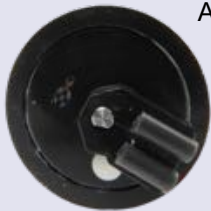


## ANALITE NEP-5000 Turbidity Sensor Multiple Output Auto-Ranging

The ANALITE NEP-5000 ISO7027 90° series of digital turbidity probes are designed for monitoring and process applications where ultimate sensor flexibility is a consideration. This probe offers a multitude of physical sensor variations, with the further benefit of a PC interface that allows the user to easily Calibrate, Modify Range modes, and adjust sensor output modes and data characterization.



ANALITE NEP-5000 is the completely customizable turbidity probe that can be ordered to the end user's particular needs. All the benefits of a custom solution at a very competitive price.

The standard NEP-5000 can be ordered in several custom variations:

- Wiping and non-wiping
- Several outer case material options
- Glanded Cable or Marine Connector / Cable
- 90° or 180° backscatter for high NTU applications
- With temperature and/or pressure

The ANALITE PC Configurator allows:

- Fast Accurate Calibration
- Compensation tools
- Adjustable Slew Rates
- Three range settings (low, medium, and high)
- Range hopping between three ranges
- Wiper behavior settings
- Selection of many digital and analog outputs

Available outputs included are Analog Voltage or Current Loop (4 to 20 mA), RS422/RS485, SDI-12, RS232, USB and digital TTL.



## Field, Process & Lab Application

Specifically, the ANALITE NEP-5000 wiping probes are designed for applications where bio-fouling will build up to obscure the optics such as in long monitoring deployment or placement in warm bio-active waters. The ANALITE integral wiper assembly and optional Copper case is designed for operations where severe bio-fouling or sedimentation buildup is likely.

- Monitoring of streams, rivers, and water storage
- Intermediate and final effluent treatment monitoring
- Hydrological run off studies
- Ground and bore water analysis
- Drinking water filtration efficiency
- Industrial process monitoring
- Sludge and dredge monitoring



## NEP-5000 Range Set Concept

The ANALITE NEP-5000 series turbidity probes offers a multiple range concept in range setting and range selection. Calibrations can be made for three different levels of usage (Low, Medium, and High)\*.

These 3 levels of usage are offered as versions to simplify range selection and order placement. The Versions are as follows:

- V1 NTU ranges: 10, 400, 1000
- V2 NTU ranges: 10, 400, 5000
- V3 NTU ranges: 100, 1000, 5000
- V4 NTU ranges: User specified

Calibration costing rules do apply. One calibration for the 3 ranges is included in the purchase price. Additional range calibrations are an extra expense. Different ranges are available for the 90° sensor, but must be specified at time of order and may attract further costs.

The three range calibrations allow for three types of usage modes and linearity from low range to high range in the Auto-Ranging mode\*\*. This is applicable to event based sediment studies where NTU readings are prone to peaks above a set range.

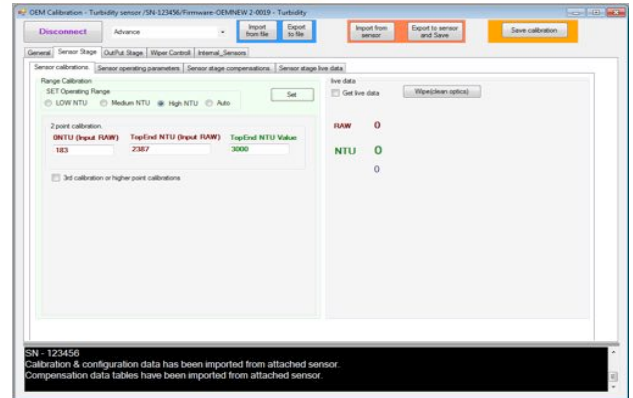
90 degree versions provide extremely accurate and stable results at very low NTU values. This sensor can be used in conditions that require high resolution readings at near zero NTU.

Whatever the requirement the NEP-5000 series probe is the most flexible choice. It can be ordered and configured to a multitude of applications.

Add parameters, modify ranges, and refine calibrations, all done on the PC interface and saved to configuration files. These configuration files can be saved and read back in to the sensor to restore settings.

\* Please refer to Observator NEP-5000 ordering guide document for correct ordering codes.

\*\* One factory calibrated range in the list price.



## ACCESSORIES

The standard ANALITE NEP-5000 series of probes, with its Delrin Composite housing may be submerged to a depth of 100 meters. A Metal housing is available for application where a greater depth rating is required. Maximum depth rating is 200 meters (non-wiping with metal case).

### NEP-CFG

PC Interface and Communication Module and PC configuration and Calibration software.

### NEP-SILWIPE

Wiper replacement kit comprising of 4 silicon wipers and a hex fastening key.

### NEP-SHRD-D

Delrin Protective shroud

### NEP-SHRD-C

Copper Protective shroud

### NEP-SHRD-S

Stainless Protective shroud

### NEP-SHRD-T

Titanium Protective shroud

### NEP-CBL

Probe cable in meters

### NEP-CBL-CON

Subconn Connector and cable assembly

### Options

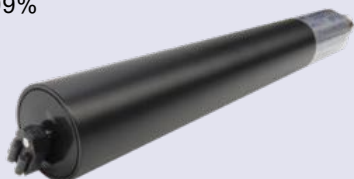
180° optics

Outer Case in Copper, Stainless, or Titanium Marine Connectors



## TURBIDITY SPECIFICATIONS

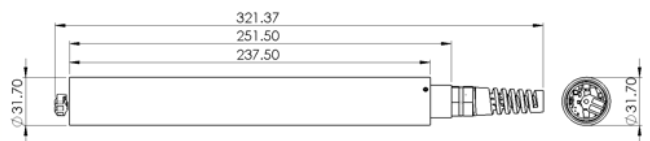
<b>Technique</b>	90° modulated infra-red (ISO7027) is standard 180° backscatter is optional	
<b>Ranges</b>	3 Preset Range Groups: <ul style="list-style-type: none"> <li>• Low (example 0-10NTU)</li> <li>• Medium (example 0-400NTU)</li> <li>• High (example 0-1,000NTU)</li> </ul> Recommended Range Versions: <ul style="list-style-type: none"> <li>• V1 NTU ranges: 10, 400, 1000</li> <li>• V2 NTU ranges: 10, 400, 5000</li> <li>• V3 NTU ranges: 100, 1000, 5000</li> <li>• V4 NTU ranges: User specified</li> </ul> Custom Ranges available Range Hopping Capable	
<b>Resolution</b>	<b>Range</b>	<b>Resolution</b>
	Up to 100NTU	±0.01NTU
	Up to 400NTU	±0.1NTU
	Up to 1,000NTU	±1.0NTU
	Up to 5,000NTU	±2.0NTU
<b>Accuracy</b>	±1% at 25°C up to 5,000NTU	
<b>Linearity</b>	Better than 1% for 0 to 3,000NTU Better than 2% for 0 to 5,000NTU	
<b>Temperature Coefficient</b>	Better than ±0.05%/°C.	
<b>Outputs</b>	Digital 3.6V TTL (streaming or polled) RS422/RS485 (streaming or polled) SDI-12 RS232 USB Analog 4-20mA Analog -2.5V to +2.5V (or variations)	
<b>Zero Drift</b>	Less than ±0.2NTU	
<b>Calibration</b>	Factory calibrated using non-toxic AEPA polymer solutions	
<b>Power</b>	8-30V DC, 15mA on 40mA reading and 60mA wiping	
<b>Settling Time</b>	<1 second after application of power to 99%	



<b>Wiping</b>	Wiping is configuration through the PC configuration tool. Wipe directions or alternate settings and timeouts will prolong probe life. During a wipe, the output remains within ±1% full scale of the turbidity value just prior to the wipe.
<b>Wipe Time</b>	8 seconds nominal.

## MECHANICALS

<b>Weight.</b>	NEP-5000 Delrin models 300 grams (probe only*). NEP-5000 Metal models 770 grams (probe only*). *100 grams connector plus 70 grams per meter of cable.
<b>Construction</b>	<ul style="list-style-type: none"> <li>• Delrin Composite casing is standard</li> <li>• 316 Stainless Steel</li> <li>• Titanium</li> <li>• Anti-Biofoul CW352H 70/30% Copper/Nickel</li> </ul>
<b>Cable</b>	6 core + shield, 6mm nominal dia. PUR sheath. Conductor resistance 45 ohms/km. Weight – 70 grams per meter.
<b>Cable Length</b>	Standard Glanded Cable length to be specified at time of order. Per meter price applies.
<b>Depth Rating</b>	200m (660ft) Non-wiping 100m (300ft) Wiping
<b>Operating Temp.</b>	-10°C to 40°C.
<b>Storage Temp.</b>	-20°C to 50°C.



VERSION 3.10717 The Observator range is in continuous development and so specifications may be subject to change without prior notice

## THE NEP-5000 CODE EXPLAINED

When ordering a NEP5000 sensor, you are kindly asked to specify the full code as explained below. This to make sure you order the right sensor. The full code also directs you to the right items from the pricelist, as shown in the below table. This is an example of the ordering code which is explained below, with reference to the items in the price list:

WY-	90-	D-	R42-	NO-	GC-	V1-	TN-	PN
1	2	3	4	5	6	7	8	9

#	Values	Meaning	Price list	Comments
1	WY	Wiper Yes	- (Standard)	Indicates if there is a wiper or not.
	WN	Wiper No	NEP-NOWIPER (Negative value)	
2	90	90 degree optics (ISO7027)	- (Standard)	
	180	180 degree optics (back-scatter)	NEP-180	
3	D	Delrin Housing	- (Standard)	Lowest cost
	C	Copper alloy Housing	NEP-CUC	Anti-fouling
	S	Stainless Steel housing	NEP-SSC	Strong, rugged
	T	Titanium Housing	NEP-TTC	Anti-corrosion
4	R42	RS422/485	- (Standard)	
	S12	SDI-12	NEP-SDI12	
	R23	RS-232	NEP-RS232	Max 10 meter
	USB	USB	NEP-USB	Max 5 meter
5	NO	No current or voltage output	- (Standard)	
	CUR	Current output 4-20 mA. Only for NTU (not for pressure or temperature)	NEP-CUR	Max 100 meter, no auto NTU range selection
	VOL	Voltage output over 5V range. 0 to 5 V or -2.5 to +2.5V. Only for NTU (not for pressure or temperature)	NEP-VOL	Max 10 meter, no auto NTU range selection
6	GC	Glanded Cable	- (Standard)	
	SM	Subcon connector, male	CON34MCBH6MSS	Recommended
	SF	Subcon connector, female	CON34MCBH6FSS	
7	V1	NTU ranges: 10, 400, 1,000	NEP5000-V1	Note that the factory calibration of one range is included in the price.
	V2	NTU ranges: 10, 400, 5,000	NEP5000-V2	
	V3	NTU ranges: 100, 1000, 5,000	NEP5000-V3	
	V4	NTU ranges: User specified	NEP5000-V4	
8	TN	Temperature No	- (Standard)	Water temperature sensor in optic block yes/no
	TY	Temperature Yes	NEP-TEMP	
9	PN	Pressure No	- (Standard)	Pressure sensor in the housing yes/no
	PY	Pressure Yes	NEP-PRES	

For example, to order WY-90-D-R42-NO-GC-V1-TN-PN, you would only need to order NEP5000-V1, because the rest is standard. However, if you want the same sensor to come in a Copper housing and with a male Subconn connector, the order code would be: WY-90-C-R42-NO-SM-V1-TN-PN, and you would have to order: NEP5000-V1; NEP-CUC; CON34MCBH6MSS.

### Notes

- The maximum allowable cable lengths for SDI-12 and RS422/485 are expected to be over 1,000 meters.
- The voltage and current output options only refer to the turbidity and not to other (optional) parameters like pressure and temperature. You lose the option of automatic range switching.
- If you chose a sensor with a connector, you obviously require a cable with a mating connector. Thus, when ordering cable, please also order the mating connector.
- Without the temperature option (TY), you can still get a temperature reading from the sensor, but this is the internal and uncalibrated temperature.
- The pressure sensor is unvented, hence requires external barometric compensation.