

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.

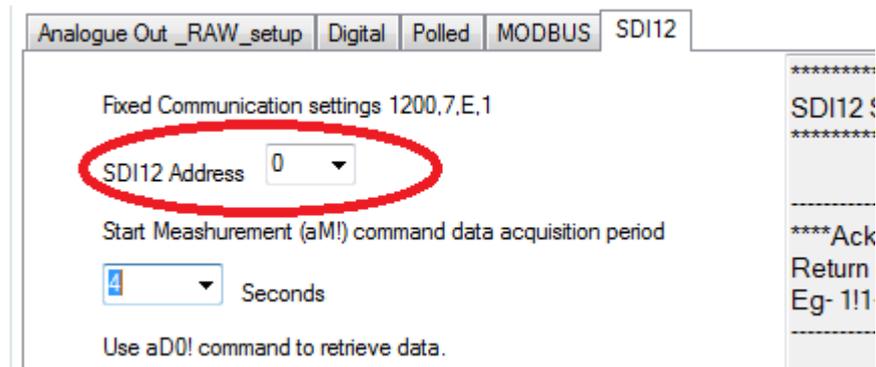
- Initiate single turbidity measurement and read.
- Initiate multiple turbidity measurements and read its statistical results.
- Initiate wipe (Clean optics) operation.
- Change appropriate measurement range and "Auto range".
- Basic SDI12 command set.

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.

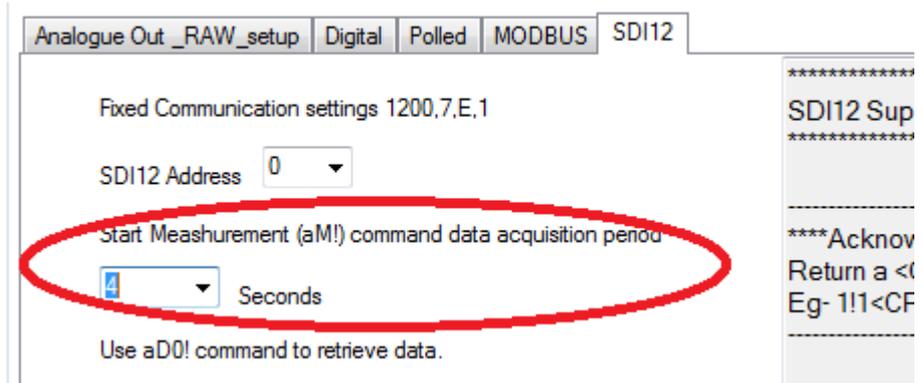
SDI12 network address can be changed using "Output stage > SDI12" settings page in the configuration tool.



The screenshot shows the configuration tool interface with tabs for Analogue Out_RAW_setup, Digital, Polled, MODBUS, and SDI12. The SDI12 tab is active. Under "Fixed Communication settings 1200,7,E,1", the "SDI12 Address" is set to 0 and is circled in red. Below it, "Start Measurement (aM!) command data acquisition period" is set to 4 seconds. A note says "Use aD0! command to retrieve data." On the right, a terminal window shows "***** SDI12 S *****" and "****Ack Return Eg- 11!".

2.2 Measurement duration.

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

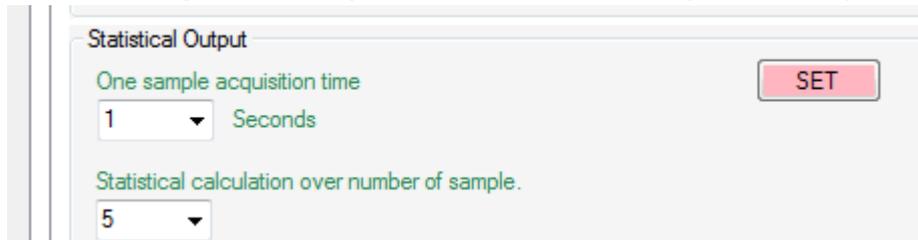


The screenshot shows the same configuration tool interface as above. The "Start Measurement (aM!) command data acquisition period" is set to 4 seconds and is circled in red. The "SDI12 Address" is still 0. The note "Use aD0! command to retrieve data." is present. On the right, the terminal window shows "***** SDI12 Sup *****" and "****Acknov Return a < Eg- 11!<CF".

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2.3 Statistical measurement's configurations.

This user configurable settings are located in "Sensor stage > Sensor operating parameters"



Statistical Output

One sample acquisition time SET

1 Seconds

Statistical calculation over number of sample.

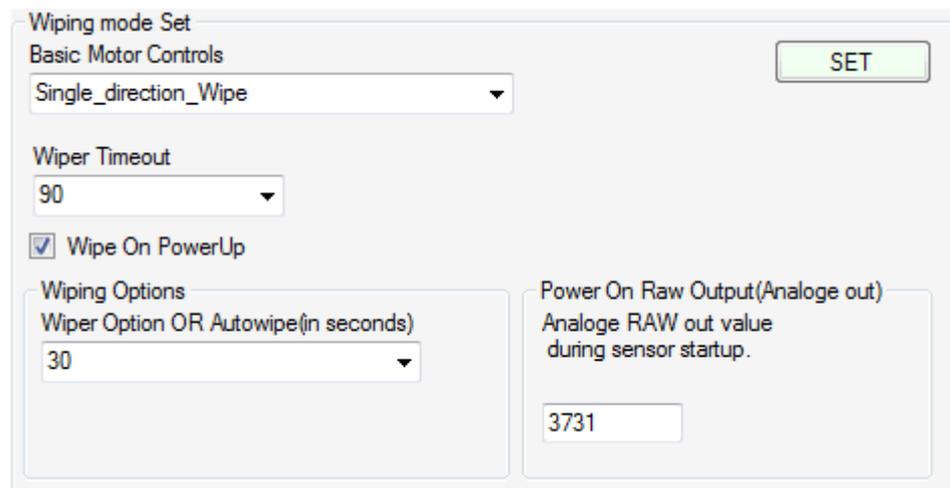
5

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.

User may adjust these settings as desired.

2.4 Wiper settings.

This user configurable settings are located in "Wiper control"



Wiping mode Set SET

Basic Motor Controls

Single_direction_Wipe

Wiper Timeout

90

Wipe On PowerUp

Wiping Options

Wiper Option OR Autowipe(in seconds)

30

Power On Raw Output(Analoge out)

Analoge RAW out value during sensor startup.

3731

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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

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.

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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

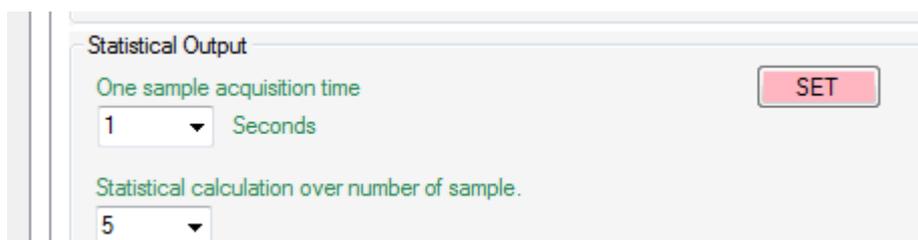
****Take full statistical measurement****
Start statistical measurement (aM6!)
Return 20061<CR><LF>
aM6! atttn<CR><LF>
a - the sensor address
M6 - the start measurement ttt - the specified time, in seconds, until the sensor will have the measurement(s) ready
! - terminates the command n - the number 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



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.

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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.

The screenshot shows a configuration window titled "Wiping mode Set". It contains several settings:

- Basic Motor Controls:** A dropdown menu set to "Single_direction_Wipe".
- Wiper Timeout:** A dropdown menu set to "90".
- Wipe On PowerUp:** A checked checkbox.
- Wiping Options:** A dropdown menu set to "30".
- Power On Raw Output(Analogue out):** A text box containing the value "3731".

A "SET" button is located in the top right corner of the window.

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 issues aM1 Command.



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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 restore 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

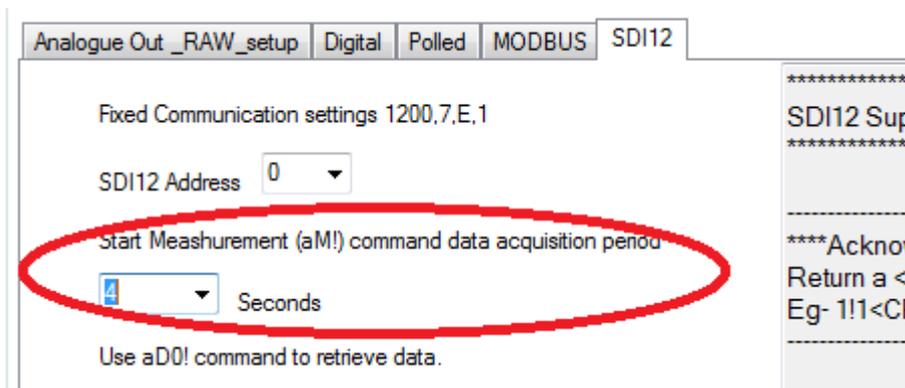
****Auto Range (Probe's software selects appropriate range) ****

Command (aM5!)

Return a0001<CR><LF>

Please note that auto range requires about 5 seconds to select 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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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>
