OTT HydroMet

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UMB Analogue/Digital Converter ANACON

Operational Manual

48.7230-ANAC | 01-1024

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Table of contents

1 Scope of supply

The following items are included with delivery:

– UMB Analogue/Digital Converter (ANACON)

2 Order numbers and variant code

2.1 Product variants

Variant	Order number
UMB Converter ANACON	8160.UANA

3 About this manual

3.1 Other applicable documents

The following documents contain further information on installation, maintenance and calibration:

- Quick installation guide

3.2 General signs and symbols

The signs and symbols used in the operational manual have the following meaning:

Practical tip

This symbol indicates important and useful information.

Action

✓ Prerequisite that must be met before performing an action.

- Step 1
  - ⇨ Intermediate result of an action
- Step 2

⇨ Result of a completed action

List

– List item, 1st level
  – List item, 2nd level

3.3 Explanation of warnings

To avoid personal injury and material damage, you must observe the safety information and warnings in the operating manual. The warnings use the following danger levels:

WARNING

WARNING

This indicates a potentially hazardous situation. If the hazardous situation is not avoided, it may result in death or serious injuries.

CAUTION

CAUTION

This indicates a potentially hazardous situation. If the hazardous situation is not avoided, it may result in moderately serious or minor injuries.

NOTICE

NOTE

This indicates a situation from which damage may arise. If the situation is not avoided, products may be damaged.

4 General safety instructions

4.1 Intended use
The UMB Converter (ANACON) is used to build UMB networks.

4.2 Potential misuse
Any use of the product that does not comply with the intended use, be this intentional or negligent, is forbidden by the manufacturer.

- Use the product only as described in the operational manual.

4.3 Pay attention to all documents
The ANACON can be used to connect multiple devices in a network. To avoid damage and injury, read the manuals of all devices used.

- Read this manual and all manuals for the devices used in the network before unpacking, commissioning, and operating the equipment.
- Pay attention to all safety information and warnings.
- Ensure that the protection provided by the ANACON is not compromised.

4.4 Personnel qualification
The equipment described in this manual must be installed, operated, maintained and repaired by qualified personnel only.

- Obtain training from OTT HydroMet if necessary.

4.5 Operator obligations
The installer is responsible for observing the safety regulations. Unqualified personnel working on the product can cause risks that could lead to serious injury.

- Have all activities carried out by qualified personnel.
- Ensure that everybody who works on or with the product has read and understood the operational manual.
- Ensure that safety information is observed.
- File the operational manual together with the documentation of the entire system and ensure that it is accessible at all times.
- The operational manual is part of the product, forward the operational manual together with the product.

4.6 Personnel obligations
To avoid equipment damage and injury when handling the product, personnel are obliged to the following:

- Read the operational manual carefully before using the product for the first time.
- Pay attention to all safety information and warnings.
- If you do not understand the information and procedure explanations in this manual, stop the action and contact the service provider for assistance.
- Wear the necessary personal protective equipment.

4.7 Correct handling
If the product is not installed, used and maintained correctly, there is a risk of injury. The manufacturer does not accept any liability for personal injury or material damage resulting from incorrect handling.

- Install and operate the product under the technical conditions described in the operational manual.
- Do not change or convert the product in any way.
- Do not perform any repairs yourself.
- Get OTT HydroMet to examine and repair any defects.
- Ensure that the product is correctly disposed of. Do not dispose of it in household waste.

4.8 Certification

CE (EU)
The equipment meets the essential requirements of EMC Directive 2014/30/EU.

FCC (US)
FCC Part 15, Class "B" Limits

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.
2. This device must accept any interference received, including interference that may cause undesired operation.

IC (CA)
Canadian Radio Interference-Causing Equipment Regulation, ICES-003, "Class B"

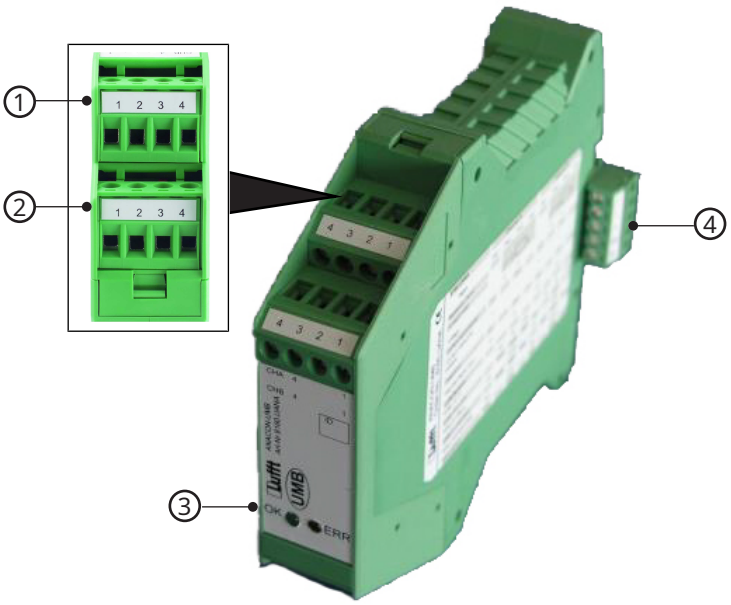
This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

5 Product description

5.1 Design and function

The UMB Analogue/Digital Converter (ANACON) is an intelligent analogue/digital converter with electrical isolation for building UMB networks. The devices are easily installed on standard EN mounting rails and networked together by means of mounting rail bus connectors. The 24 V feed for the power supply takes place via the bus connector. Windows software is available for the configuration of the ANACON via RS-232 port and an additional ISOCON (8160.UISO).

5.2 Product overview



1	Input channel A	3	Status LED's
2	Input channel B	4	Power supply and RS-485 bus interface

6 Transport, storage, and unpacking

6.1 Transport

- Transport the product always in its original packaging.
- Ensure that the product is not mechanically stressed during transport.

6.2 Storage

- Store within specified temperature ranges.
- Store in dry area.
- Store in original box where possible.

6.3 Unpacking

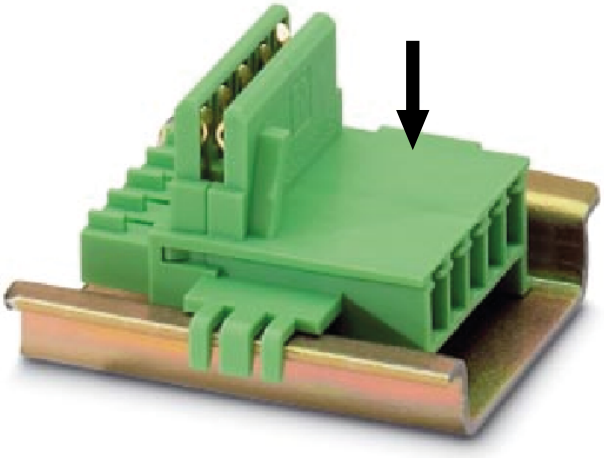
- Carefully remove the product from the packaging.
- Check that the delivery is complete and undamaged.
- If you find any damage or if the delivery is incomplete, then immediately contact your supplier or manufacturer.
- Keep the original packaging for any further transportation.

7 Installation

7.1 Mechanical installation

7.1.1 Installing mounting rail bus connector

- Clip the mounting rail bus connector onto a grounded DIN rail.



7.2 Electrical installation

7.2.1 Analogue inputs channel A and channel B

i Pay attention to all safety instructions and warnings regarding electricity in the manuals of the devices installed with ANACON.

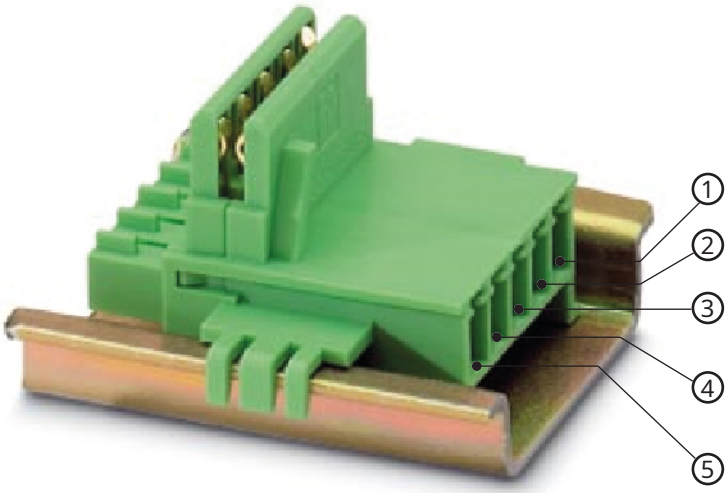
The terminals are suitable for stranded or rigid wires without end sleeves with cross section from 0,14 mm^2 to 2,5 mm^2. Alternatively, stranded or rigid wires with end sleeves can be used with over-all cross section from 0,25 mm^2 to 2,5 mm^2.

In any case the stripping length is 8 mm and the terminals need to be tightened with a 3,2 mm slotted screwdriver with a torque from 0,5 Nm to 0,6 Nm.

Pin assignment

PIN	Assignment
1	Power, sensor power supply
2	ANA_+, sense high input
3	ANA_I, force low input
4	ANA_-, force high input

7.2.2 Mounting rail bus connection



1	Earth 24 V power supply, feed	4	B1, internal bus
2	Earth 24 V power supply, feed	5	A1, internal bus
3	+24 V power supply, feed		

7.2.3 Configuring and installing ANACON

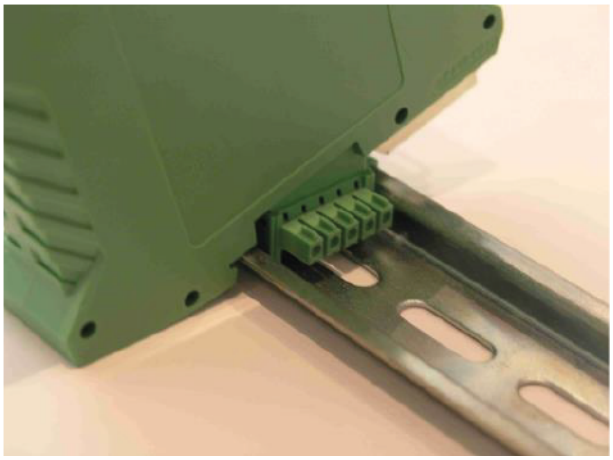
NOTICE

Damage due to static discharge!

Static discharge can damage electronic equipment.

- To discharge the electrical charge from your body before opening the housing, touch a grounded surface, e.g. the metal housing of the control panel.

- Clip a mounting rail bus connector onto the grounded DIN rail.
- Connect the 24 V power supply with the aid of the connector provided. Pay attention to the correct polarity and pin assignment of the connection.
- Install the ANACON module on the mounting rail bus connector.



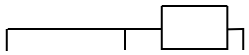
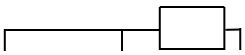
- Clip an ISOCON module on the mounting rail and connect the module to the PC via the RS-232 interface.
- Set the desired ID and channel configuration using the UMB-Config-Tool software.
- Detach the ANACON module from the DIN rail.

8 Commissioning

8.1 Commissioning ANACON

- Ensure the power is off.
- Configure all modules in accordance with the requirements.
- Clip the required number of mounting rail bus connectors onto the grounded DIN rail.
- Connect all ANACON modules.
- Connect the sensors to the channels A and B of each ANACON module. Pay attention that a fixed assignment is specified for channels A and B for the combined sensors for temperature and relative humidity as well as the wind speed and wind direction sensors, see table below.
- Connect the 24 V power supply to the mounting rail bus connectors.
- Connect the host system to any desired RS-232 interface of an ISOCON.

Sensor connection scheme

Setting	Channel A				Channel B			
	Pin 1	Pin 2	Pin 3	Pin 4	Pin 1	Pin 2	Pin 3	Pin 4
Resistance (3 wire), PT100/PT1000[1]								
Voltage		V+	V-			V+	V-	
Current self-powered	I-		I+		I-		I+	
Current ANACON powered	I+		I-		I+		I-	
Frequency	F-		F+		F-		F+	
Impulse/Digital input	D-		D+		D-		D+	
OttHydroMet Sensors								
8160.TF[2] (T)		red	red	white		red	red	white
8353.10 (Tipping Bucket)	grey		pink		grey		pink	
8160.TF[2]s, 8160.WST2 (T)		brown	green	yellow		brown	green	yellow

[1]In case of a 4-wire PT100/PT1000 probe, one wire is not connected.

[2]different cable lengths available

8.2 Status LED's

The 2 LED's on the front side display the correct configuration and functioning of the device.

LED	State	Meaning
Red LED	Lights up permanently after switch-on	Configuration fault
	Lights up during operation	The reset function for interrupting the sensor power supply is activated.
Green LED	Flashes briefly (20 ms) every 10 seconds	Displays the function of the device.
	Lights up for a longer period (> 500 ms)	Data is being received from the connected sensor.

9 Maintenance

The product does not require any maintenance.

10 Troubleshooting

10.1 Error elimination

Error	Possible cause	Corrective action
Red LED permanently lit	Configuration fault	▸ Check wiring or configuration in the UMB-Config-Tool software.
Red LED lights briefly	Unforeseen fault has occurred	▸ Reset the device.

11 Repair

11.1 Customer support

- Have repairs carried out by OTT HydroMet service personnel.
- Only carry out repairs yourself, if you have first consulted OTT HydroMet.
- Contact your local representative: www.otthydromet.com/en/contact-us
- Include the following information:

– instrument model
– instrument serial number
– details of the fault or problem
– examples of data files
– readout device or data acquisition system
– interfaces and power supplies
– history of any previous repairs or modifications
– pictures of the installation
– overview of the local environment conditions

12 Notes on disposing of old devices

Member States of the European Union

In accordance with the German Electrical and Electronic Equipment Act (ElektroG; national implementation of EU Directive 2012/19/EU), OTT HydroMet takes back old devices in the Member States of the European Union and disposes of them in the proper manner. The devices that this concerns are labeled with the following symbol:

- For further information on the take-back procedure contact OTT HydroMet:

OTT HydroMet Fellbach GmbH
Service & Technical Support
Gutenbergstraße 20
70736 Fellbach
Germany
phone: +49 711 518 22 0
email: met-support@otthydromet.com

All other countries

- Dispose of the product in the proper manner following decommissioning.
- Observe the country-specific regulations on disposing of electronic equipment.
- Do NOT dispose of the product in household waste.

13 Technical data

13.1 General technical data

Specification	Value
Housing	PA-V0, green
Connections	COMBICON plug-in connectors 0.2 – 2.5 mm^2 (AWG 24 – 12)
Protection type	IP20
Operating temperature range	-30 to +60 °C
Storage temperature range	-40 to +70 °C
Humidity range	0 to 95 %

13.2 Electrical data

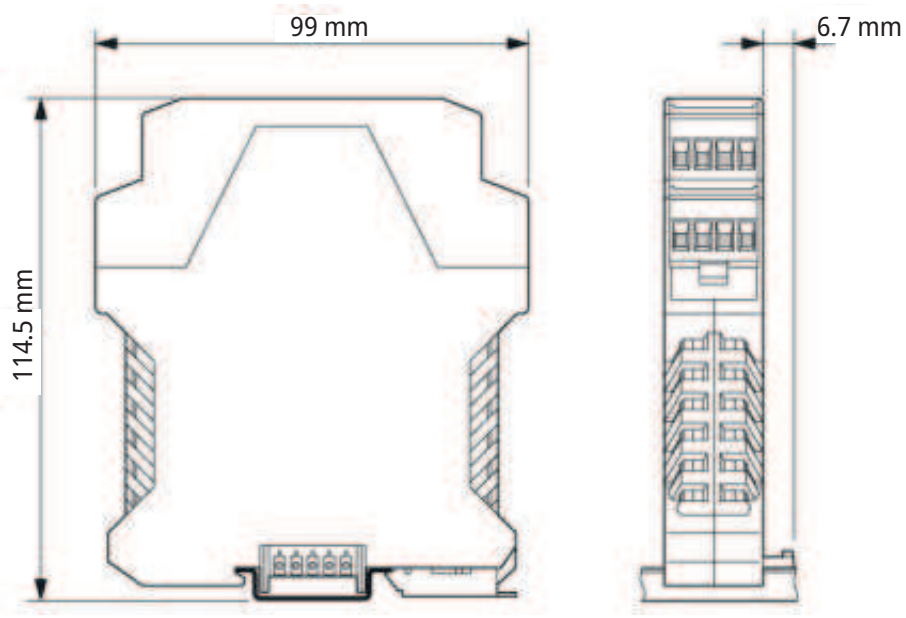
Specification	Value
Power supply	24 V ±10 %
Power consumption	< 50 mA at 24 V; excluding sensor
Connection	Phoenix bus connector, gold, 5-pole
Function display	Green LED, flashes every 10 seconds
Sensor power supply, 24 V output	max. 2 A (observe the maximum current of the internal bus)

13.3 Data transfer

RS-485 interface internal bus

Specification	Value
Standard	RS-485 2 wire, half-duplex
Transmission type	Protocol-transparent, 8 data bits, 1 stop bit, no parity
Tri-State	2 bit after stop bit edge
Transmission rate	19200 baud
Connection	Phoenix bus connector, gold, 5-pole, maximum 8 A

13.4 Dimensions and weight



Specification	Value
Width	22.5 mm
Height with interface	118.6 mm
Weight	approx. 120 g

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Contact Information