

Using McVan Analite 390 and 395 Turbidity probes with dataTaker DT80

Configuration

The Analite 390 and 395 can be configured via the sensors RS232 connection before connecting to an SDI-12 network.

Each SDI-12 device on a network must have a unique identification number in the range from 0 to 9. The DT80 can support a maximum of 4 SDI-12 networks on digital inputs 5 to 8.

Other options should be configured through the RS232 connection and saved before connecting on an SDI-12 network. Please refer to the Analite 390 Series Turbidity Probe User Manual for further details on options and configuration details.

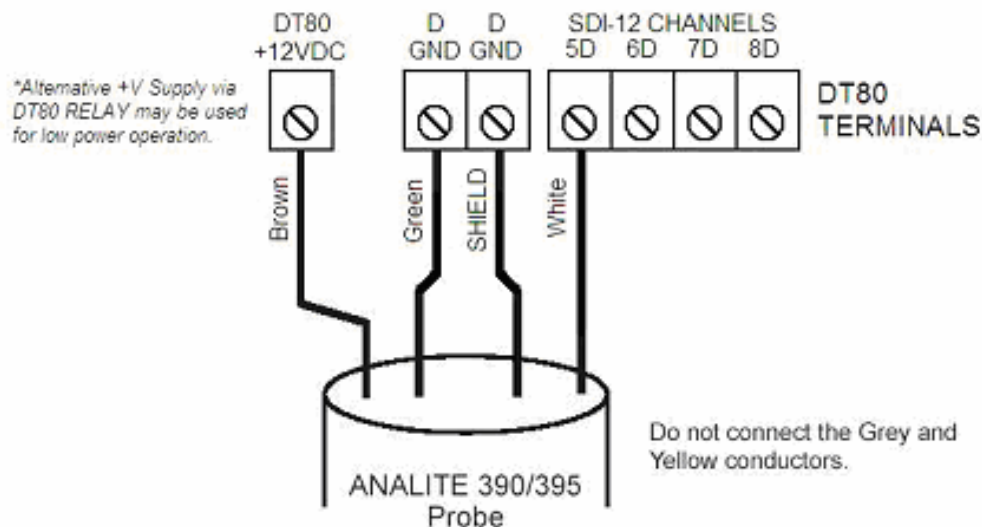
Any configuration changes should be recorded and stored for latter reference.

Connection

SDI-12 connection:

The SDI-12 output (White) can be connected to digital inputs 5 through 8. The number of the digital input refers to the SDI-12 network the sensor is connected to.

Note: The grey and yellow wires are used for RS232 communications and should be properly terminated.



Testing the connection:

To test the wiring configuration and connection is working, from *DeTransfer*™ or a suitable terminal program send the following commands.

```
P56=2
SDI12SEND 5 "0I!"
```

Where

P56=2 turns on the SDI-12 debug mode.

SDI12SEND 5 "0I!" sends the SDI-12 "Request Identity" command to device 0 0I! to the SD-12 network on digital number 5.

If the connection to the *DT80* and device address are correct the *DeTransfer* receive window should show

```
P56=2
DT80> SDI12SEND 5 "0I!"
5SDI12: [32] 0I!013McVan---NEP395208-SN87840--
5SDI12: 0I!013McVan---NEP395208-SN87840--
DT80>
```

SDI-12 registers

The SDI-12 device has a number of internal registers and each register can have more than one item of data. To address an item of data we need the address number of the device, the register number and the item number.

Command	Number of items	Measurement item(s)
aR!	4	Battery, temperature, mean, sample variance
aR1!	5	Mean, variance, median, minimum, maximum
aR2!	3	Median, minimum, maximum
aR3!	1	Single turbidity measurement.
aR5!	2	Mean, sample variance
aR6!	1	Battery voltage
aR7!	1	Internal probe temperature
aR8!	1	Wipe command or return of wipe status.

Where 'a' is the device address number, 'r' is the read command and the number is the number of the register.

Note: For the sensor to return statistical data the statistical parameters must be set up via an RS232 connection 'ans' per the Analite User Manual.

The *dataTaker* programming language provides a simple method of addressing the SDI-12 networks, devices and data items.

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For example the *dataTaker* command `5sdi12(ad0,r601)` will read the SDI-12 network on digital input 5 `5sdi12` with the address and data item being address by using the channel options `(ad0,r601)` where the device address is 0 (`ad0`) and the data is in register 6 (`r6`), item 1 (`01`)

This command can be sent from the *DeTransfer* send window and with the debug turned on the sensor will return.

```
5SDI12(AD0,R601)
5SDI12: [7] 0CC6!00031
5SDI12: [11] 0D0!0+12.5GIS
5SDI12 12.5
```

The debug can be turned off by setting parameter 56 to 0 (`P56=0`)

When the command is sent with the debug turned off the *DT80* will respond with.

```
DT80> 5SDI12(AD0,R601)
5SDI12 12.6
```

Please note there will be a number of seconds delay between sending the command and the device returning a message. This is a function of the way SDI-12 works. During this period the sample light on the *DT80* will be on.

SDI-12 Programs

Sample 1 Wipe and single measurement

```
BEGIN"Turbid1"
'=====
'
' This code is to read a McVan ANALITE NEP395G Turbidity Probe.
'
' NEP395G set for 15 minute auto wipe and auto measure every 1 minute.
'
' For more detail contact support@datataker.com.au
' 30 May 2006
'=====
'
' SDI-12 Address is 0
' Connected to digital input 5
'
'Report results of schedule A every 15 Minutes
RA15M

Item 1      'Activate wiper: Read Channel 5 as SDI-12, address 0, Register 8,
           5SDI12(AD0,R801,"Wipe")

Item 1      'Read turbidity: Read Channel 5 as SDI-12, address 0, Register 3,
           5SDI12(AD0,R301,FF2,"Turbidity (A0)")

LOGON      'Log results
END
```

Sensor Note

Sample 2 Continuous measurement of statistical

```
BEGIN"Turbid2"
'=====
'
' This code is to read a McVan ANALITE NEP395G Turbidity Probe.
'
' NEP395G set for 15 minute measurements.
' The statistical items must be pre-configured via RS232.
' Please refer to Analite user manual for details
' For more detail contact support@datataker.com.au
' 30 May 2006
'
'=====
'
' SDI-12 Address is 0
' Connected to digital input 5
'
'Report results of schedule A every 15 Minutes
RA15M

'Read Channel 5 as SDI-12, address 0, Register 0, Item 1
5SDI12(AD0,R001,CM,FF2,"Battery ~V")

'Read Channel 5 as SDI-12, address 0, Register 0, Item 2
5SDI12(AD0,R002,CM,FF2,"Temp ~DegC")

'Read Channel 5 as SDI-12, address 0, Register 0, Item 3
5SDI12(AD0,R003,CM,FF2,"Mean ~NTU")

'Read Channel 5 as SDI-12, address 0, Register 0, Item 4
5SDI12(AD0,R004,CM,FF2,"Vari ~NTU")

LOGON          'Log results
END
```

Sensor Note

Sample 3 Wipe and read with the DT80 logging statistical data

```
BEGIN"Turbid3"
'=====
'
' This code is to read a McVan ANALITE NEP395G Turbidity Probe.
'
' The program wipes and samples every 15 minutes and reports
' the average, minimum, maximum and standard deviation of the
' turbidity measurement and the maximum wipe result.
'
' For more detail contact support@datataker.com.au
' 30 May 2006
'=====
'
' SDI-12 Address is 0
' Connected to digital input 5
'
'Report results of schedule A every 1 Hour
RA1H

'Activate wiper: Read Channel 5 as SDI-12, address 0, Register 8, Item 1
5SDI12(AD0,R801,"Wipe",MX)

'Read turbidity: Read Channel 5 as SDI-12, address 0, Register 3, Item 1
'Records average, Minimum, Maximum and Standard Deviation to two decimal
'places.

5SDI12(AD0,R301,FF2,"Turbidity (A0)",AV)(MN,FF2)(MX,FF2)(SD,FF2)

RS15M

LOGON          'Log results
END
```