NEP50xx SDI12 option's features and its use.

NEP50xx SDI12 option offers a comprehensive sensor operation through a wide range of SDI12 commands and its related internal configurations.

Some of key operations.
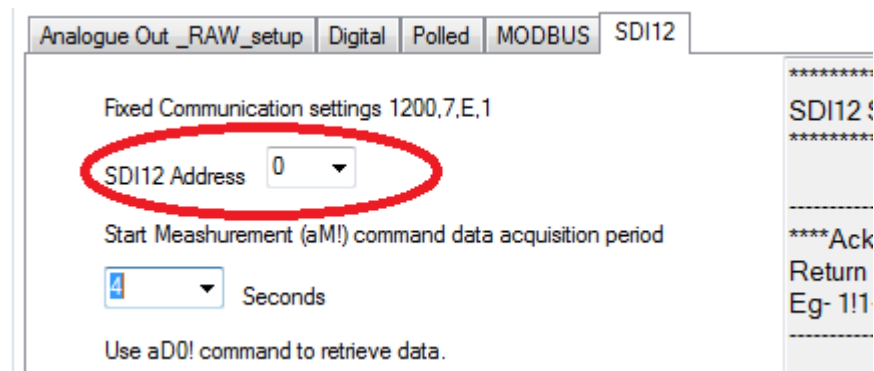
- Initiate single turbidity measurement and read.
- Initiate multiple turbidity measurements and read its statistical results.
- Initiate wipe (Clean optics) operation.
- Change appropriate measurement range and "Auto range".
- Basic SDI12 command set.

2.0 User configurable settings using that aid SDI12 measurements.

Some of the SDI12 operational parameters and sensor's operational configurations that can be changed using PC configuration software.
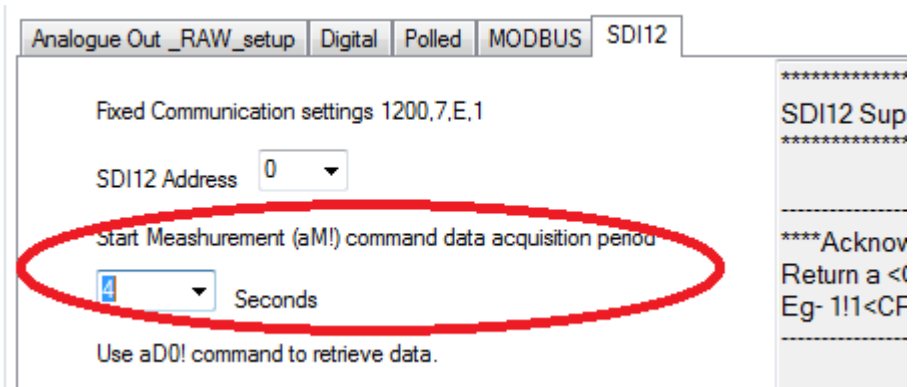
2.1 SDI12 address.
SDI12 network address can be changed using "Output stage > SDI12" settings page in the configuration tool.
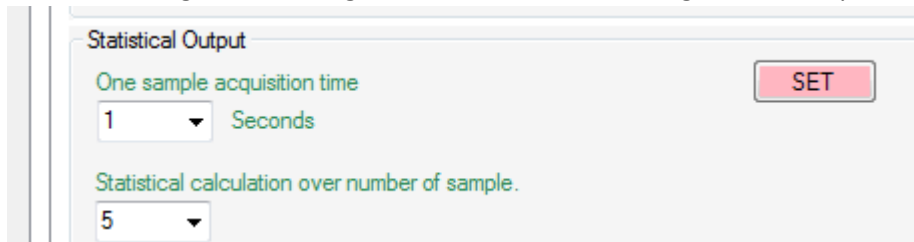

2.2 Measurement duration.

This option allows user to select between quick and stable measurement when using a single turbidity measurement command (aM!).

This document is Applicable to ALL NEP50xx SDI12 option sensors.

NEP50xx SDI12 option's features and its use.

2.3 Statistical measurement's configurations.

This user configurable settings are located in "Sensor stage > Sensor operating parameters"
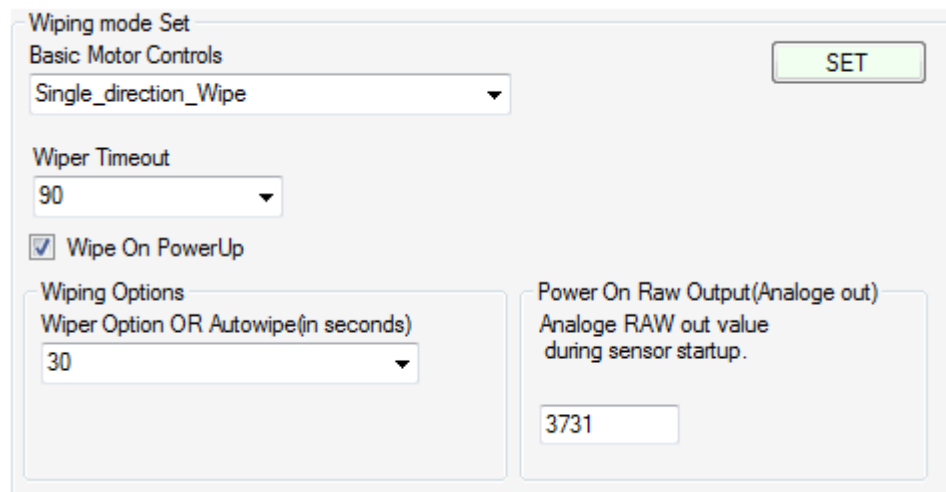
When using *"Start statistical measurement (aM6!)"* command the sensor may takes one second measurements and add to length of 5 data array. End of measuring its last measurement (5th) the sensor will calculate a statistical results from its most reason 5 measurements.

User may adjust these settings as desired.

2.4 Wiper settings.
This user configurable settings are located in "Wiper control"

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NEP50xx SDI12 option's features and its use.

3.0 Initiate single turbidity measurement and read.

User may issue Measure command (aM!) then wait appropriate delay and then use single measurement read(aD0!) command to read data.

Step #1

****Take single measurement ****

Start measurement (aM!)
Return 20011<CR><LF>
aM! atttn<CR><LF>
a - the sensor address a - the sensor address
M - the start measurement ttt - the specified time, in seconds, until the sensor will have the measurement(s) ready
! - terminates the command n - the number of measurement values the sensor will make and return
in one or more subsequent D commands; n is a single digit integer with
a valid range of 0 to 9
Note that the measurement period is set to 2seconds

Step #2

Logger should wait's(delay) more than aM! Command's requested operational delay.

Step #3

****Single measurement read****

Send data command (aD0!)
Return a+NTU<CR><LF>
Eg- 2+2.75<CR><LF>
Note that 2.75 is the measured NTU value.

This document is Applicable to ALL NEP50xx SDI12 option sensors.

NEP50xx SDI12 option's features and its use.

4.0 Initiate multiple turbidity measurements and read its statistical results.

User may issue "statistical measurement" command (aM6!) then wait appropriate delay and then use "statistical measurement read" (aD6!)command to read data.

Step #1

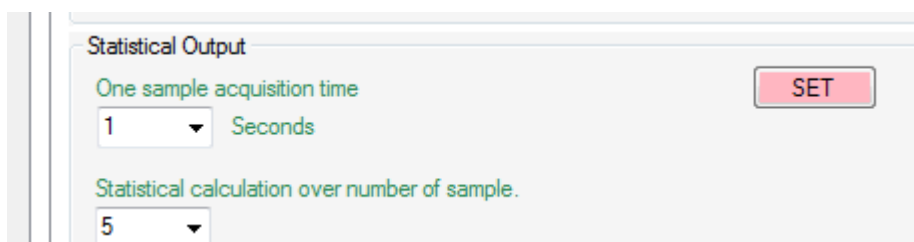---
****Take full statistical measurement****
Start statistical measurement (aM6!)
Return 20061<CR><LF>
aM6! atttn<CR><LF>
a - the sensor address a - the sensor address
M6 - the start measurement ttt - the specified time, in seconds, until the sensor will have the measurement(s) ready
! - terminates the command n - the number of measurement values the sensor will make and return
in one or more subsequent D commands; n is a single digit integer with
a valid range of 0 to 9
Note that the measurement period is set to 6 seconds

Step #2

Logger should wait's(delay) more than aM6! Command's requested operational delay.

Step #3

**** Full statistical measurement read****
Send data command (aD6!)
Return a+TT.TT+MMMM.MM+AAAA.AA+LLLL.LL+SSSS.SS<CR><LF>
Eg- 1+23.58+714.53+714.52+714.24+714.85<CR><LF>
Note that.
TT.TT= Temperature
MMMM.MM = Median
AAAA.AA=Average
LLLL.LL = Minimum value
SSSS.SS = Maximum Value

Statistical Output

One sample acquisition time

| 1 | ▼ | Seconds |

SET

Statistical calculation over number of sample.

| 5 | ▼ |

When using "Start statistical measurement (aM6!)" command the sensor may takes one second measurements and add to length of 5 data array. End of measuring its last measurement (5th) the sensor will calculate a statistical results from its most reason 5 measurements.

This document is Applicable to ALL NEP50xx SDI12 option sensors.

NEP50xx SDI12 option's features and its use.

5.0 Initiate wipe (Clean optics) operation.

Step #1

****Wiper Control****

Wipe command (aM1!)   Wipe action will be completed in 12s

Return a0121<CR><LF>

Eg- 20121<CR><LF>

Note that 12 is requesting of 12 seconds of delay.

Step #2

Logger should wait's(delay) more than aM1! Command's requested operational delay.

Some Important points.

- If power on wipe is selected the SDI12 logger may wait more than 12s to finish its operation.
- "Auto wipe" feature is not available in SDI12 mode.
- User may select how the wiper should operate when SDI12 logger issuers aM! Command.

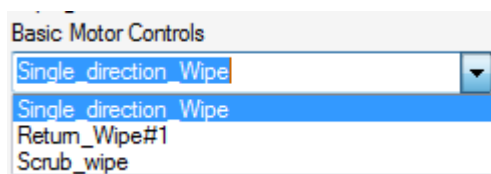This document is Applicable to ALL NEP50xx SDI12 option sensors.

NEP50xx SDI12 option's features and its use.

6.0 Change appropriate measurement range and "Auto range".

During normal sensor operations the logger may issue any of the following to change the current measurement command.

Note that this is a temporary range change and when the sensor's power resets the sensor range will restores to its default range that selected by the PC configuration software.

****Change NTU range****
High Range (5000NTU)
**Command (aM2!)
Return a0001<CR><LF>
Medium Range (3000NTU)
**Command (aM3!)
Return a0001<CR><LF>
Low Range (1000NTU)
**Command (aM4!)
 Return a0001<CR><LF>

OR
--
****Auto Range (Probe's software selects appropriate range) ****
Command (aM5!)
Return a0001<CR><LF>
Please note that auto range requires about 5 seconds to selects appropriate range and take a measurement. So in order to use this setting first need to use the calibration software and select 5 second or more (Data actuation period) in the SDI12 configuration window.

Note that auto range is selected by the configuration software or by the SDI12 logger the single measurement's "**Measurement duration**" time **must** be set to a value higher than 4 seconds.

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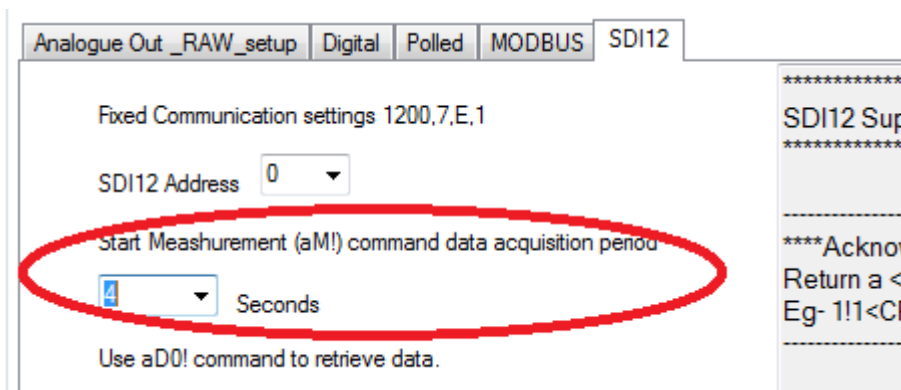
NEP50xx SDI12 option's features and its use.

7.0 Basic SDI12 command set.

\---
****Acknowledge Active Command (a!) ****
Return a <CR><LF>
Eg- 1!1<CR><LF>
\---

\---
****Change Address Command (aAb!) ****
Return b<CR><LF>
Eg- 1A2!2<CR><LF>
\---

\---
****Address query command (?!)****
Return a<CR><LF>
Eg- ?!2<CR><LF>
\---

This document is Applicable to ALL NEP50xx SDI12 option sensors.