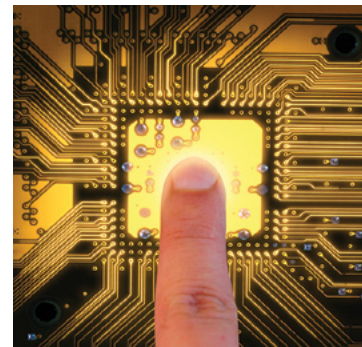


IQAN-MC4 **Master Controller Family**

Electronic Control Systems



ENGINEERING YOUR SUCCESS.

IQAN-MC4

Efficiency in focus – throughout the entire machine life cycle

The IQAN-MC4x is a family of master controllers in the IQANdesign platform. There are 3 versions that can be used in different ways to meet the requirements of any system.

- MC41 for cost efficient task oriented control
- MC42 mid-size applications and I/O distribution
- MC43 large centralized control saves valuable space

The MC4 family of controllers share the same pinout, making it possible for easy up-/down-scaling of the application. They are designed to be either a *performance optimized* standard controller, or an IEC 61508 SIL2 *Functional Safety (FS)* variant. When applying EN ISO 13849-1 for safety functions, the FS variant can be used as a PLd subsystem.

The MC4 family utilizes a high performance 3 core CPU for fast closed-loop control and large applications.

There is up to 1.5 MB application memory and 2 MB log memory in the IQAN-MC4 for complete machine control and a future proof solution.

The MC4 architecture has lockstep CPU and hardware redundancy for very high real-time performance in safety critical applications.

The Tri core processor offers fast application cycle time down to 1ms.

The MC4 family supports CAM - a Parker Hannifin proprietary solution for precision control of proportional mobile valves.

- No tuning or tweaking CAM regulator circuit guarantees consistent performance on mobile valves
- Precision control with a resolution down to 1 mA, a must when there is need for controlling precise crane movements
- Zero drift control provides the lowest possible output offset current and drift

Parker Hannifin's zero drift CAM offers initial offset current of less than 5 mA and almost immeasurable offset current drift over time, temperature and load change.

I/O

The MC4 family can support up to 50 inputs and 36 outputs (see table):

- 32 analog inputs for reading 0-5V, 0-32V and 4-20mA sensor signals
- 6 timer inputs for speed and position sensors up to 50KHz - PWM is also supported
- 18 digital inputs for switch signals
- 10 CAM outputs for precision control of up to 10 directional proportional valves
- 8 PWM outputs capable of driving 6 A loads (when in parallel)
- 8 low-side digital outputs for LED lamp control
- 5 CAN and Ethernet for in-vehicle network and diagnostics

Capabilities	MC41	MC42	MC43
vmAC core			
MCU triple core 300 MHz	✓	✓	✓
Program memory (Flash/SRAM)	0.5 MB / 0.5 MB	1.5 MB / 1.5 MB	1.5 MB / 1.5 MB
Data log memory (Dflash)	2 MB	2 MB	2 MB
Settings and counter memory (FRAM)	32 KB	32 KB	32 KB
Inputs total	18	18	50
Voltage inputs: 12-bit, 0 – 5 V	8	8	26
Voltage inputs: 12-bit, 0 – 32 V	2	2	2
Current-loop inputs: 13-bit, 0 – 20 mA	2	2	4
Timer inputs (Freq., PWM, Pulse): 0 – 50 KHz	6	6	6
Digital inputs	6	6	18
Outputs total	8	16	36
COUT (HS)* outputs: 100 – 2500 mA high-side	2 x 2	6 x 2	10 x 2
PWM/Digital outputs: 4 A high-side	4	4	8
COUT/PWM (LS)* outputs: 2.5 A low-side	4	12	20
Digital outputs: 300 mA low-side	-	-	8
Network			
CAN	2	3	5
Ethernet	-	✓	✓

The inputs and outputs can have different functionality depending on software configuration.

* - denotes pins that are always used in combination with another pin.

Installation

The IQAN-MC4 family's 155 mm [6.1"] x 166 mm [6.5"] footprint is small enough for any installation.

To meet the environment found in mobile machines the MC4 uses the Molex MX123 high reliability connector system, made for

harsh environment, high vibration applications.

The enclosure is rated IP66 + IP69K and is a rugged mechanical design, sealed for outdoor use.

The MC4 family has CE and E-mark certifications.

Ordering PN

20085111

20085121

20085112

20085122

20085113

20085123

Description

IQAN-MC41

IQAN-MC41FS

IQAN-MC42

IQAN-MC42FS

IQAN-MC43

IQAN-MC43FS

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)

Mechanical environment

IEC 60068-2-64:2008 Fh (random)

IEC 60068-2-27:2008 Ea (bump)

ESD

ISO 10605:2008 (external)

Climate environment

IEC 60529:2001 IP66 (dust, water)

DIN 40050 Part 9:1993 IP6K9K (steam jet cleaning)

IEC 60068-2-30:2005 Db (damp heat, cyclic)

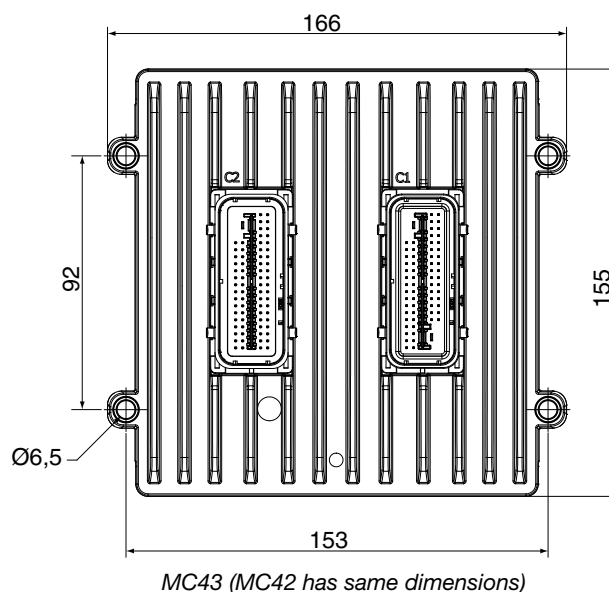
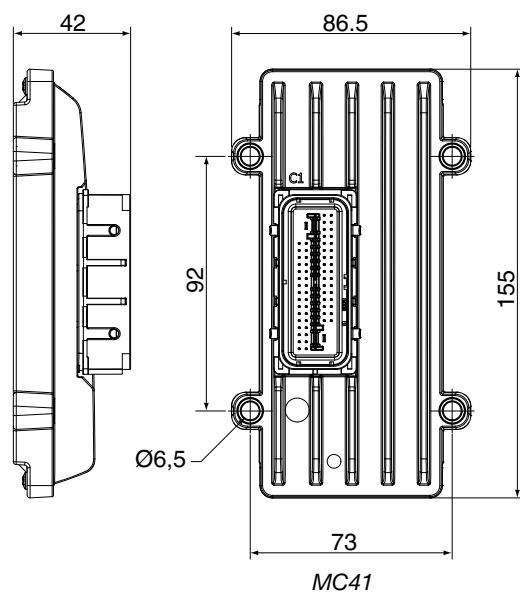
IEC 60068-2-78:2001 Cab (damp heat, steady state)

IEC 60068-2-2:2007 Bb (heat)

IEC 60068-2-1:1993 Ab (cold)

IEC 60068-2-14:1984 Nb (change of temperature)

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



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.

This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.

The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.

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WARNING

This product can expose you to chemicals including TETRAFLUOROETHYLENE which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov



Parker Worldwide

Europe, Middle East, Africa

AE – United Arab Emirates,
Dubai
Tel: +971 4 8127100

AT – Austria, St. Florian
Tel: +43 (0)7224 66201

AZ – Azerbaijan, Baku
Tel: +994 50 2233 458

BE/NL/LU – Benelux,
Hendrik Ido Ambacht
Tel: +31 (0)541 585 000

BY – Belarus, Minsk
Tel: +48 (0)21 573 24 00

CH – Switzerland, Etoy
Tel: +41 (0)21 821 87 00

CZ – Czech Republic,
Prague
Tel: +420 284 083 111

DE – Germany, Kaarst
Tel: +49 (0)2131 4016 0

DK – Denmark, Ballerup
Tel: +45 43 56 04 00

ES – Spain, Madrid
Tel: +34 902 330 001

FI – Finland, Vantaa
Tel: +358 (0)20 753 2500

FR – France, Contamine s/Arve
Tel: +33 (0)4 50 25 80 25

GR – Greece
Tel: +30 69 44 52 78 25

HU – Hungary, Budaörs
Tel: +36 23 885 470

IE – Ireland, Dublin
Tel: +353 (0)1 466 6370

IL – Israel
Tel: +39 02 45 19 21

IT – Italy, Corsico (MI)
Tel: +39 02 45 19 21

KZ – Kazakhstan, Almaty
Tel: +7 7273 561 000

NO – Norway, Asker
Tel: +47 66 75 34 00

PL – Poland, Warsaw
Tel: +48 (0)22 573 24 00

PT – Portugal
Tel: +351 22 999 7360

RO – Romania, Bucharest
Tel: +40 21 252 1382

RU – Russia, Moscow
Tel: +7 495 645-2156

SE – Sweden, Borås
Tel: +46 (0)8 59 79 50 00

SL – Slovenia, Novo Mesto
Tel: +386 7 337 6650

TR – Turkey, Istanbul
Tel: +90 216 4997081

UK – United Kingdom, Warwick
Tel: +44 (0)1926 317 878

ZA – South Africa, Kempton Park
Tel: +27 (0)11 961 0700

North America

CA – Canada, Milton, Ontario
Tel: +1 905 693 3000

US – USA, Cleveland
Tel: +1 216 896 3000

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

IN – India, Mumbai
Tel: +91 22 6513 7081-85

JP – Japan, Tokyo
Tel: +81 (0)3 6408 3901

KR – South Korea, Seoul
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: +662 186 7000

TW – Taiwan, Taipei
Tel: +886 2 2298 8987

South America

AR – Argentina, Buenos Aires
Tel: +54 3327 44 4129

BR – Brazil, Sao Jose dos Campos
Tel: +55 080 0727 5374

CL – Chile, Santiago
Tel: +56 22 303 9640

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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