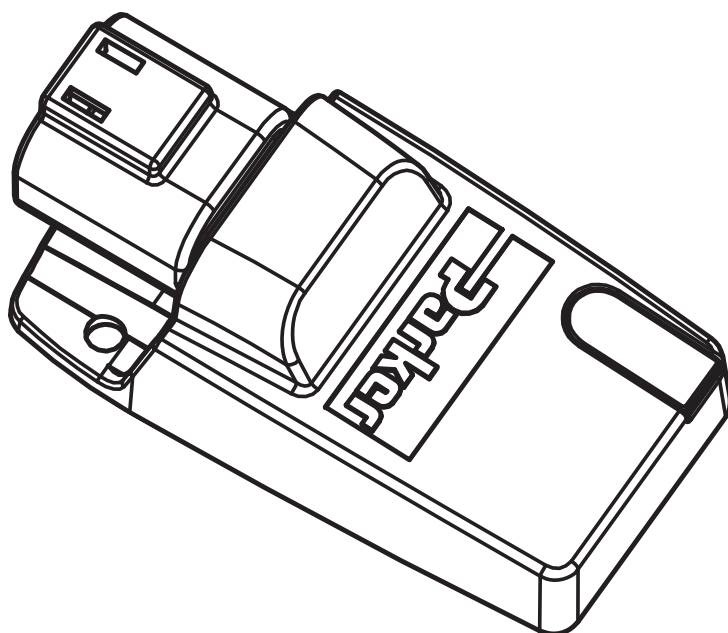


IQAN-G11

Instruction book

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ENGINEERING YOUR SUCCESS.

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1 Introduction

These instructions are to be used as a reference tool for the vehicle manufacturer's design, production, and service personnel.

The user of these instructions should have basic knowledge in the handling of electronic equipment.

Safety symbols

Sections regarding safety, marked with a symbol in the left margin, must be read and understood by everyone using the system, carrying out service work or making changes to hardware and software.

The different safety levels used in this manual are defined below.



WARNING

Sections labeled *WARNING* with a caution symbol in the left margin, indicate that a hazardous situation exists. If precautions are not taken, this could result in death, injury, or property damage.



NOTICE

Sections labeled *NOTICE* with a notice symbol in the left margin, indicate there is important information about the product. Ignoring this could result in less than optimal performance, or damage to the product.

Compliance with FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Contains transmitter FCC ID: VPYLBZY

Contact the manufacturer if there is anything you are not sure about or if you have any questions regarding the product and its handling or maintenance.

The term "manufacturer" refers to Parker Hannifin Corporation.

2 Precautions

Work on the hydraulics control electronics may only be carried out by trained personnel who are well-acquainted with the control system, the machine and its safety regulations.



WARNING

Make sure that you have sufficient knowledge before designing, modifying or servicing the control system.

Read the relevant sections of this document before conducting any work on the control system.



WARNING

This product is not field repairable.



NOTICE

As much as possible of the welding work on the chassis should be done before the installation of the system. If welding has to be done afterwards, the electrical connections on the system must be disconnected from other equipment. The negative cable must always be disconnected from the battery before disconnecting the positive cable. The ground wire of the welder shall be positioned as close as possible to the place of the welding. The cables on the welding unit shall never be placed near the electrical wires of the control system.

Special considerations

Health Care

When in a hospital or other health care facility, observe the restrictions on the use of mobiles. Switch the IQAN-G11 off, if instructed to do so by the guidelines posted in sensitive areas. Medical equipment may be sensitive to RF energy.

The operation of cardiac pacemakers, other implanted medical equipment and hearing aids can be affected by interference from IQAN-G11 antenna placed close to the device. If in doubt about potential danger, contact the physician or the manufacturer of the device to verify that the equipment is properly shielded. Pacemaker patients are advised to keep the IQAN-G11 and its antenna away from the pacemaker while it is on.

Air traffic

Switch off the IQAN-G11 before boarding an aircraft. Make sure it cannot be switched on inadvertently. The operation of wireless appliances in an aircraft is forbidden to prevent interference with communications systems. Failure to observe these instructions may lead to the suspension or denial of cellular services to the offender, legal action, or both.

Explosives

Do not operate the IQAN-G11 in the presence of flammable gases or fumes. Switch off the IQAN-G11 when you are near petrol stations, fuel depots, chemical plants or where blasting operations are in progress. Operation of any electrical equipment in potentially explosive atmospheres can constitute a safety hazard.

Electronic equipment

IQAN-G11 receives and transmits radio frequency energy while switched on. Remember that interference can occur if it is used close to TV sets, radios, computers or inadequately shielded equipment.

Follow any special regulations and always switch off the IQAN-G11 wherever forbidden, or when you suspect that it may cause interference or danger.

Operation

The device must not be operated in machines and applications where life depends on the proper operation of this piece of equipment.

Disposal

Observe your local/national regulations when disposing the device and its package.

Start-up, maintenance, and diagnostics

For all personnel carrying out installation, commissioning, maintenance or troubleshooting.



WARNING

Work on the hydraulics control electronics may only be carried out by trained personnel who are well-acquainted with the control system, the machine and its safety regulations.

Before you start,

Read section "Start-up", on page 13.

Additional information for service

Mounting and maintenance instruction book.

Additional information for diagnosing the system

For information, see Appendix B, on page 16, in this document.



NOTICE

It is required to download the operating system 4.00 or later to enable full functionality of the IQAN-G11 in IQANdesign platform systems.

3 Quick start guide

Getting started with remote diagnostics

To use the IQAN-G11 you will also need the smartphone app, IQANsync.
The IQAN-G11 can be used in either on-site or remote modes.

Tools

- IQAN-G11 bluetooth adapter hardware from Parker.
- Smart phone or tablet with internet connectivity.
- IQANsync app.
- IQANconnect service subscription (for remote diagnostics mode)

Before starting your on-site short range operations, be sure your IQAN-G11 is installed in the IQAN system and powered.

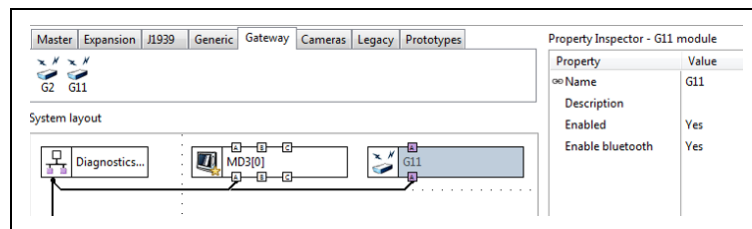


NOTICE

Refer to the User Manual, HY33-8416-UM/UK for detailed information on using the IQAN-G11 with your mobile device, the IQANsync app and IQANconnect.

IQANdesign set up for IQAN-G11 support.

To use an IQAN-G11, you must add it in the application and connect it to the diagnostic bus.

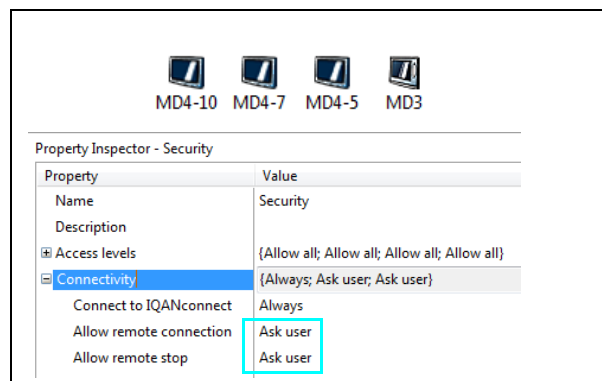


Add IQAN-G11 to diagnostics bus in IQANdesign.

Security settings for Master display units should be set up to:

- "ask user" for remote connection and remote stop

Operators can acknowledge the request for a remote diagnostics connection when it is safe and convenient.

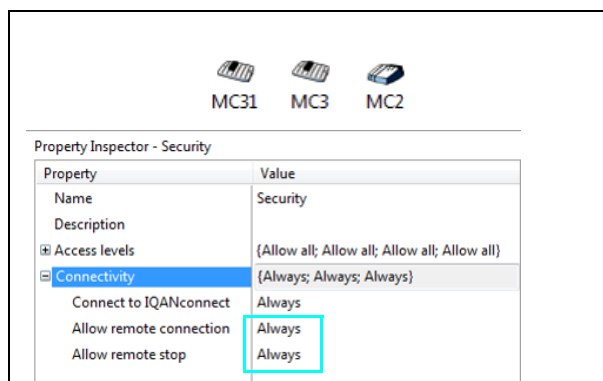


Set security property to "ask user" to use IQAN-G11 and IQANconnect.

Security settings for Master units without a display need to be set up to:

- always allow remote connection and remote stop, or
- to have a digital channel that determines when it is safe to allow a remote connection.

Without a display operators cannot acknowledge the "ask user" alternative.



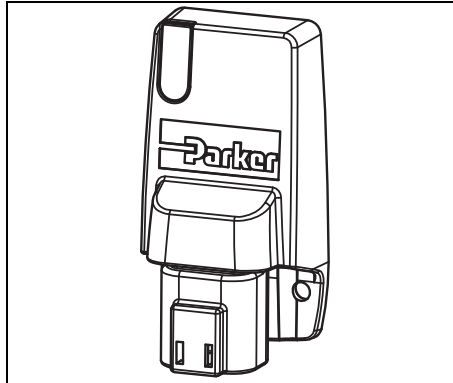
Set security property to always allow use of IQAN-G11 and IQANconnect in IQANdesign.

4 Product description

General

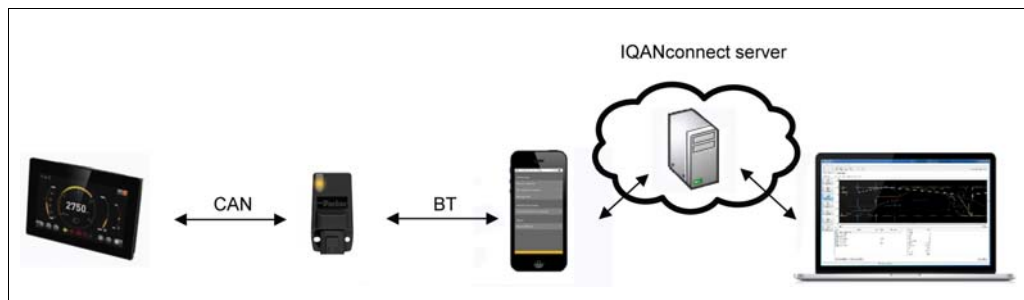
The IQAN-G11 is a Bluetooth dongle that works with the MD4, MD3, MC4, MC3 and MC2 master modules in IQANdesign (4.00 or later) platform control systems.

The IQAN-G11 is designed to transmit wireless diagnostic data from the IQAN system to a smartphone with IQANsync or a tablet with IQANrun.



The IQAN-G11 module.

System overview



The IQAN-G11 in a typical system.

The gateway module, IQAN-G11, is the wireless diagnostic unit in an IQAN system. All IQAN-G11 devices are equipped with Bluetooth.

Communication

The communication interfaces are used for uploading/downloading applications or diagnostics and typically communicate with an IQAN master module.

CAN

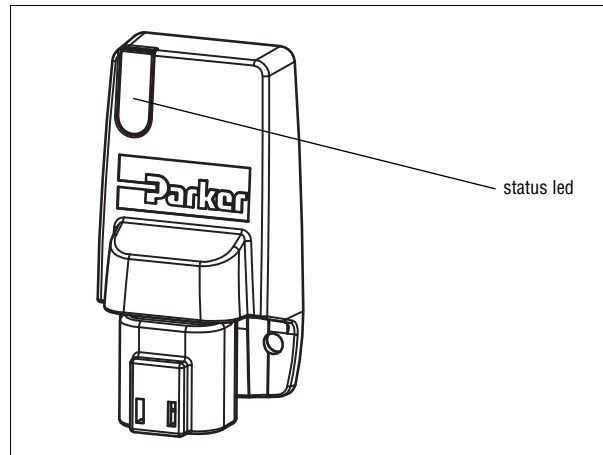
The IQAN-G11 has 1 CAN interface. It is located in the Deutsch DT 4 pin connector and is used to interface with IQAN master modules (e.g. IQAN-MD4).

Bluetooth

The IQAN-G11 has an embedded Bluetooth 4.0 LE (Bluetooth Smart). and is suitable for use with a smartphone with IQANsync or tablet with IQANrun.

System Diagnostics

The IQAN-G11 has 1 bi-color LED light on front surface indicating system status and dongle status.



Location of status LED.

For more information about the status and error messages, see Appendix B, on page 16.

5 Markings and approvals

Declaration of Conformity



Declaration of Conformity

We: Parker Hannifin Manufacturing Sweden AB
Electronic Controls Division

Located at: Mölnlycke Fabriker 14
S-435 35 Mölnlycke, SWEDEN
Tel. +46 31 750 44 00

Declare that the products identified herein comply with the essential requirements of the following EU directives:

2004/108/EC **EU EMC Directive**
2011/65/EU **EU RoHS II Directive**

Harmonized standards:

ISO 14982:2009	Agricultural and forestry machines - Electromagnetic compatibility - Test methods and acceptance criteria
EN 13309:2010	Construction machinery - Electromagnetic compatibility of machines with internal electrical power supply
EN 50581:2012	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Trade Name: Electrohydraulic Control Systems

Products: IQAN-G11

Signature of responsible party:

A handwritten signature in blue ink, appearing to read 'Håkan Jisland'.

Printed name of responsible party: Håkan Jisland
Position of responsible party: Operations Manager

Executed on February 23th 2016, at Mölnlycke, Sweden

6 Mounting

Mounting the IQAN-G11

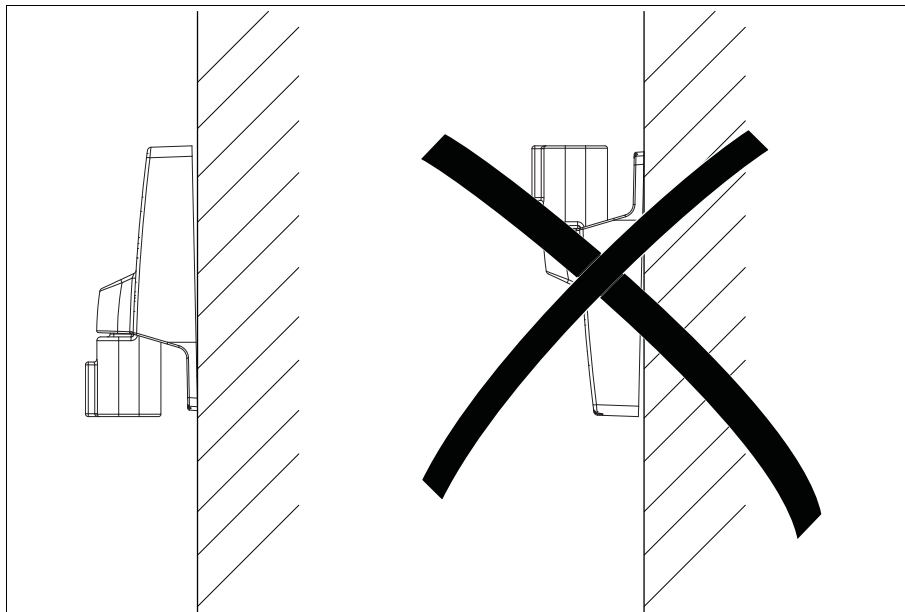
The IQAN-G11 should be mounted with the connector facing down. Fastening method is flange mounting with 2 bolts.



NOTICE

The IQAN-G11 module should be mounted according to the following instructions:

- Locate the module eliminating the risk for the cabling to be folded, crushed or damaged in any way. Ensure the cabling cannot pull, twist or induce side-load on the connector.
- Locate the module so that physical impact is avoided.
- Locate the module so that air can circulate to eliminate excess heat. Ensure that no external heat, e.g. from the engine or heater, is transferred to the module.
- Locate the module to protect it from pressure washing and water directly spraying on the connector or similar.
- Locate the module so the LED is visible.



Mounting orientation of the IQAN-G11.



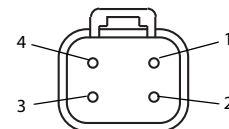
NOTICE

The IQAN-G11 module must not be placed in any marine related or similar continuously damp environment without external protection.

7 Installation

Connector

Connector kit	Parker no. 5031113
Housing	DT06-4S
Wedge	W4S
Sockets	1062-16-0122



Connector pin assignments

Logical Symbol	Pin No.	(I)ntput or (O)utput	Function description and/or Signal name(s)
-BAT	1	-	Power supply, negative ground
+BAT	2	-	Power supply, positive
CAN-L	3	-	CAN low
CAN-H	4	-	CAN high

Supply voltage

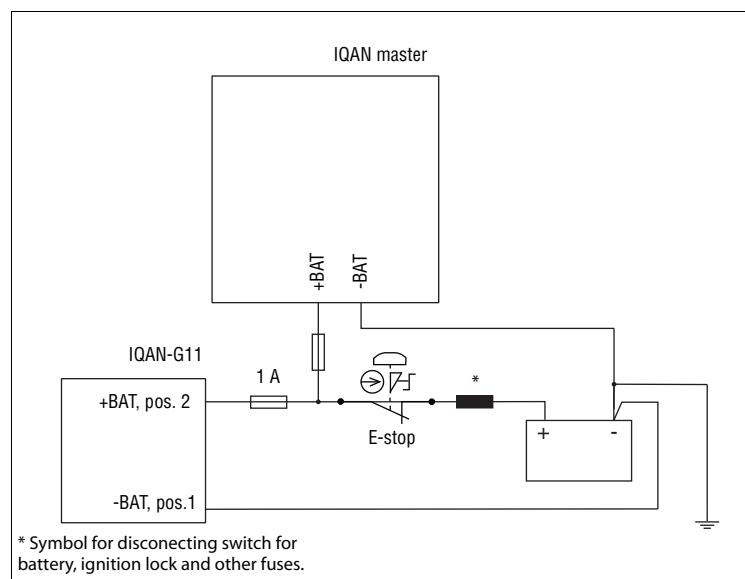


WARNING

Before any installation of the IQAN system can take place, make sure the ignition lock is turned off and the battery is disconnected.

Connecting of Supply Voltage

The supply voltage, should be within the operating range, see Appendix A, on page 14. Connect the supply voltage to +BAT, position 2 and -BAT, position 1. Protect the module by using a fuse. Requisite fuse level should be 1 A, fast (F).



Connecting the voltage supply.



NOTICE

Connect the dongle to the same power and ground as the IQAN master.

The power supply must be common to both the dongle and the master unit to ensure trouble free communication. Most importantly, the ground connection (-BAT), must be the same.



NOTICE

Do not use the chassis as the negative terminal.

Polarity reversal

The IQAN-G11 module is protected against power supply polarity reversal, provided an external fuse, max 1 A (Fast) is being used.

If this fuse is not used, polarity reversal can damage the unit.



NOTICE

IQAN-G11 does not have load-dump protection and must be mounted within approx 2 meters from a unit with load-dump protection.

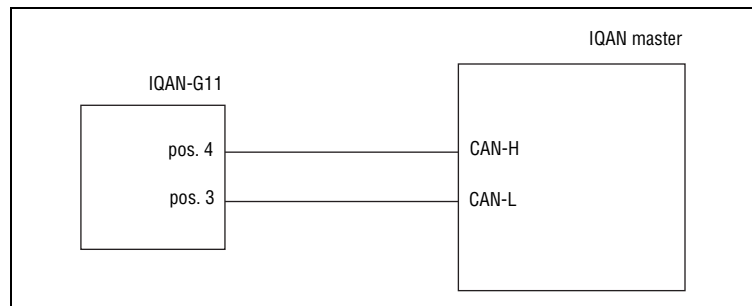
Communication

CAN connection

The IQAN-G11 has a *CAN interface* in its connector to communicate with IQAN master modules to provide them with remote diagnostic capabilities.

The signals on the CAN connection terminals CAN-Low and CAN-High must match the signals on the CAN terminals of the connected devices.

IQAN master



Connecting IQAN master to IQAN-G11.



NOTICE

A connection will be charged against your IQANconnect subscription whenever you initiate communication with a system.

8 Start-up

Start-up procedures

This chapter contains instructions for action to be taken in connection with the initial start.



WARNING

Risk of injury!

If the control system is not fitted properly, the machine could move uncontrollably. The machine's engine shall not be started before the control system is completely fitted and its signals are verified.

Starting the control system

Start the control system as follows:

- Prior to start, all modules and cables are to be fitted correctly.
- Check fuses, i.e. make sure that the supply voltage to the modules is equipped with the correct fuse.
- Make sure that connections for supply voltage and return lines are correct in the cable's conductor joint.
- Make sure an emergency stop is installed.
The emergency stop should disconnect the supply voltage to all modules. Alternatively, the emergency stop may also shut off the diesel engine or a dump valve, and with that, depressurize the hydraulic system.

Prepare for system start



WARNING

Make sure no one is in dangerous proximity to the vehicle to avoid injuries when it starts.

Prepare for the initial system start as follows:

- The engine for the hydraulic system's pump shall be in off position.
- Make sure that all connectors are properly connected.
- Turn on the control system.
- Make sure that voltage is being supplied to all modules; the power/status diode shall be illuminated on all modules. Also, make sure that the master is in contact with all modules by reading the master's display.
- Make sure the emergency stop is functioning properly.

Start the system

Start the system as follows:

- Start the engine for the hydraulic system's pump, assuming that the above mentioned inspections have been carried out and shown correct values.
- Calibrate and adjust input and output signals according to the instructions related to the master menu system and check each and every output function carefully.

Appendix A

IQAN-G11 Technical Overview

Absolute Maximum Ratings^a

Parameter	Limit values			Unit	Remark
	min.	typ.	max.		
Ambient temperature, T _{AOP}	- 40		+85	°C	
Storage temperature, T _{AST}	- 40		+105	°C	
Voltage supply on +BAT	6.5		36	V	Reverse polarity protected with 1A fuse.
Voltage on any pin with respect to -BAT			36	V	

a. The "Absolute Maximum Ratings" table lists the maximum limits to which the device can be subjected without damage. **This doesn't imply that the device will function at these extreme conditions**, only that, when these conditions are removed and the device operated within the "Recommended Operating Conditions", it will still be functional and its useful life won't have been shortened.

Environmental ratings

Parameter	Remark
EMC	
ISO 13309:2010/ISO 14982:2009, radiated emission EN 55025:2008, 0.15-108 MHz, conducted emission ISO 11452-4:2005, conducted susceptibility ISO 11452-2:2004, radiated susceptibility ISO 11452-2:2004, radiated susceptibility ISO 7637-2:2004, conducted transients susceptibility ISO 7637-3:2007, conducted transients susceptibility	0.15-108 MHz, Class 1 1 - 200 MHz, 1 kHz, 80% AM, 150 mA 200-2000 MHz, 1kHz, 80% AM, 100 V/m 800-2000 MHz, PM 577 us / 4.6 ms, 60 V/m Pulse 1, 2a, 2b, 3a, 3b, 4, Level 3; Pulse 5, Level 3 Level 3
ESD	
ISO 10605:2008, operation ISO 10605:2008, handling	15 kV, air 8 kV contact 8 kV contact
Mechanical environment	
EN 60068-2-64:2008 Fh, randomvibration EN 60068-2-29:1987 Eb, bump	15-1000 Hz, 11.6 Grms, 3x10 hours 40g, 6 ms, 1000 x 6 directions
Climate environment	
IEC 60529:2001;DIN 40050 Part 9:1993, IP protection 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, operation IEC 60068-2-2:2007 Bb, Heat, storage IEC 60068-2-1:1993 Ab, Cold IEC 60068-2-14:1984 Nb, Change of temperature	IP6K9K +55°C, 95% RH, 6 cycles +40°C, 93% RH, 21 days +85°C, 16 hours +105°C, 240 hours -40°C, 16 hours - 30°C to +55°C, 100 x 4 hours

System

$T_A = +25\text{ }^{\circ}\text{C}$ (unless otherwise specified)

Parameter	Limit values			Unit	Remark
	min.	typ.	max.		
Weight		60		grams	
Ambient temperature	- 40		+85	$^{\circ}\text{C}$	
Voltage supply, V_{BAT}	9		32	V	
Current consumption		17 10		mA	@ 14 Vdc @ 28 Vdc

Approvals

Parameter	Remark
FCC (United States) IC (Canada) CE (Europe) E-mark	FCC ID: VPYLBZY IC: 772C-VPZY 2004/108/EC ECE regulation No. 10.05:2014, Approval number E5 10 R-05273

Bluetooth

Parameter	Remark
Bluetooth	Bluetooth 4.0 LE (Bluetooth Smart)
Output power	0 dBm
Range Normal	up to 20m (in most cases 5 to 10m)
Data rate	up to 70 Kbit/sec

CAN

Parameter	Remark
CAN specification	2.0A and 2.0B
CAN bus speed	100 kbit to 500 kbit
Protection	SCB, SCG

Appendix B

LED messages and actions

If an error is detected, a message will be presented on the LED.



WARNING

An error message could indicate that a hazardous situation exists. If precautions are not taken, this could result in death, serious injury or major property damage.

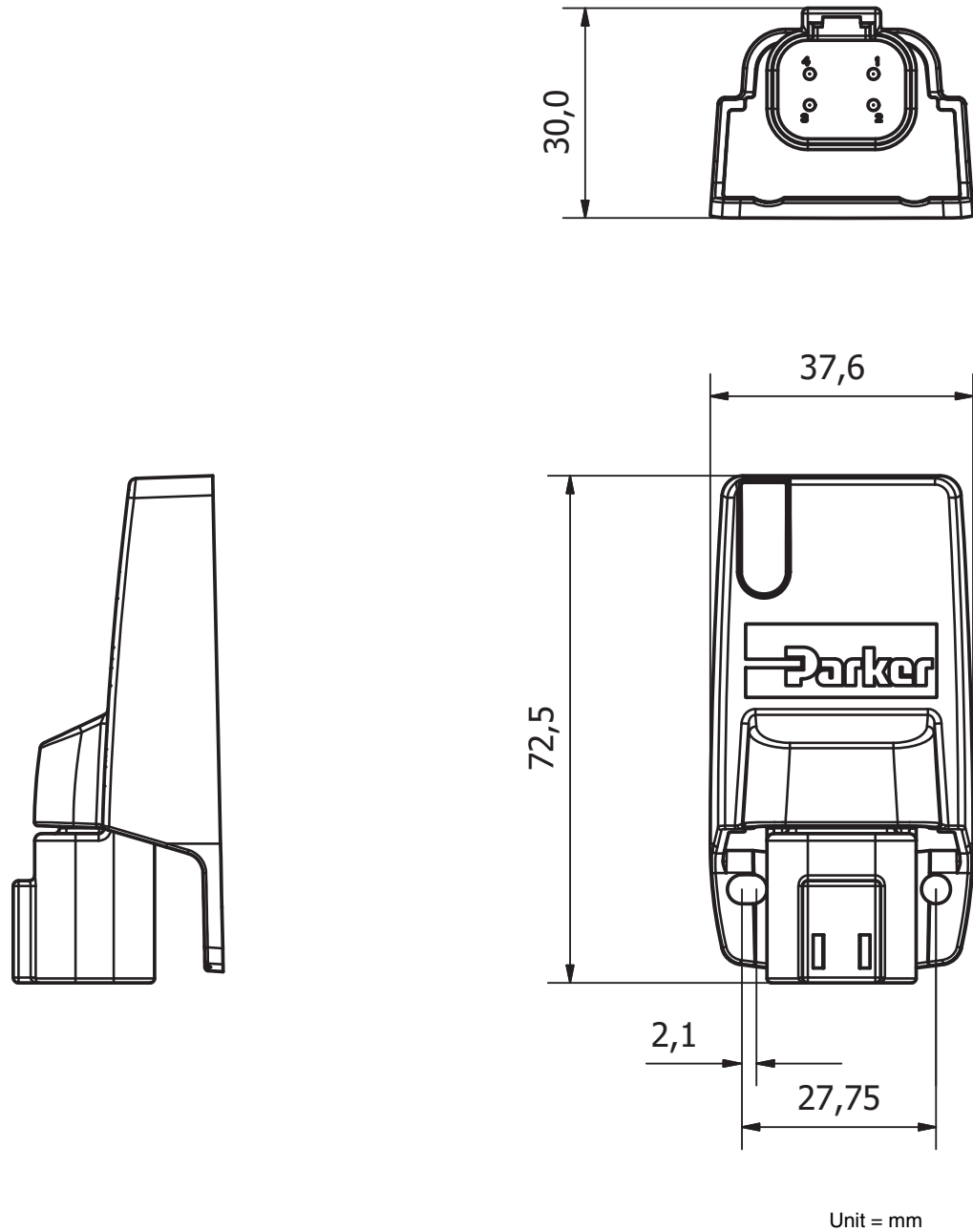
LED indicators showing different IQAN-G11 modes

Status		Flash (yellow)	
Init	100 ms on 100 ms off		
Waiting	100 ms on 2900 ms off		
Connected	900 ms on 100 ms off		

Error code	Error	Primary Flash (red) Error category	Secondary Flash (yellow) Error description
3:1	CAN, no contact		
3:4	CAN error (bus off)		
4:1	Internal error/OSE		
4:2	Internal error/G11		

Appendix C

Dimensioning of the IQAN-G11 module





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For latest information visit our website www.iqan.com

Information in this instructionbook is subject to change without notice