90 216 4997081
parker.turkey@parker.com

UA – Ukraine, Kiev

Tel +380 44 494 2731
parker.ukraine@parker.com

UK – United Kingdom, Warwick

Tel: +44 (0)1926 317 878
parker.uk@parker.com

ZA – South Africa, Kempton Park

Tel: +27 (0)11 961 0700
parker.southafrica@parker.com

North America

CA – Canada, Milton, Ontario

Tel: +1 905 693 3000

US – USA, Cleveland

(industrial)
Tel: +1 216 896 3000

US – USA, Elk Grove Village

(mobile)
Tel: +1 847 258 6200

Asia Pacific

AU – Australia, Castle Hill

Tel: +61 (0)2-9634 7777

CN – China, Shanghai

Tel: +86 21 2899 5000

HK – Hong Kong

Tel: +852 2428 8008

ID – Indonesia, Tangerang

Tel: +62 21 7588 1906

IN – India, Mumbai

Tel: +91 22 6513 7081-85

JP – Japan, Fujisawa

Tel: +81 (0)4 6635 3050

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Tel: +82 2 559 0400

MY – Malaysia, Shah Alam

Tel: +60 3 7849 0800

NZ – New Zealand, Mt Wellington

Tel: +64 9 574 1744

SG – Singapore

Tel: +65 6887 6300

TH – Thailand, Bangkok

Tel: +662 717 8140

TW – Taiwan, New Taipei City

Tel: +886 2 2298 8987

VN – Vietnam, Ho Chi Minh City

Tel: +84 8 3999 1600

South America

AR – Argentina, Buenos Aires

Tel: +54 3327 44 4129

BR – Brazil, Cachoeirinha RS

Tel: +55 51 3470 9144

CL – Chile, Santiago

Tel: +56 2 623 1216

MX – Mexico, Toluca

Tel: +52 72 2275 4200

EMEA Product Information Centre

Free phone: 00 800 27 27 5374

(from AT, BE, CH, CZ, DE, DK, EE, ES, FI, FR, IE, IL, IS, IT, LU, MT, NL, NO, PL, PT, RU, SE, SK, UK, ZA)

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