

# SUPPLEMENT TO MANUAL – sampler with SDI-12 Interface –



© MAXX GmbH, 2021. All rights reserved. Printed in Germany



#### **SDI-12 Signal connection**

Sampler



SDI-12 female socket

**SDI-12 unit** 



SDI-12 male plug (the male plug (0010363) is always part of the SDI-12 Kit)

# How to connect your probe: SIGNAL OUTPUT ADAPTER to the male-plug

male plug	
Pin No.	Function
1	SDI-12 DATA
2	SDI-12 GND
3	12 VDC
4	GND
5	ERROR SIGNAL
6	12 VDC
7	PROG. INPUT



#### **GENERAL INFORMATION**

With the SDI-12 Interface it is possible to connect a Sonde, which supports the SDI-12 interface.

**Note:** After you switched on the sampler, the sonde with its adapter are supported with energy form the sampler. It can take a while (up to 2 minutes) until the sonde is linked to the sampler.

When an SDI-12 Sonde is connected to the sampler, its measurements are available as setpoint sampling triggers.

#### A maximum of 4 Trigger channels can be enabled.

The measurement input can be configured in: SETUP -> SYSTEM SETTINGS-> MEASUREMENT INPUT



There are **4 Trigger channels**, that can be configured.

The menu shows TRIGGER (CH) 1 which is still not configured. Just press the ENT-key to configure.

**Note**: to change the channel (1-4), press arrow-key right or left



Next step is, to select one INPUT CHANNEL out of the list of 9 SDI-12 CHANNELS for configuring. (e.g. SDI-12 CHANNEL 1)

₩ INPUT	CHANNEL 1	
✓SDI-12	CHANNEL 1	
SDI-12	CHANNEL 2	
SDI-12	CHANNEL 3	-
BACK 🍤	SELECT	t

#### Important :

Before you start to configure the sampler channels, your Sonde must be already configured (with the Softwaretool of your Sonde) with all channels you would like to use for triggering e.g. CH1=Temperature, CH2= Conductivity.

After you selected e.g. SDI-12 CHANNEL 1, you have to set this channel <u>equal</u> to the configuration of the channel of your Sonde.





#### SETPOINT HIGH or LOW

Each measurement trigger can be defined as a high or low setpoint.

Additionally, an optional deadband value can be set (HYSTERESIS). The purpose of a deadband is to keep the trigger from rapidly fluctuating between active and inactive states when the trigger measurement value hovers near the defined setpoint.

In a **HIGH SETPOINT** condition, the trigger becomes active when e.g. the rising pH value reaches the setpoint value of **7.0**. The trigger condition does not clear until the pH measurement value falls below **6.5** (the setpoint **minus** the deadband value). (here **0.5**)



Figure 1 High Setpoint

- A: Setpoint switches ON, pH = 7
- B: Setpoint switches OFF, pH = 6.5
- C: deadband value (Hysteresis) = 0.5



In a **LOW SETPOINT** condition, the trigger becomes active when the decreasing pH measurement value reaches **7.0**. The trigger condition does not clear until the pH measurement value rises to **7.4** (the setpoint **plus** the deadband value). (here **0.4**)



Figure 2 Low Setpoint

- A: Setpoint switches ON, pH = 7
- B: Setpoint switches OFF, pH = 7.4
- C: deadband value (Hysteresis) = 0.4



Here "HIGH SETPOINT" is selected for CHANNEL 1 (C°).

Ƴ LIMIT CH	IANNEL 1
LOW SETPO	INT
✓HIGH SETPO	DINT
NO DETECTI	ION
BACK 🍤	SELECT 🖊

The setting for "HIGH SETPOINT CH.1" is 26°C for temperature.

The "DEADBAND CH.1" is selected with 0,5°C.



DEADE	AND	CH.1	
°C			
-0000	0.50	000	
	<u> </u>		
BACK	2	SELECT	←



### As last step, you have to select how to trigger the sampler.

**EVENT:** starts a sample program when the signal is received and stops the program when the signal is no longer received.

**START PRG. 1:** starts a sample program when the signal is received, and continues until the program is completed.

You can select 1 of the 12 preprogrammed programs.

'⊮ TRIGGER (	CHANNEL	1
✓EVENT		
START PRG.	1	
START PRG.	2	-
BACK 🍤	SELECT	t

After you have configured **TRIGGER(CH) 1**, it appears the menu already with the real measured value from your sonde. (if it appears "LIMIT VALUE ", it means an exceeded setpoint).

₩ TRIGGER(CH)	∢	1	
SDI-12 CHANNEL	1		
26.5170 °C			
LIMIT VALUE			
CONFIGURE 🖊 👘			

#### **TRIGGER CHANNEL 2**

The menu shows the **TRIGGER(CH) 2**, which can be configured.

Press ENT to configure

Now you have to select INPUT CHANNEL 2 to configure TRIGGER(CH) 2.







The TRIGGER (CH) 2 shall be **Conductivity**. Therefore you have to select **mS/cm** as UNIT for CHANNEL 2.

For channel 2 the LOW SETPOINT condition is 0.8000 mS/cm (Conductivity).

The DEADBAND CH.2 value is +0.01 mS/cm (Conductivity).

For CHANNEL 2 you can select again how to trigger the sampler. EVENT or START PROG. X.

µg/L **⊮**mS/cm BACK SELEC1 LOW SETPOINT CH.2 mS/cm +00000.8000 BACK 😏 SELECT 🖊 DEADBAND CH.2 mS/cm +00000.0100BACK 🝮 SELECT TRIGGER CHANNEL  $\Psi$ 2 EVENT START PRG. 1

😾 UNIT CHANNEL

mg/L

After you have finished to configure CH2, it appears the value for **mS/cm** from the connected sonde.



2

SELECT

PRG.

START

BACK 🎝



#### DATA LOGGING

The data logger of the sampler stores the following information of SDI-triggered sampling (additionally to the basically stored data):

- The values of an exceeded HIGH Setpoint with date/time (see figure 1, Values A and B)
- The values of an exceeded LOW Setpoint with date/time (see figure 2, Values A and B)

	MAIN	MENU	
₩	MANUAL S	AMPLE	- 🔶
8	DATA MEM	10RY	
÷	DIAGNOST	ICS/TES	ST 🔶
28	.08.2017	13:33	9:18



ID: 00006/00733 28.08.2017 12:39:56 VALUE LIMIT 26.1340 CH 1 FILTER 🖊 BACK Ð

00001/00733 ID: 28.08.2017 13:39:25 VALUE OK LIMIT CH 1 25,4100 BACK 🍮 FILTER 🖊



#### Read out of Data via maxxwareConnect

Story Story	USB 545 0 0 0 0 0 0 0 0 0 0 0	Connection HAIN HENU ROCPORTS WALK SHIFLE MAIN LEVER B 2017 14:08:05	Kon Temperatu	re Flow	14:07:24 start, I 14:07:24 Winds 14:07:26 UBs 6 14:07:26 UBs 6 14:07:27 Data 7 14:07:27 Data 7 14:07:27 Tata 1 14:07:27 Tata 8 14:07:27 15 Pro	Supply voltage
	120	Program entries	Error messages	2	Z csv	O separator comma
		el start parameter	C System messages			<ul> <li>separator semicoion</li> </ul>
08-28-2017 08-25-2017 08-24-2017 08-22-2017 08-22-2017 08-14-2017 08-09-2017 08-09-2017 06-09-2017 06-02-2017 06-02-2017 03-22-2017 03-20-2017 03-20-2017 03-10-2017	<ul> <li>10:11:50 System start</li> <li>12:01:49 System start</li> <li>12:01:49 System start</li> <li>12:12:02 Program 1St</li> <li>starting method:</li> <li>program cycles:</li> <li>Settings</li> <li>mode:</li> <li>Sampling interval</li> <li>Filling mode:</li> <li>Bottles:</li> <li>12:16:52 SDI-12 Chanr</li> <li>12:26:21 Program 1 St</li> <li>starting method:</li> <li>roogram cycles:</li> <li>Settings</li> <li>mode:</li> <li>Sampling interval</li> <li>Filling mode:</li> <li>Bottles:</li> <li>12:39:56 SDI-12 Chanr</li> <li>12:39:56 SDI-12 Chanr</li> <li>12:39:56 Program 1 St</li> <li>starting method:</li> <li>program cycles:</li> <li>Settings</li> <li>mode:</li> <li>Sampling interval:</li> <li>Filling mode:</li> <li>Bottles:</li> <li>12:42:02 Sottle 1: 0 Sa</li> <li>12:42:02 Total volume:</li> <li>13:9:25 SDI-12 Chanr</li> <li>13:49:30 System start</li> <li>13:54:29 System start</li> <li>13:54:29 System start</li> </ul>	el 2 exceeded limit: Value=0 art option immediately 1 cycle time 00:06 hh:mm - 10 samples time - Filling time 120 min 24 (1-24) el 2 above limit: Value=0.88/ d el 1 exceeded limit: Value=2 art option immediately 1 cycle time 00:06 hh:mm - 10 samples time - Filling time 120 min 24 (1-24) mples requested, 0 taken ested: 0 taken: 0 om lel 1 fell below limit: Value=2	.0010 mS/cm /h 50 mS/cm 6.1340 °C /h			
Compatible from softwa	re version SP6 1.03.xxx	,			Version: 2.5	

## If you connect your sampler via USB cable, you can read out the data via maxxwareConnect software.

The screenshot above shows as example the logged and readout values of an SDI 12 triggered sampling cycle.



#### DIAGNOSTICS

ENT-key.

In DIAGNOSTICS/TEST you can check whether your Sonde is connected correctly or not.

Select "SONDE" in the menu and confirm with the

	MAIN MENU 📃	
👋 М	ANUALSAMPLE 🔷 🐣	1
3B D	ATA MEMORY	
🔧 D	IAGNOSTICS/TEST 🚽	
28.0	8.2017 11:26:52	2

🐟 DIAGNOS	STICS/TEST
③ VERSION	INFO 🔷 🐣
① MEASUREN	IENT INPUT
③ SONDE	
BACK 🍤	NEXT 🖊

If there is no Sonde connected (or detected) it appears the blank menu, just with a "-".

If a Sonde is connected and detected, it appears like this menu, with SDI-12 and the vendors name and device model name (this depends to the sonde model).

(If you disconnect the sonde, this information will be further shown until a restart or reboot) ✓ SONDE

₩ SONDE SDI-12 13YSIIWQSGEXOSND100



MAIN MENU

CS/T

DIAGNOSTICS/TEST

MEASUREMENT INPUTS

INFO

INPUT

NEXT.

MANUAL SAMPLE

DATA MEMORY

DIAGNOSTI

VERSION

SONDE

25

① MEASUREMENT.

28.08.201

<u>ж</u>,

313

<u> </u>

œ.

 $\Psi$ 

BACK

In DIAGNOSTICS/TEST you are also able to check, which channels are already configured.

Select MEASURMENT INPUT.

If nothing is config	ured it appears	the blank menu
(just with "-")		

This menu shows two configured channels (temperature and conductivity) with actual values of the connected sonde.

They can be used to trigger the sampler as described before.

CH1= °C

CH2= mS/cm

CH3= - (not configured)

CH4= - (not configured)

#### Note:

- (1) behind the value means, that at this moment is an exceed of that setpoint.
- (0) behind the value means, that there is actually no setpoint exceeded.

(If you disconnect the sonde, this information will be further shown until a restart or reboot)

$\Psi$	MEASUREMENT INPUTS
	26.7980 °C (1)
	0.8820 mS/cm (0)
-	
-	



#### Circuit diagram





MAXX

- und Probenahmetechnik GmbH

Supplement Page 15 of 15