

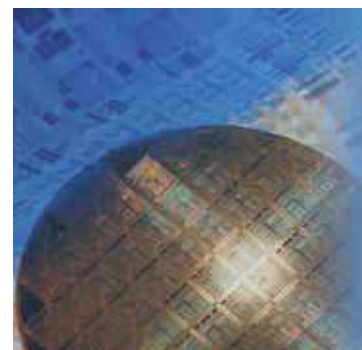


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IQAN-MC2 I/O Modules

Electronic Control Systems



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Application

The IQAN-MC2 is a flexible 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 IQAN-MC2 is able to perform high speed (ex. 5 ms) control loops for time critical functions. The unit is equipped with a Real Time Clock and can perform data logging functions. An improvement to the USB driver circuit in the unit has resulted in a new designation, IQAN-MC2-M14.

Inputs

The IQAN-MC2 controller has 5 voltage inputs for connection of 0-5 Vdc signals. The inputs are multi-purpose and for flexibility may be configured in other ways. All five input pins can be configured as on-off inputs for switches or as frequency inputs for measuring frequency. Voltage inputs, on-off inputs and frequency inputs share pin positions.

Another flexible option allows the proportional output return pins to be configured as up to eight voltage inputs or on-off inputs. The proportional output return pins, voltage inputs and on-off inputs share pin positions.

Proportional outputs

The MC2 unit has eight double proportional outputs for controlling valves. These outputs can control eight bi-directional proportional valve sections or eight single solenoid devices (ie. 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.

For flexibility these outputs may also be configured as up to eight high-side, on-off outputs. When used in this manner the proportional output return pins can be configured as up to sixteen low-side, on-off outputs, for a maximum of 24 on-off outputs. A bank of low-side, on-off outputs is typically connected to one or more high-side, on-off outputs and are used for low current functions.

Weather resistance

The aluminum housing is designed to be rugged, but light and has a sealed, automotive AMP/Tyco power timer connector. The IQAN-MC2 has a membrane to prevent condensation inside the housing. This controller is designed for the outdoor environment.

General

Weight	0.7 Kg
Temperature range	
Operating, ambient	-40 to +70 °C
Storage, ambient	-40 to +85 °C
Protection	outdoor use
Voltage supply	11- 32 Vdc
Current consumption (idle)	160 mA (28 Vdc) 200 mA (14 Vdc)

Performance

Processor	32-bit (144 MHz)
Logging	40K records
Sample time	min 3 ms
Software tools	IQANdesign family

Communication interfaces

CAN (ISO 11898)	2
Protocols	ICP, SAE J1939, Generic CAN
USB 1.1 ¹	1

Outputs

Proportional outputs	
Type, current mode	current - closed-loop
Type, 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	2000 mA

Inputs

Voltage inputs	
Signal range	0 - 5 Vdc
Resolution	1.2 mV
Frequency inputs	
Signal range (speed mode)	2 - 20000 Hz
Signal range (position mode)	0 - 20000 Hz
Digital inputs	
Signal high	4 Vdc - V _{BAT}
Signal low	0 - 1 Vdc

Ordering part number

IQAN-MC2-M14	20077787 ²
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Phased-out part number

IQAN-MC2	20070899 ³
(replaced by 20077787 from January 1, 2015)	

¹ the USB driver circuit was updated on January 1, 2015
² this p/n is used after January 1, 2015 and requires software versions 2.61 and 3.14 or higher
³ this p/n was used before January 1, 2015

Environmental Protection

EMI

ISO 11452-2:1995 (immunity vs EM field)
ISO 14982:1998 (radiated emission)
ISO 11452-4:2001 (immunity vs injected RF)
ISO 7637-2:1990 (immunity vs supply transients)
ISO 7637-3:1995 (immunity vs supply transients)

ESD

ISO 10605:2001 (external)

Mechanical environment

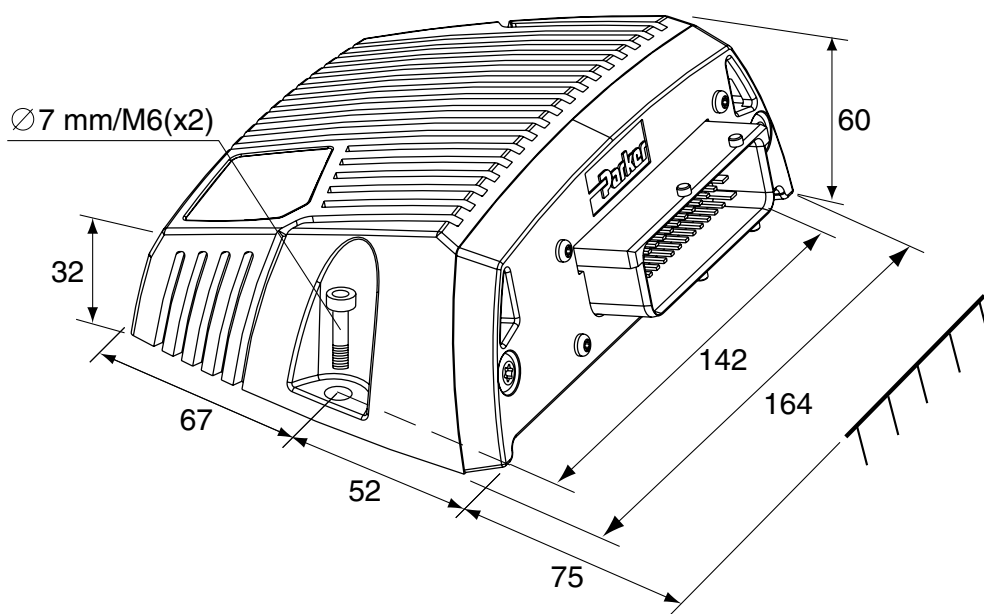
IEC 60068-2-64:1993 Fh (random)
IEC 60068-2-29:1987 Eb (bump)

Climate environment

IEC 60529:2001 IP66 (dust, water)
DIN 40050 Part 9:1993 IP6K9K (steam jet cleaning)
IEC 60068-2-30:1985 Db (var1, damp, cyclic)
IEC 60068-2-78:2001 (damp, heat steady state)
IEC 60068-2-2:1993-01 Bb (heat)
IEC 60068-2-1:1993-02 Ab (cold)
IEC 60068-2-14:1984 Nb (change of temperature)

Chemical environment

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



unit=mm

! WARNING

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Tel: +971 4 8127100
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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

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ID – Indonesia, Tangerang

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IN – India, Mumbai

Tel: +91 22 6513 7081-85

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KR – South Korea, Seoul

Tel: +82 2 559 0400

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Tel: +60 3 7849 0800

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Tel: +64 9 574 1744

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TH – Thailand, Bangkok

Tel: +662 186 7000

TW – Taiwan, New Taipei City

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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

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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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