Practical information

Version 1.2

GB

Modbus-TCP Protocol Specification

PoolManager® / Analyt

BAYROL TECHNIK

Index

1 Term Definitions

This document refers to all members of the 5th generation of the BAYROL PoolManager® and Analyt swimming pool controller families (from 2012).

In the following chapters, the term PoolManager® will be used, representing all members of the BAYROL PoolManager® and Analyt swimming pool controller families:

- PoolManager® Chlorine / Bromine / Oxygen
- PoolManager® PRO
- Analyt 2
- Analyt 3 / Analyt 3 Hotel.

2 Overview

The PoolManager® swimming pool controllers support a Modbus-TCP protocol, which allows Building Management or other external systems to read out measurement readings, parameter values and alarm statuses from the controller.

It provides a Modbus-TCP server. The PoolManager® swimming pool controller must be connected to the same TCP/IP network as the Modbus-TCP client, which reads out the data.

Refer to the PoolManager® user manual for details about the network connection (chapter Network Connection and following chapters).

Important Notice

Software Release 4.3.0 or late required

The Modbus-TCP protocol is available from software release 4.3.0 (May 2013). Controllers with a previous software release can easily be updated with a USB memory stick.

The latest software release can be downloaded from http://www.poolmanager.info

➔ Menu Service

User name = partner

Password = pool

3 Adressing

Modbus-TCP uses IP network addresses. The PoolManager® controller uses a static IP address within the local network.

Press 

and then 

to display a help page which indicates the IP address of the PoolManager® (amongst others)

4 Read Parameter Values (Modbus Function 04)

Modbus Function ***Read Input Registers (Function Code = 04)***

Device ID = Not Relevant (use e.g. 1)

Number of registers = 1 (reading multiple registers is NOT supported

4.1 Register Data Adresses

"**Adr.**" Indicates the Modbus-TCP register address (decimal).

"**Decimals**" indicates the number of decimals.

If the number of decimals is 2, a value of 720 must be displayed as"7.20".

If the number of decimals is 1, a value of 250 must be displayed as"25.0".

If the number of decimals is 0, a value of 650 must be displayed as"650".

Adr.	English	German	French	Spanish	Unit	Decimals	Min.	Max.
3001	Setpoint pH	Sollwert pH	Valeur de consigne pH	Valor nominal de pH	pH	2	600	850
3002	Lower Alarm threshold pH	Untere Alarmgrenze pH	Seuil d'alarme inférieur pH	Umbral inferior de alarma de pH	pH	2	0	850
3003	Upper Alarm threshold pH	Obere Alarmgrenze pH	Seuil d'alarme supérieur pH	Umbral superior de alarma de pH	pH	2	600	999
3017	Setpoint Chlorine / Bromine	Sollwert Chlor / Brom	Valeur de consigne chlore / brome	Valor nominal de cloro / bromo	mg/l	2	0	999
3018	Lower Alarm threshold Chlorine / Bromine	Untere Alarmgrenze Chlor / Brom	Seuil d'alarme inférieur chlore / brome	Umbral inferior de alarma de cloro / bromo	mg/l	2	0	999
3019	Upper Alarm threshold Chlorine / Bromine	Obere Alarmgrenze Chlor / Brom	Seuil d'alarme supérieur chlore / brome	Umbral sup. De alarma de cloro / bromo	mg/l	2	0	999
3049	Setpoint Redox (mV)	Sollwert Redox (mV)	Valeur de consigne Redox (mV)	Valor nominal de redox (mV)	mV	0	0	999
3050	Setpoint Redox (mV)	Sollwert Redox (mV)	Valeur de consigne Redox (mV)	Valor nominal de redox (mV)	mV	0	0	999
3051	Lower Alarm threshold Redox (mV)	Untere Alarmgrenze Redox (mV)	Seuil d'alarme inférieur Redox (mV)	Umbral inferior de alarma de redox (mV)	mV	0	0	999
3052	Lower Alarm threshold Redox (mV)	Untere Alarmgrenze Redox (mV)	Seuil d'alarme inférieur Redox (mV)	Umbral inferior de alarma de redox (mV)	mV	0	0	999
3053	Upper Alarm threshold Redox (mV)	Obere Alarmgrenze Redox (mV)	Seuil d'alarme supérieur Redox (mV)	Umbral sup. De alarma de redox (mV)	mV	0	0	999
3054	Upper Alarm threshold Redox (mV)	Obere Alarmgrenze Redox (mV)	Seuil d'alarme supérieur Redox (mV)	Umbral sup. De alarma de redox (mV)	mV	0	0	999
3069	Lower Alarm Threshold T1	Untere Alarmgrenze T1	Seuil d'alarme inférieur T1	Umbral inferior de alarma de T1	°C	1	0	500
3070	Upper Alarm Threshold T1	Obere Alarmgrenze T1	Seuil d'alarme supérieur T1	Umbral superior de alarma de T1	°C	1	0	500
3074	Lower Alarm Threshold T2	Untere Alarmgrenze T2	Seuil d'alarme inférieur T2	Umbral inferior de alarma de T2	°C	1	0	500
3075	Upper Alarm Threshold T2	Obere Alarmgrenze T2	Seuil d'alarme supérieur T2	Umbral superior de alarma de T2	°C	1	0	500
3079	Lower Alarm Threshold T3	Untere Alarmgrenze T3	Seuil d'alarme inférieur T3	Umbral inferior de alarma de T3	°C	1	0	500

3080	Upper Alarm Threshold T3	Obere Alarmgrenze T3	Seuil d'alarme supérieur T3	Umbral superior de alarma de T3	°C	1	0	500
3084	Basic dosing amount O2 (Bayrosoft®)	Grund-Dosiermenge O2 (Bayrosoft®)	Dosage de base O2 (Bayrosoft®)	Cantidad dosif. De base O2 (Bayrosoft®)	l	1	0	999

4.2 Example

Read pH setpoint at address 3001 (0x0BB9):

```
Request: [00h] [00h] [00h] [00h] [00h] [06h] [01h] [04h] [0Bh] [B9h] [00h] [01h]
Reply:   [00h] [00h] [00h] [00h] [00h] [05h] [01h] [04h] [02h] [02h] [D0h]
```

The value is 0x02D0 = 720 (display „7.20“ with two decimals)

5 Read Measurement Readings (Modbus Function 04)

Modbus Function ***Read Input Registers (Function Code = 04)***

Device ID = Not Relevant (use e.g. 1)

Number of registers = 1 (reading multiple registers is NOT supported)

5.1 Register Data Adresses

“**Adr.**” Indicates the Modbus-TCP register address (decimal).

“**Decimals**” indicates the number of decimals.

If the number of decimals is 2, a value of 720 must be displayed as”7.20”.

If the number of decimals is 1, a value of 250 must be displayed as”25.0”.

If the number of decimals is 0, a value of 650 must be displayed as”650”.

Adr.	English	German	French	Spanish	Unit	Decimals	Min.	Max.
4001	pH	pH	pH	pH	pH	2	0	999
4008	Cl (free chlorine) / Br (free bromine)	Cl (freies Chlor) / Br (freies Brom)	Cl (chlore libre) / Br (brome libre)	Cl (free chlorine) / Br (free bromine)	mg/l	2	0	999
4022	Redox	Redox	Redox	Redox	mV	0	0	999
4033	T1 (temperature 1)	T1 (Temperatur 1)	T1 (temperature 1)	T1 (temperature 1)	°C	1	100	500
4047	Battery	Batterie	Batterie	Batería	V	2	0	500
4069	T2 (temperature 2)	T2 (Temperatur 2)	T2 (temperature 2)	T2 (temperature 2)	°C	1	100	500
4071	T3 (temperature 3)	T3 (Temperatur 3)	T3 (temperature 3)	T3 (temperature 3)	°C	1	100	500
4077	O2 (dosed amount O2)	O2 (dosierte Menge O2)	O2 (quantité dosée O2)	O2 (dosed amount O2)	l	1	0	999
4106	Total chlorine	Gesamtchlor	Chlore total	Cloro total	mg/l	2	0	999
4108	Combined chlorine	Gebundenes Chlor	Chlore combiné	Cloro combinado	mg/l	2	0	999
4109	Active chlorine	Aktives Chlor	Chlore actif	Cloro activo	mg/l	2	0	999

5.2 Example

Read current pH measurement at address 4001 (0x0FA1):

```
Request: [00h] [00h] [00h] [00h] [00h] [06h] [01h] [04h] [0Fh] [A1h] [00h] [01h]
Reply:   [00h] [00h] [00h] [00h] [00h] [05h] [01h] [04h] [02h] [02h] [DBh]
```

The value is 0x02DB = 731 (display „7.31“ with two decimals)

(DE: Weitere Informationen entnehmen Sie bitte der separaten Protokoll-Spezifikation zum Modbus-TCP-Protokoll.)

6 Read Alarm Statuses (Modbus Function 02)

Modbus Function ***Read Input Status (Function Code = 02)***

Device ID = Not Relevant (use e.g. 1)

Number of inputs = 1 (reading multiple inputs is NOT supported)

6.1 Register Data Adresses

“**Adr.**” indicates the Modbus-TCP register address (decimal).

Value = 1 indicates, that the requested alarm is currently active.

Value = 0 indicates, that the requested alarm is currently NOT active.

(DE: Weitere Informationen entnehmen Sie bitte der separaten Protokoll-Spezifikation zum XML-Daten-Protokoll.)

Adr.	English	German	French	Spanish
2001	Collective alarm	Sammelalarm	Alarme collective	Collective alarm
2002	Power-on Delay	Einschaltverzögerung	Temporisation de l'activation	Inicio retardado
2003	No flow signal (input flow)	Kein Flow-Signal (Eingang Flow)	Aucun signal débit (entrée débit)	No hay señal de caudal (entrada Flow)
2004	No flow signal (input IN 1)	Kein Flow-Signal (Eingang IN 1)	Aucun signal débit (entrée IN1)	No hay señal de caudal (entrada IN 1)
2005	Upper Alarm pH	Oberer Alarm pH	Alarme supérieure pH	Alarma superior de pH
2006	Lower Alarm pH	Unterer Alarm pH	Alarme inférieure pH	Alarma inferior de pH
2009	Dosing Alarm pH	Dosier-Alarm pH	Alarme de dosage pH	Alarma de dosificación de pH
2010	Upper Alarm Chlorine / Bromine	Oberer Alarm Chlor / Brom	Alarme supérieure chlore / brome	Alarma superior de cloro / bromo
2011	Lower Alarm Chlorine / Bromine	Unterer Alarm Chlor / Brom	Alarme inférieure chlore / brome	Alarma inferior de cloro / bromo
2012	Level Alarm Chlorine	Niveau Alarm Chlor	Alarme niveau chlore	Alarma de nivel de cloro
2013	Level Warning Chlorine	Niveau-Warnung Chlor	Avertissement niveau chlore	Aviso de nivel de cloro
2014	Dosing Alarm Chlorine / Bromine	Dosier-Alarm Chlor / Brom	Alarme de dosage chlore / brome	Alarma de dosificación de cloro / bromo
2019	Upper Alarm Redox	Oberer Alarm Redox	Alarme supérieure Redox (mV)	Alarma superior de redox
2020	Lower Alarm Redox	Unterer Alarm Redox	Alarme inférieure Redox (mV)	Alarma inferior de redox
2021	Level Alarm Redox	Niveau Alarm Redox	Alarme niveau de Redox (chlore)	Alarma de nivel de redox
2022	Level Warning Redox	Niveau-Warnung Redox	Avertissement de niveau Redox (chlore)	Aviso de nivel de redox
2023	Dosing Alarm Redox	Dosier-Alarm Redox	Alarme de dosage Redox	Alarma de dosificación de redox
2024	Level Alarm O2 (Bayrosoft®)	Niveau Alarm O2 (Bayrosoft®)	Alarme niveau O2 (Bayrosoft®)	Alarma de nivel de O2 (Bayrosoft®)
2025	Level Warning O2 (Bayrosoft®)	Niveau-Warnung O2 (Bayrosoft®)	Avertissement niveau O2 (Bayrosoft®)	Aviso de nivel de O2 (Bayrosoft®)
2028	Upper Alarm Temperature T1	Oberer Alarm Temperatur T1	Alarme supérieure température T1	Alarma superior de temperatura T1
2029	Lower Alarm Temperature T1	Unterer Alarm Temperatur T1	Alarme inférieure température T1	Alarma inferior de temperatura T1
2030	Upper Alarm Temperature T2	Oberer Alarm Temperatur T2	Alarme supérieure température T2	Alarma superior de temperatura T2
2031	Lower Alarm Temperature T2	Unterer Alarm Temperatur T2	Alarme inférieure température T2	Alarma inferior de temperatura T2
2032	Upper Alarm Temperature T3	Oberer Alarm Temperatur T3	Alarme supérieure température T3	Alarma superior de temperatura T3
2033	Lower Alarm Temperature T3	Unterer Alarm Temperatur T3	Alarme inférieure température T3	Alarma inferior de temperatura T3
2034	Battery Alarm	Batterie-Alarm	Alarme batterie	Alarma de batería
2035	Level Alarm pH+	Niveau Alarm pH+	Alarme niveau pH+	Alarma de nivel de pH-Plus
2036	Level Warning pH+	Niveau-Warnung pH+	Avertissement niveau pH+	Avisa de nivel de pH-Plus
2037	Level Alarm pH-	Niveau Alarm pH-	Alarme niveau pH-	Alarma de nivel de pH-Minus
2038	Level Warning pH-	Niveau-Warnung pH-	Avertissement niveau pH-	Avisa de nivel de pH-Minus
2039	Level Alarm Flockmatic®	Niveau Alarm Flockmatic®	Alarme niveau Flockmatic®	Alarma de nivel de Flockmatic®

6.2 Example

Read the collective alarm status (summary of all alarms) at address 2001 (0x07D1):

```
Request: [00h] [00h] [00h] [00h] [00h] [06h] [01h] [02h] [07h] [D1h] [00h] [01h]
Reply:   [00h] [00h] [00h] [00h] [00h] [04h] [01h] [02h] [01h] [01h]
```

The value is 0x01 (the last byte in the frame), i.e. the collective alarm is currently active (one or more alarms are active).