Installation and configuration manual

DXCa - Weinzierl® KNX Gateway
V1.3

A1948

These operating instructions are only valid in conjunction with the complete operating instructions for DULCOMARIN® II

Please carefully read these operating instructions before use! · Do not discard!
The operator shall be liable for any damage caused by installation or operating errors!
Technical changes reserved.

General non-discriminatory approach

In order to make it easier to read, this document uses the male form in grammatical structures but with an implied neutral sense. It is aimed equally at both men and women. We kindly ask female readers for their understanding in this simplification of the text.

Supplementary information

Please read the supplementary information in its entirety.

The following are highlighted separately in the document:

- Enumerated lists

→ Instructions

⇨ Outcome of the instructions

Information

This provides important information relating to the correct operation of the device or is intended to make your work easier.

Safety information

The safety information includes detailed descriptions of the hazardous situation.

Table of contents

1 Introduction

The document is aimed at programmers and personnel involved in project management and commissioning.

The manual describes the variables for data transmission by the DULCOMARIN® II via the Weinzierl® KNX Gateway to a KNX building management system.

The *'KNX IP BAOS 771'* is used as an interface to the *'KNX/EIB'*, both at telegram level *'(KNXnet/IP Tunneling)'* as well as at data point level *'(KNX Application Layer)'*. Clients can thus directly access group objects via *'TCP/IP'* or *' UDP/IP'* using a binary protocol.

'Java Script Object Notation (JSON)' can be used as an alternative protocol for use in web browsers. The device is configured with *'ETS'* and supports 250 objects. Up to 10 clients can access the device simultaneously.

'BAOS' stands for *'Bus Access and Object Server'*. It is possible to access the *'KNX/EIB Bus'* from every point in the *'LAN'*. Online bus access is also possible using the *'KNX-IP-BAOS-771'*. A maximum of 5 connections are simultaneously possible when accessing via *'KNXnet/IP Tunnelling'*.

The IP address can be assigned by a DHCP server and/or by manual configuration, as an ETS parameter.

12 V or 24 V voltage is supplied externally or alternatively via *'Power-over-Ethernet (IEEE 802.3af)'*.

This manual only applies to the DXCa gateway described in this document. Only use the DXCa gateway with the DULCOMARIN® II. The content of this document has been checked for agreement with the hardware and software described, nevertheless deviations cannot be ruled out. Complete agreement can therefore not be guaranteed.

Use:

The KNX Gateway can transmit data from a DULCOMARIN® II DXCa for a filter circuit. The KNX Gateway is unsuitable for use in multiple pool systems.

The following data is transmitted and/or can be modified.

- All measured values
- All control variables
- All error messages
- Also the level signals of metering pumps with CAN bus
- The status of up to 4 attractions
- Switching 4 attractions on and off
- The target water temperature
- ECO!MODE switch-over

Object server

Access to the object server via *'TCP/IP'* and/or *'UDP/IP'* is provided via the *'KNX BAOS Binary Protocol V2.0'*. The description of the protocol is provided in a separate document. Alternatively the object server can be accessed via web services. The web services are based on *'Java Script Object Notation (JSON)'*. The description of the protocol is provided in a separate document. The protocol descriptions can be downloaded from the *'KNX IP BAOS 771 '* product page at www.weinzierl.de.

2 Assembly, Connection and Commissioning

Assembly and connection

The *'KNX IP BAOS 771'* is a series installation unit with an installation width of 2 horizontal pitches (2 * 5.08 mm). It has the following display and operating elements:

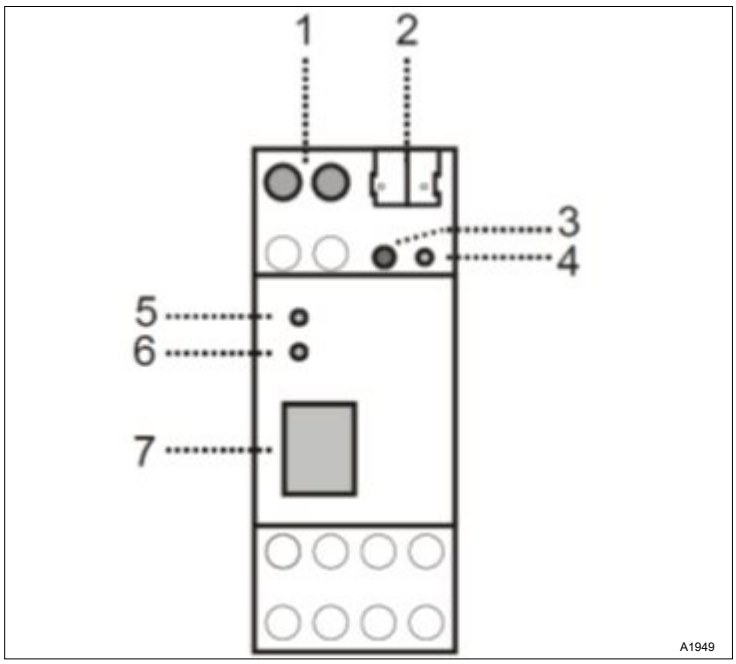

Fig. 1: Display and operating elements

1. Connector for external supply voltage 12 V ... 24 V AC / 12 V ... 30 V DC
2. *[KNX/EIB]* connector with a bus terminal
3. Learn button
4. Learn LED (red)
5. LED (green): lights up if there is bus voltage to the *[KNX/EIB]* / flashes if there is telegram traffic
6. LED (green): lights up if there is an Ethernet connection / flashes if there is telegram traffic
7. RJ 45 port for connection to the LAN

Connection of external supply voltage is only needed if the switch used does not support *'Power-over-Ethernet'* .

Data points (DP)

Data points (DP) that the DULCOMARIN® II makes available to the KNX Gateway.

Gateway	Description	Pools	Data type	Access
[DPT 1]	pH actual value pool	1	*[INT16]*	*[RO]*
[DPT 2]	pH control value pool	1	*[INT16]*	*[RO]*
[DPT 3]	ORP actual value pool	1	*[INT16]*	*[RO]*
[DPT 4]	ORP control value pool	1	*[INT16]*	*[RO]*
[DPT 5]	Temperature actual value pool	1	*[INT16]*	*[RO]*
[DPT 6]	Temperature control value pool	1	*[INT16]*	*[RO]*
[DPT 7]	Channel 4 actual value pool	1	*[INT16]*	*[RO]*
[DPT 8]	Channel 4 control value pool	1	*[INT16]*	*[RO]*
[DPT 9]	Channel 5 actual value pool	1	*[INT16]*	*[RO]*
[DPT 10]	Channel 5 control value pool	1	*[INT16]*	*[RO]*
[DPT 11]	Channel 6 actual value pool	1	*[INT16]*	*[RO]*
[DPT 12]	Channel 6 control value pool	1	*[INT16]*	*[RO]*
[DPT 13]	Channel 7 actual value pool	1	*[INT16]*	*[RO]*
[DPT 14]	Channel 7 control value pool	1	*[INT16]*	*[RO]*
[DPT 15]	Channel 8 actual value pool	1	*[INT16]*	*[RO]*
[DPT 16]	Channel 8 control value pool	1	*[INT16]*	*[RO]*
[DPT 17]	Channel 9 actual value pool	1	*[INT16]*	*[RO]*
[DPT 18]	Channel 9 control value pool	1	*[INT16]*	*[RO]*
[DPT 19]	Channel 10 actual value pool	1	*[INT16]*	*[RO]*
[DPT 20]	Channel 10 control value pool	1	*[INT16]*	*[RO]*
[DPT 21]	Channel 11 actual value pool	1	*[INT16]*	*[RO]*
[DPT 22]	Channel 11 control value pool	1	*[INT16]*	*[RO]*
[DPT 23]	Error in pool	1	*[INT32]*	*[RO]*
[DPT 24]	Error with sample water	1	*[BOOL]*	*[RO]*
[DPT 25]	*[Level_WARNING_DP1 < 10%]*	1	*[BOOL]*	*[RO]*
[DPT 26]	*[Level_WARNING_DP2 < 10%]*	1	*[BOOL]*	*[RO]*
[DPT 27]	*[Level_ WARNING_DP3 < 10%]*	1	*[BOOL]*	*[RO]*
[DPT 28]	*[Level_ WARNING_DP4 < 10%]*	1	*[BOOL]*	*[RO]*
[DPT 29]	*[Level_ERR_DP1 = 0%]*	1	*[BOOL]*	*[RO]*
[DPT 30]	*[Level_ERR_DP2 = 0%]*	1	*[BOOL]*	*[RO]*
[DPT 31]	*[Level_ERR_DP3 = 0%]*	1	*[BOOL]*	*[RO]*
[DPT 32]	*[Level_ERR_DP4 = 0%]*	1	*[BOOL]*	*[RO]*
[DPT 33]	*[DXMaFx ATR_1 ON=1/OFF=0 =0 TARGET Jet-stream pulses]*	1	*[BOOL]*	*[OW]*
[DPT 34]	*[DXMaFx ATR_2 ON=1/OFF=0]* Target massage jet pulses	1	*[BOOL]*	*[OW]*

Gateway	Description	Pools	Data type	Access
[DPT 35]	*[DXMaFx ATR_3 ON=1/OFF=0]* TARGET neck shower pulses	1	*[BOOL]*	*[OW]*
[DPT 36]	*[DXMaFx ATR_4 ON=1/OFF=0]* TARGET underwater light	1	*[BOOL]*	*[OW]*
[DPT 37]	*[DXMaFx ATR_1 ON=1/OFF=0 =0]* ACTUAL Jetstream	1	*[BOOL]*	*[RO]*
[DPT 38]	*[DXMaFx ATR_2 ON=1/OFF=0]* ACTUAL massage jets	1	*[BOOL]*	*[RO]*
[DPT 39]	*[DXMaFx ATR_3 ON=1/OFF=0]* ACTUAL neck shower	1	*[BOOL]*	*[RO]*
[DPT 40]	*[DXMaFx ATR_4 ON=1/OFF=0]* ACTUAL underwater light	1	*[BOOL]*	*[RO]*
[DPT 41]	Target water temp.: 3.9 °C ... 45.0 °C	2	*[INT16]*	*[OW]*
[DPT 42]	Target ECO water temp.: 3.9 °C ... 45.0 °C	2	*[INT16]*	*[OW]*

3 Description of the data objects

3.1 Actual values

After starting DULCOMARIN II all actual values are only available on the Modbus after 130 seconds. Measured values that are not available or are incorrect are displayed as 0x7FFF = 32767.

The updating rate of the parameters is 4 seconds per configured pool. This means that with 10 configured pools, all measured values are updated every 40 seconds.

[pH measured variable pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[pH measured variable pool 1 ... 16] (pH actual value)	0 ... 1400	Range: 0 ... 14.00 Example: 720 = 7.20 pH	---

[ORP measured variable pool 1 - 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[ORP measured variable pool 1 ... 16] (ORP actual value)	-1200 ... +1200	-1200 ... 1200 mV	mV

[Temp. Measured pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Temp. measured variable pool 1 ... 16] (Temperature actual value)	0 ... 1200	Range: 0 ... 120 °C Example: 130 = 13.0 °C	°C

The interpretation of the data changes dependent on the identity code. The following data are consecutively numbered starting with number 4 and thus do not have the actual names of their user data.

[Ch. 4 measured variable pool 1 ... 16]

Measured value	Sensor type	DXCa identity code	Modbus input value (range)	Converted measured value	Unit
[Ch. 4 measured variable pool 1 ... 16] (Channel 4 actual value)					
Cl	CLE 3	S, C, D	0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm
			0 ... 20000	Range 0 ... 200 ppm Example: 10000 = 100 ppm	ppm
	CGE	S, D	0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm
	CLE 3.1		0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm
Cl free			0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm
Br			0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm
ClO2	CDR	S, D	0 ... 200	Range 0 ... 2.00 ppm Example: 50 = 0.50 ppm	ppm

[Ch. 5 measured variable pool 1 ... 16]

Measured value	Sensor type	DXCa identity code *'Use'*	Modbus input value (range)	Converted measured value	Unit
[Ch. 5 measured variable pool1 ... 16] (Channel 5 actual value)					
Cl	CLE 3	C	0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm

Measured value	Sensor type	DXCa identity code *'Use'*	Modbus input value (range)	Converted measured value	Unit
			0 ... 20000	Range 0 ... 200 ppm Example: 10000 = 100 ppm	ppm
Cl total	CTE	D	0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm
Cl bound	CTE	S	0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm
ClO2-	CLT	S, D	0 ... 200	Range 0 ... 2.00 ppm Example: 50 = 0.50 ppm	ppm

[Ch. 6 measured variable pool 1 ... 16]

Measured value	Sensor type	DXCa identity code *'Use'*	Modbus input value (range)	Converted measured value	Unit
[Ch. 6 measured variable pool 1 ... 16] (Channel 6 actual value)					
Cl total	CTE	S	0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm
Cl bound	CTE	D	0 ... 1000	Range 0 ... 10.00 ppm Example: 200 = 2.00 ppm	ppm

[Ch. 7 measured variable pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 7 measured variable pool 1 ... 16] (Channel 7 actual value)			
Ht. above sea level			

[Ch. 8 measured variable pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 8 measured variable pool 1 ... 16] (Channel 8 actual value)			
CANopen turbidity sensor			

[Ch. 9 measured variable pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 9 measured variable pool 1 ... 16] (Channel 9 actual value)			
I1 (edit mode)	0 ... 9999	Dependent on the edited value in the I module	
Q	0 ... 9999	see device formatting	m³/h, l/h

[Ch. 10 measured variable pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 10 measured variable pool 1 ... 16] (Channel 10 actual value)			
I2 (edit mode)	0 ... 9999		mA
Ammonia (NH3)	0 ... 9999		ppm, mg/l
Hydrogen peroxide (H2O2)	0 ... 9999		ppm, mg/l
Peracetic acid (PES)	0 ... 9999		ppm, mg/l
Conductive conductivity	0 ... 9999		µS/cm, mS/cm, S/cm
ClO2	0 ... 9999		ppm, mg/l
DO	0 ... 9999		ppm, mg/l

[Ch. 11 measured variable pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 11 measured variable pool 1 ... 16] (Channel 11 actual value)			
I3 (edit mode)			mA
PES	0 ... 9999		ppm/mg/l
Temperature	0 ... 9999		°C
ClO2-	0 ... 9999		ppm/mg/l
UV intensity (UV)	0 ... 9999		W/m², mW/cm²
Turbidity	0 ... 9999		FNU, NTU, FTU, FAU, EBC

3.2 Control values

After starting DULCOMARIN II all actual values are only available on the Modbus after 130 seconds. Measured values that are not available or are incorrect are displayed as 0x7FFF = 32767.

The updating rate of the parameters is 4 seconds per configured pool. This means that with 10 configured pools, all measured values are updated every 40 seconds.

[pH control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[pH control output pool 1 ... 16] (pH control value)	-1000 ... 0 ... 1000	Range: 0 ... 14.00 Example: 720 = 7.20 pH	%

[ORP control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[ORP control output pool 1 ... 16] (ORP control value)	-1000 ... 0 ... 1000	-1200 ... 1200 mV	%

[Tem. Control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Temp. control output pool 1 ... 16] (Temperature control value)	0 ... 1000	Range: 0 ... 120 °C Example: 130 = 13.0 °C	°C

Interpretation of the data

Dependent upon whether the DULCOMARIN II is equipped with the various modules, the interpretation of the data changes. The following data are consecutively numbered starting with number 4 and thus do not have the actual names of their user data.

[Ch. 4 control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 4 control output pool 1... 16] (Channel 4 control value)			
Cl, Br, ClO2,…	0 ... 1000		%

[Ch. 5 control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 5 control output pool 1 ... 16] (Channel 5 control value)			
Cl bound	-1000 ... 0		%
ClO2-	-1000 ... 0		%

[Ch. 6 control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 6 control output pool 1 ... 16] (Channel 6 control value)			
Ht. above sea level	0 ... 1000		%

[Ch. 7 control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 7 control output pool 1 ... 16] (Channel 7 control value)			
FLOCK	0 ... 1000		%

[Ch. 8 control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 8 control output pool 1 ... 16] (Channel 8 control value)			
Ht. above sea level	0 ... 1000		%

[Ch. 9 control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 9 control output pool 1 ... 16] (Channel 8 control value)			
Ht. above sea level			%

[Ch. 10 control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 10 control output pool 1 ... 16] (Channel 10 control value)			
I2 (edit mode)	0 ... 1000		%
Ammonia (NH3)	0 ... 1000		%
Hydrogen peroxide (H2O2)	0 ... 1000		%
Peracetic acid (PES)	0 ... 1000		%
Conductive conductivity	0 ... 1000		%
ClO2	0 ... 1000		%
DO	0 ... 1000		%

[Ch. 11 control output pool 1 ... 16]

Measured value	Modbus input value (range)	Converted measured value	Unit
[Ch. 11 control output pool 1 ... 16] (Channel 11 control value)			
Ht. above sea level			%

3.3 Error messages

Error messages are coded as a bit field.

Error messages

No.	Description
1	Error pool 1 (32 Bit)
…	
16	Error pool 16 (32 Bit)

Decoding of the error messages

Number	Description
pH actual value channel 1 bit: 0	= 0x00000001 pH measured value invalid
pH actual value channel 1 bit: 1	= 0x00000002 pH measured value min.
pH actual value channel 1 bit: 2	= 0x00000004 pH measured value max.
Channel 2 bit: 3	= 0x00000008 measured value invalid
Channel 2 bit: 4	= 0x00000010 measured value min.
Channel 2 bit: 5	= 0x00000020 measured value max.
Channel 3 bit: 6	= 0x00000040 measured value invalid
Channel 3 bit: 7	= 0x00000080 measured value min.
Channel 3 bit: 8	= 0x00000100 measured value max.
Channel 4 bit: 9	= 0x00000200 measured value invalid
Channel 4 bit: 10	= 0x00000400 measured value min.
Channel 4 bit: 11	= 0x00000800 measured value max.
Channel 5 bit: 12	= 0x00001000 measured value invalid
Channel 5 bit: 13	= 0x00002000 measured value min.
Channel 5 bit: 14	= 0x00004000 measured value max.
Channel 10 bit: 15	= 0x00008000 measured value invalid
Channel 10 bit: 16	= 0x00010000 measured value min.
Channel 10 bit: 17	= 0x00020000 measured value max.
Channel 11 bit: 18	= 0x00040000 measured value invalid
Channel 11 bit: 19	= 0x00080000 measured value min.
Channel 11 bit: 20	= 0x00100000 measured value max.
Bit 21	= 0x00200000 sample water error
Free bit: 22	= 0x00400000
Free bit: 23	= 0x00800000
Free bit: 24	= 0x01000000
Free bit: 25	= 0x02000000
DXMaA bit: 26	= 0x04000000 error

Number	Description
DXMaR bit: 27	= 0x08000000 control valve not ready
DP1 bit: 28	= 0x10000000 metering pump error active
DP2 bit: 29	= 0x20000000 metering pump error active
DP3 bit: 30	= 0x40000000 metering pump error active
DP4 bit: 31	= 0x80000000 metering pump error active
No error	= 0x00000000

ProMinent GmbH
Im Schuhmachergewann 5 - 11
69123 Heidelberg
Telephone: +49 6221 842-0
Fax: +49 6221 842-419
email: info@prominent.com
Internet: www.prominent.com

984708, 1, en_GB