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IQAN-LC5-C01 Input Devices

Electronic Control Systems





ENGINEERING YOUR SUCCESS.

Application

The IQAN-LC5-C01 is a large, coordinate joystick that incorporates ruggedness, functionality, light weight, and has high flexibility for mobile market applications. The unit is extremely robust, able to withstand aggressive conditions during outdoor use and in outdoor installations, including EMI, vibrations and a wide temperature range. The IQAN-LC5-C01 features a compact ergonomic design making it ideal for armrest and panel installations in mobile equipment. The IQAN-LC5-C01 has a high I/O count and the ability to support up to 5 axes in IQANdesign platform applications. Fourth generation IQAN-LC5-C02 version.

Design and function

The mechanical life is greatly increased over previous generations of joysticks. Full stroke force in any direction is > 100 Nm. The torsional strength has more than doubled, compared to the previous generation.

The IQAN-LC5-C01 is designed for outdoor use. The housing is rated IP65 above the flange, and has integrated Deutsch connectors. The handle cable may be routed completely through the main housing. This makes field mounting of new handles or replacing a bellow very easy to accomplish. In case of water ingress (i.e. a damaged bellow), the built-in drainage from this design will protect the electronics. The base material was chosen for its non-corrosive properties.

All sensors are of contactless Hall effect type with dual sensors to provide redundancy for high safety and reliability. This make it easy for the application designer to meet high safety requirements functions by using IQAN software.

The IQAN-LC5-C01 levers are connected to other modules through a CAN bus which makes data exchange more efficient, simplifies installation and increases noise immunity. The high number of inputs makes the base an excellent input module for external signals.

The joystick has a heavy duty stem and tough base material for long life. The precise force configuration makes it easy to feel X and Y direction. The wide operating voltage range allows the IQAN-LC5-C01 to connect to both 12 VDC and 24 VDC systems. All inputs and outputs are protected against short circuit to ground and to main power supply. LED indicators show supply voltage and internal operation.

The IQAN-LC5-C01 is made using selected components and conforms to strict international requirements.

General (Lever base)

Weight Voltage supply Current consumption

CAN (ISO 11898) Protocol

Mechanical (Lever base)

Angle of movement Expected life (full stroke cycles) Lever force in neutral, XY Full actuated, XY direction One time loading (max.)

Environmental (Lever base)

Temperature range Operating, ambient Storage, ambient C

Sealing (above flange)

Electrical (Lever base) Addressing

Termination

Connection

Electrical connection

Inputs

Voltage inputs Signal range Resolution Digital inputs Signal high Signal low

Outputs

Digital output Type Max load .40 kg 9 - 32 Vdc 45mA @ 14VDC 30mA @ 28VDC CAN 2.0b ICP (IQAN CAN Protocol)

±18° 5 million 0.6 Nm 1.4 Nm 100 Nm

-40 to +85° C -40 to +100°

IP65

idTag (address 0-7 without termination) idTag (address 0-7 with termination)

Deutsch DTM, 2x6 pos., 1x12 pos.

8¹ 0-5 VDC 5 mV 5(13)¹ >4 VDC <= 1 VDC

1 high side switch 200 mA

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



MP handle

The MP handle option provides a variety of control interfaces in an ergonomic, multi-function handle that comfortably fits your hand. The handle is a robust design, able to withstand heavy use in outdoor installations, including exposure to a wide range of automotive chemicals. The MP features an ergonomic design making it ideal for repetitive motion functions during extended periods in mobile equipment applications. The handle has the capability to have a maximum of 8 buttons or 2 proportional thumbwheels in the faceplate. Combinations of buttons and thumbwheels, with or without a trigger are also possible.

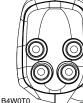
Design and function

The MP handle is made to fit either the right or left hand, reducing inventory part numbers. The options are flexible and include many combinations of buttons, thumbwheels, and trigger to satisfy virtually any operator interface requirements. The buttons are large, and have a nice tactile feel. The proportional thumbwheel has dual sensors providing 2 crossed outputs that may be compared in IQAN modules for safe operation.

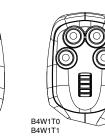
The MP handle is designed for outdoor use. The buttons and thumbwheels are rated for the outdoor environment. The cable is routed completely through the base housing making field mounting of new handles very easy to accomplish.

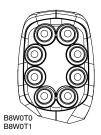
MP standard faceplate configurations





B4W0T0 B4W0T1







General (handle)

Weight	.25 kg
Temperature range	-40 to +85° C
Sealing	outdoor use

Buttons/Trigger

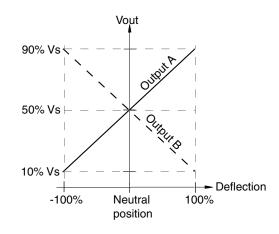
Expected life (electrical) Expected life (mechanical) Travel Actuating force Switching current (max)

0.5 million 1 million 1.5 mm 2 - 5 Nm 400 mA, 32 VAC, resistive load

Thumbwheel

Rated power supply (Vs)	5 VDC
Load resistive (min)	4.5 kohm
Load capacitive (max)	1 uF
Current consumption (typ)	16 mA
Analog output active range (Vout)	10%-90% Vs
Resolution	< 2 mV
Angle of movement	± 25 degrees
Expected life (operations)	5 million

Deflection vs. output diagram



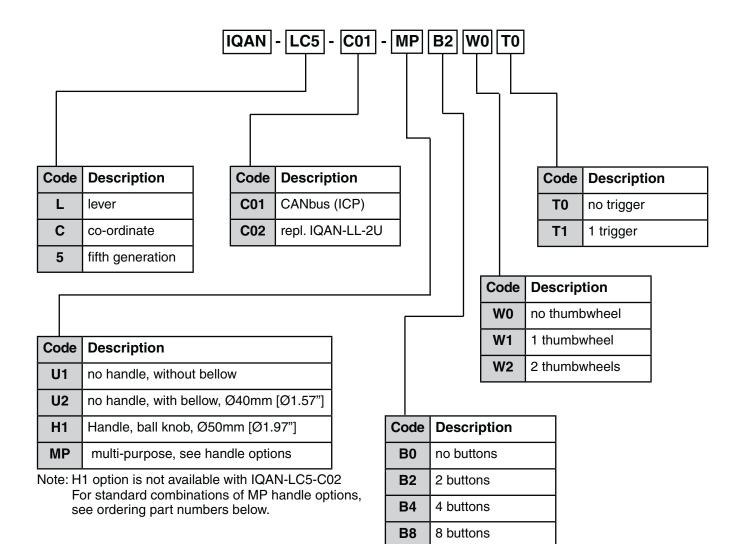


B2W2T0

B2W2T1

Catalogue HY33-8404/UK **Technical Information**

Model code



Ordering part numbers	
IQAN-LC5-C01-U1	20076330
IQAN-LC5-C01-U2	20076331
IQAN-LC5-C01-H1	20076332
IQAN-LC5-C02-U1	20076333

20076331
20076332
20076333
20076334

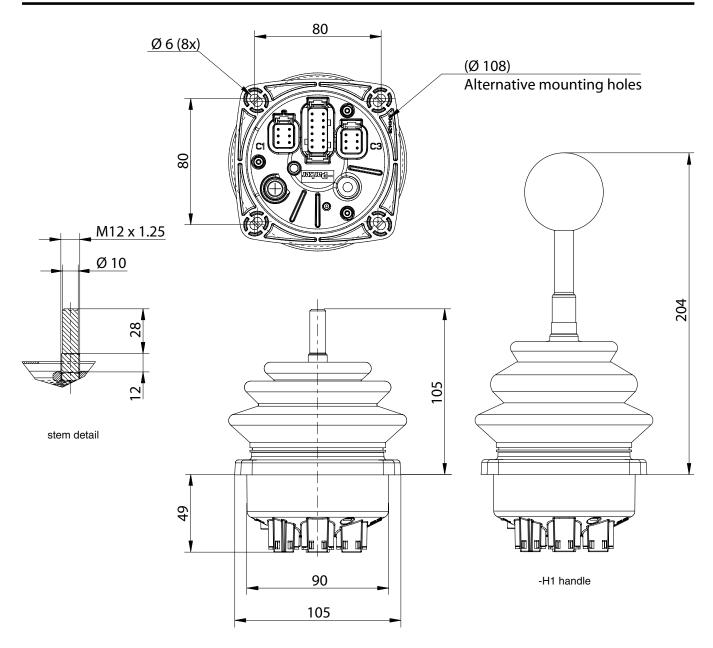
Ordering part numbers

IQAN-LC5-C01-MPB0W0T0	20077723
IQAN-LC5-C01-MPB0W0T1	20077724
IQAN-LC5-C01-MPB2W0T0	20076996
IQAN-LC5-C01-MPB2W0T1	20076997
IQAN-LC5-C01-MPB2W2T0	20076998
IQAN-LC5-C01-MPB2W2T1	20076999
IQAN-LC5-C01-MPB4W0T0	20077000
IQAN-LC5-C01-MPB4W0T1	20077001
IQAN-LC5-C01-MPB4W1T0	20077002
IQAN-LC5-C01-MPB4W1T1	20077003
IQAN-LC5-C01-MPB8W0T0	20077004
IQAN-LC5-C01-MPB8W0T1	20077005



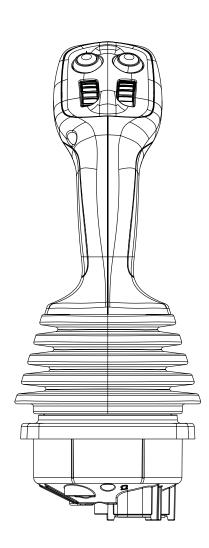
IQAN-LC5-C02-U2

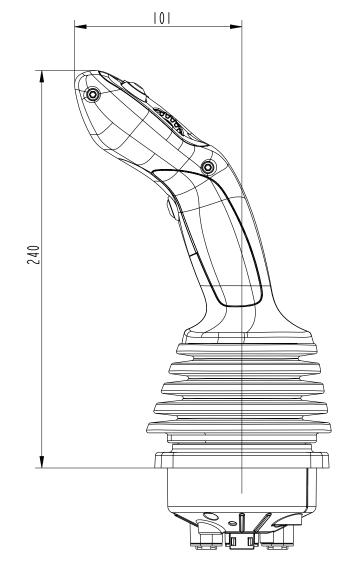
Catalogue HY33-8404/UK Technical Information



units=mm

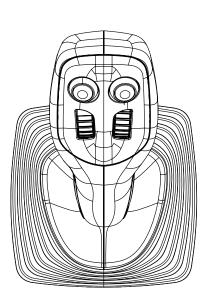
Electronic Control Systems IQAN-LC5-C01 Input Devices





-MP handle

units=mm



-Parker

Environmental Protection

EMI

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

ESD

ISO 10605:2001, (Handling)

Climate Environment

IEC 60529:2001 IP65 (water)¹ IEC 60068-2-78:2001 (damp heat, steady state) IEC 60068-2-30:1985 Db (var1,damp,cyclic) IEC 60068-2-14:1984 Nb (change of temp.) IEC 60068-2-2:1993 Bb (dry heat) IEC 60068-2-1:1993 Ab (cold)

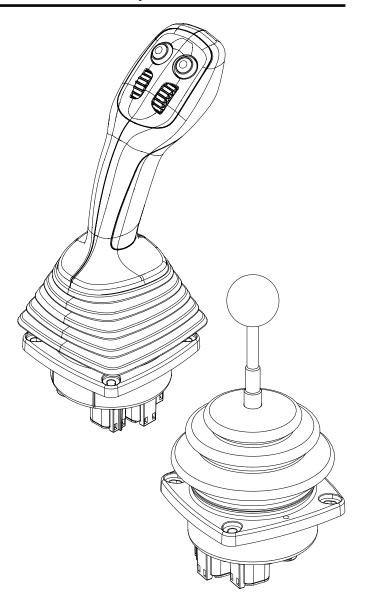
Mechanical

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

Chemical environment

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

1) with sealed handle and bellow





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Europe, Middle East, Africa

AE – United Arab Emirates, Dubai 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 2233 458 parker.azerbaijan@parker.com

BE/LU – Belgium, Nivelles Tel: +32 (0)67 280 900 parker.belgium@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, Budapest Tel: +36 1 220 4155 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 7272 505 800 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

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

JP – Japan, Fujisawa Tel: +81 (0)4 6635 3050

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: +662 717 8140

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 12 4009 3500

CL - Chile, Santiago Tel: +56 2 623 1216

MX – Mexico, Apodaca Tel: +52 81 8156 6000

VE – Venezuela, Caracas Tel: +58 212 238 5422

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