AFRISO

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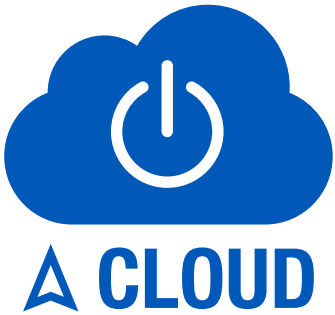
Edition 1.0 - 25-03-18

ACC2

Afriso Cloud Connect



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1 About this manual

This manual describes the IoT gateway ACC2.
This user manual is part of the product.

- You may only use the product if you have read and understood the user manual fully.
- Check that this user manual is always available for all types of work performed on or with the product.
- Hand over this user manual and all other product-related documents to all owners of the product.
- If you believe that this manual contains errors, inconsistencies, ambiguities or other problems, contact the manufacturer before use the product.

The manufacturer is not responsible in any form for direct damages or consequential damages resulting from failure to follow these instructions for use or from failure to comply with directives, regulations and standards and all others statutory requirements applicable at the installation location of the product.

2 Safety information

2.1 Security Notices

This user manual contains safety messages to alert you to potential hazards and risks. In addition to the instructions in this manual you must comply with all applicable directives, standards and safety regulations at the installation location of the product. Verify that you know all directives, standards and safety regulations and ensures that they are followed before the product is used. Safety messages in this manual are marked with warning symbols and warning text.

2.2 Safety Symbols

SYMBOL	DESCRIPTION
	**Critical warning, risk of personal injury**
	**Warning risk of damage to equipment or person**
Note !	**Attention is required**

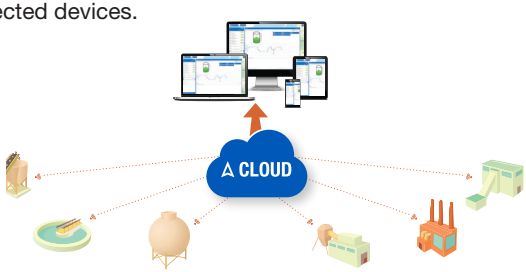
2.3 Regulations regarding ACC2

SYMBOL	DESCRIPTION
Note !	**Read instructions before installation**
	**Installation may only be carried out by a qualified installer**

3 Product description

ACC2 is an IoT gateway that consists of an electronic device that you can plug in 4 digital (0/1) and 2 analog sensors that communicate via the 4G network to AfrisoCloud, which is a cloud service solution for the presentation of measurement values on internet connected devices.

3.1 Application example



4 Checklist

4.1 Before installation

- Do you have the knowledge to carry out electrical installation?
- Extension cables to sensors, at least 2 x 0.75 mm², max 200 meters
- Remember to check regulations and installation instructions for your specific facility

4.2 After installation

- Check connection of electronic unit and cable area.
- Check the mounting position of the sensor according to the manufacturer's instructions recommendations
- Turn on the voltage and follow the instructions in the manual
- Carry out a functional check according to the commissioning instructions

4.3 Important information

On delivery, the unit is equipped with cable penetrations or knock-outs. Only cable with suitable outside diameter may be used in accordance with the installation regulations. Unused connections must be plugged in appropriate way.

4.4 Repair

In the event of an electronic unit failure, no repair is permitted. Unit must either be replaced alternatively sent to Afriso Ema AB for troubleshooting/checking.

4.5 Dismantling, waste management

Dispose of the product in accordance with all applicable directives and standards and safety regulations. Electronic components must not be disposed of together with normal household waste.

5 Assembly

5.1 Assembly of electronics unit

Note ! Read instructions for installation

Installation may only be carried out by a qualified installer

- Mount the electronics unit on a even wall at eye level.
- Check that the electronics unit is easily accessible and easy to monitor.
- Check that the electronics unit is protected against water and splashes..
- Check that the electronic unit is protected from direct sunlight..

1. Unscrew the 4 plastic screws on the cover
2. Hold the product against the wall.
3. Mark the four drill holes on the wall with a pencil.
4. Drill 4 holes in the wall.
5. Screw the product to the wall.
6. Connect the inputs as described in the chapter ”Electrical connection”

5.1.2 Electrical connection

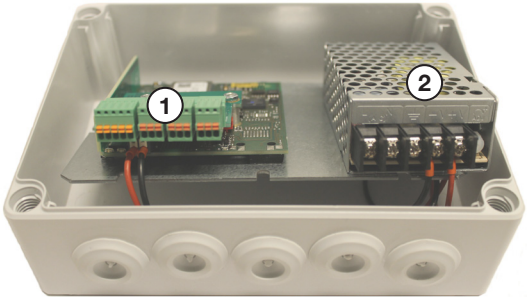
Risk of electric shock

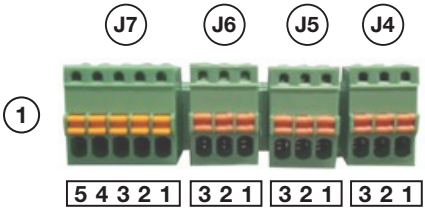
- Disconnect the mains voltage before carrying out the work and ensure that it cannot turned on.

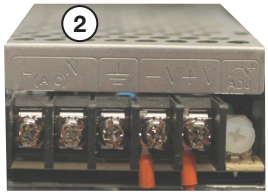
Note !

- The electronics unit is connected to the mains with a suitable, fixed installed cable 3 x 1.5 mm².
- The power supply to the electronic unit must be correctly secured (16 A max).
- Terminal for sensor can handle cable area 0.205-1.31 mm² with recommended scaling 6-8 mm.

- The terminals are removable and have (screwless) quick connection. For connection off cable, press and hold the orange button. For in scaled cable and release the orange button. Feel for the cable to be secure. For disassembly, reverse the order.







5.1.3 Connection overview

1 = connection terminals

J4/1 = Sensor feed (DC feed sensor)
J4/2 = ADC-1, Analog input (4-20mA eller 0-10V)
J4/3 = GND (Signal ground)
J5/1 = Sensor feed (DC feed sensor)
J5/2 = ADC-2, Analog input (4-20mA eller 0-10V)
J5/3 = GND (Signal ground)
J6/1 = DIG_IO-1, Digital input (0/1)
J6/2 = DIG_IO-2, Digital input (0/1)
J6/3 = GND (Signal ground)
J7/1 = -
J7/2 = -
J7/3 = GND (Signal ground)
J7/4 = DIG_IO-3, Digital input (0/1)
J7/5 = DIG_IO-4, Digital input (0/1)

2 = Terminal for connection of 230 VAC

5.2 Installation of sensors

⚠ Cables should be installed mechanically protected

Sensors are mounted according to the description in their manual. Record as many measurements as possible to facilitate continued set-up in the cloud service portal. See 7.1.

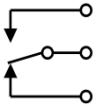
5.3 Connection example

5.3.1 Sensor with 4–20 mA signal

Sensor 1
Connect the sensor to terminal J4/1 (Sensor feed 24 VDC) and terminal J4/2 (Analog input 1)

Sensor 2
Connect the sensor to terminal J5/1 (Sensor feed 24 VDC) and terminal J5/2 (Analog input 2)

5.3.2 Relay



Normally Open (NO)
Common (C)
Normally Closed (NC)

Connection between C and NO gives a high signal which is displayed in the Sitevisual portal as 1. When the relay closes, the signal is grounded, and goes low. Displayed in the Sitevisual portal as 0.

Connection between C and NC gives a grounded signal that is displayed in the Sitevisual portal as 0. When the relay opens, the ground drops and the signal goes high. Shown in the Sitevisual portal as 1.

Relay 1
Common (C) is connected to terminal J6/1 (DIG_IO-1) and NO or NC is connected to terminal J4/3 (GND).

Relay 2
Common (C) is connected to terminal J6/2 (DIG_IO-2) and NO or NC is connected to terminal J5/3 (GND).

Relay 3
Common (C) is connected to terminal J7/4 (DIG_IO-3) and NO or NC is connected to terminal J6/3 (GND).

Relay 4
Common (C) is connected to terminal J7/5 (DIG_IO-4) and NO or NC is connected to terminal J7/3 (GND).

5.3.3 Separator alarm OSA3 / ASA

OSA3/ASA - Relay 1 = programmable function (sensor-specific or total alarm) Common (C) is connected to terminal J6/1 (DIG_IO-1) and NC is connected to terminal J4/3 (GND)

OSA3/ASA - Relay R2 = programmable function (sensor-specific or total alarm) Common (C) is connected to terminal J6/2 (DIG_IO-2) and NC is connected to terminal J5/3 (GND)

ASA - Relay R3 = programmable function (sensor-specific or total alarm) Common (C) is connected to terminal J7/4 (DIG_IO-3) and NC is connected to terminal J6/3 (GND)

5.3.4 Pressure level sensor (4-20mA)

The pressure sensor's + cable is connected to terminal J4/1 (Sensor feed 24 VDC) and the pressure level sensor's – cable is connected to terminal J4/2 (Analog input 1).

5.3.5 Pressure level sensor EX (4-20mA) with barrier PGK-301

The barrier's terminal 1 (- 24 VDC) is connected to – on the built-in transformer in the housing.

The barrier's terminal 2 (+ 24 VDC) is connected to + on the built-in transformer in the housing.

The barrier's terminal 3 (- Iout) is connected to terminal J4/2 (Analog input 1).

The barrier's terminal 4 (+ Iout) is connected to terminal J4/1 (Sensor feed 24 VDC)

The pressure level sensor's – cable is connected to the barrier's terminal 7 (- Iin).

The pressure level sensor's + cable is connected to the barrier's terminal 8 (- Iin).

5.3.6 MicroTREK / EchoTREK (4-20mA)

Sensor terminal 2 (4-20mA) is connected to terminal J4/2 (Analog input 1).
Sensor terminal 3 (Power supply) is connected to terminal J4/1 (Sensor feed 24 VDC).

5.3.7 EasyTREK (4-20mA)

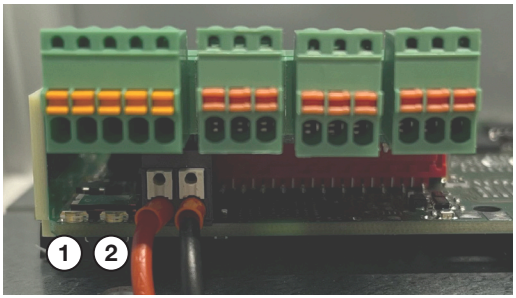
Brown cable from sensor is connected to terminal J4/2 (Analog input 1).

White cable from sensor is connected to terminal J4/1 (Sensor feed 24 VDC).

6 Commissioning

Note ! Make sure that the electronics unit and sensor are installed according to instructions in previous points.

Handling at startup



1 = Status LED

2 = Status LED for mobile connection

Checks at start-up of electronics unit
Check that all connections and assembly are correctly performed before voltage connection.

• Switch on voltage to the electronics unit

Status LED	
Off	No power
Red, solid light	The device is waiting for connection
Green, flashing	Firmware download in progress
Green, solid light	Normal operation

LED for mobile connection	
Off	No network
Red, flashing	Searching for networks
Red fixed light	No network available
Orange, fixed light	Connection established, low quality
Orange, flashing	Connection established, low quality, activity
Green fixed light	Connection established, good quality
Green, blinking	Connection established, good quality, activity

7 Operation

After commissioning and if no status LEDs are red, the ACC2 is ready for use.

7.1 Cloud service portal (www.app.sitevisual.net)

When everything is installed according to instructions, Afriso needs to be contacted to complete the set-up. Prepare the following information for each object:

Serial number: _____ (Yellow label on the PCB)

Customer: _____

Installation address:_____

Object name: _____

Signal type: _____ (4-20mA, 0-10V, On/Off)

Object shape :_____ (Horizontal cylinder, Vertical cylinder, Rectangular)

Length (mm): _____ (Rectangular/Hoizontal cylinder)

Höjd (mm): _____ (Rectangular/Vertical cylinder)

Djup (mm): _____ (Rectangular)

Diameter (mm): _____ (Horizontal cylinder/Vertical cylinder)

Object type:_____ (Weight, Volume, Temperature, Pressure, Percentage, PPM)

Material density: _____ (Only if weight is to be calculated)

Min. object capacity: _____ (Also specify the desired unit, e.g. ton/kg/liter/m^3 etc.)

Max. object capacity: _____

8 Maintenance

ACC2 does not need any actual maintenance. Check that the enclosure and wiring are complete and clean. Open the lid and check that the LEDs are green.

8.1 Maintenance of sensors

For sensor maintenance, consult the sensor's own manual.

8.2 Troubleshooting

Symptom	Solution
No connection	Move the device to another location
Low quality of the mobile connection	Move the device to another location
No LEDs are lit	Check the power connection
No connection to customer equipment	Check the physical connections

8.3 External antenna

The built-in antenna is very powerful, but there may be cases where it is still not enough to get a good signal. We recommend that you first try moving the device to another location with better 4G coverage. If this does not help, you can install an external antenna. We recommend purchasing a suitable 4G antenna with a suitable cable length and with an SMA connector. In order to then connect to the connector on the card, you also need an adapter SMA to U.FL.

Connection of antenna

Exampel of adapter cable SMA to U.FL.

9 Technical data

9.1 IoT Gateway ACC2

Operating voltage	230 VAC, 50 Hz
Ambient temperature electronics	-30 - +65°C
Enclosure	175 x 125 x 75 mm (W x H x D), 0,75 kg, ABS plastic, IP 65
Modem	LTE Cat M1

EU Declaration of Conformity (DoC)

We

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declare that this DoC is issued under our sole responsibility and belongs to the following product(s):

IoT Gateway ACC2

to which this declaration relates is in conformity with the following standards and directives.

Directive		**Harmonized Standard**
EMC Directive	2014/30/EU	EN IEC 61000-6-2 (2019) EN IEC 61000-6-3 (2021)
RED Directive	2014/53/EU	ETSI EN 300 328 v.2.2.2 (2019-07) (Parts of) ETSI EN 301 893 v.2.1.1 (2017-05) (Parts of) ETSI EN 301 908-1 v.13.1.1 (2019-11) (Parts of) ETSI EN 301 908-13 v.13.2.1 (2022-02) (Parts of) ETSI EN 303 413 v.1.2.1 (2021-04) (Parts of)

Signed for and on behalf of Afriso Ema AB

Date of issue: 2024-01-30

Signature of authorized person:

Jonas Ericson Nihlstorp, CEO