Contents

Introduction

The Diver-DCX supports the SDI-12 Version 1.3 commands listed below. Data recorders that support SDI-12 Version 1.3 can usually send standard commands to an SDI-12 "sensor" like the Diver-DCX automatically.

Additional information may be found in an SDI-12 reference, for example see Reference on page 4, or consult your SDI-12 data recorder documentation.

More information on the Diver-DCX can be found at:
http://www.swstechnology.com/groundwater-monitoring/groundwater-dataloggers/diver-dcx

Sensor Parameters

The Diver-DCX can output the following parameters:

- Barometric pressure
- Diver parameters
  - Pressure
  - Temperature
  - Conductivity (CTD-Diver only)
- Compensated pressure: Diver pressure minus the Barometric pressure

Default Settings

The Diver-DCX has the following default settings:

Sensor address:	0
Pressure units:	cmH_2O
Temperature units:	degrees Celsius
Actual Conductivity units:	mS/cm
Specific Conductivity units:	mS/cm

Pressure

By definition 1 cmH_2O equals 98.0665 Pascal.

Conductivity

The type of conductivity that is reported, actual or specific, by the Diver-DCX depends on the type that is programmed in the CTD-Diver. Programming of the conductivity type must be done prior to connecting the CTD-Diver to the Diver-DCX.

Sensor Address

The Diver-DCX supports software-changeable addresses.

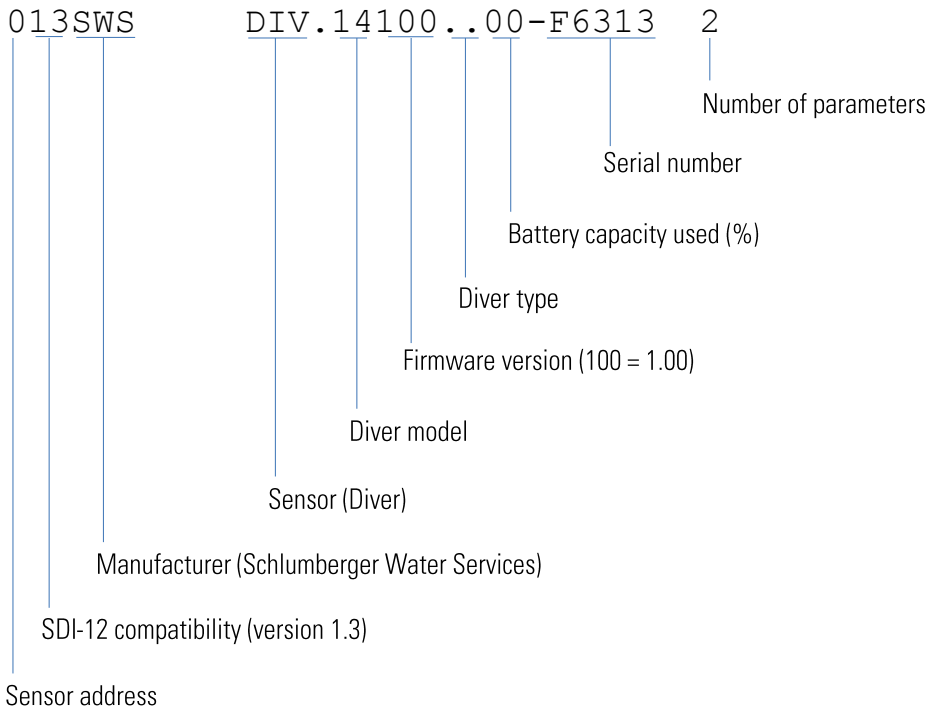
IMPORTANT If two or more Diver-DCXs are connected to the same system the sensor address of the Diver-DCX must be changed prior to connecting the Diver-DCXs to the system.

Power budget

Quiescent current:	25 mA
Measurement current:	180 mA; the measurement duration depends on the command send, but is typically 12ms

Sensor Identification

In response to the "send identification" command, the Diver-DCX will respond as follows:



Diver model:

- 14 = Mini-Diver
- 15 = Micro-Diver
- 16 = Cera-Diver
- 17 = CTD-Diver

Diver type:

- .. = regular Diver
- .B = Baro-Diver

SDI-12 version 1.3 Command set

Name	Command	Response and comments
Address Query	?!	a<CR><LF> The wildcard address '?' character is supported only for the Address Query command. It is ignored as an invalid address for all other commands.
Acknowledge Active	a!	a<CR><LF> Basic address characters in the range '0' to '9' and extended address characters in the ranges 'A' to 'Z' and 'a' to 'z' are supported. All other characters are ignored as an invalid address. The default address is '0'.
Change Address	aAb!	b<CR><LF> Software changeable addresses and the Change Address command are supported.
Send Identification	aI!	a13SWS DIV.xxvvvyyzz-SSSSS n<CR><LF> where xx = Diver model; vvv = device firmware version × 100 (120 = 1.20); yy= Diver type (baro or regular); zz = battery capacity used (%);SSSSS = Diver serial number; n = number of Diver parameters.
Start Verification	aV!	a0012<CR><LF> One result is available within 1 second for reading by the Send Data command.
Start Measurement	aM!	a001n<CR><LF> n parameters will be available for reading by the Send Data command within 1 second. A service request (a<CR><LF>) will be sent when the parameters are ready. The number of parameters returned is determined by type of Diver connected.
Send Data	aD0!	a<value><CR><LF> Pressure measured by the Diver in cmH2O Where <value> is xxxx.x for models DI500, DIx01, DIx02, DI271 and xxxx for DIx05, DIx10, DI272, DI273
	aD1!	a<value><CR><LF> Temperature measured by the Diver in degC Where <value> is xx.xx; range is -20.00 to +80.00
	aD2!	a<value><CR><LF> Conductivity measured by the Diver in mS/cm; blank if no CTD-Diver is connected Where <value> is xx.xxx for 30 mS/cm range, xxx.xx for 120 mS/cm range
	aD3!	a<value><CR><LF> Pressure measured by the DCX in cmH2O Where <value> is xxxx.x
	aD4!	a<value><CR><LF> Compensated Pressure (aD0! – aD3!) Where <value> is x.x

Reference

SDI-12, A Serial-Digital Interface Standard for Microprocessor-Based Sensors, version 1.3. SDI-12 Support Group, Logan, Utah, January 3rd, 2012. www.sdi-12.org .