



ANALITE NEP390 SERIES INTELLIGENT TURBIDITY PROBES WITH RS232 INTERFACE



The ANALITE 390 series of microprocessor based turbidity probes are designed for monitoring and process applications where turbidity levels of up to 1,000NTU may be encountered. Available ranges are 40NTU, 100NTU, 400NTU and 1,000NTU, which can be set by the user. Currently there are four probes available in the ANALITE 390 series, namely the NEP390, NEP391, NEP395 and NEP396. Specifically the NEP390 and NEP391 probes are designed for applications where bio-fouling will not be a problem such as short monitoring deployment or placement in fast and cold running water. The NEP395 and NEP396 probes however, with their integral wiper assembly, are designed where bio-fouling or sedimentation build-up is likely. Wiping can be initiated automatically (periodically), via a direct RS232 command or manually as required.

The ANALITE 390 series probes may be operated at depths of up to 100 meters (approx. 330 feet).

All ANALITE 390 series probes use 90° optics and employs infrared light in accordance with **ISO7027**. All probes use a unique modulation technique that ensures almost total rejection of fluctuating ambient light conditions. The salient differential features of the ANALITE 390 series probes are tabled below:

Feature	NEP390	NEP391	NEP395	NEP396
RS232 Interface	Yes	Yes	Yes	Yes
SDI-12 Interface	Yes	No	Yes	No
Analogue Outputs (2)	No	Yes	No	Yes
Integral Wiping	No	No	Yes	Yes

The probes may be calibrated at any time or have later firmware uploaded by the user via the RS232 interface.

Two cable connection systems are available. The standard version employs a marine grade connector to terminate the cable to the probe, whereas the G version has the cable permanently connected to the probe via a waterproof gland.

The applications that the ANALITE 390 series probes are so extensive and too numerous to list but generally they include:

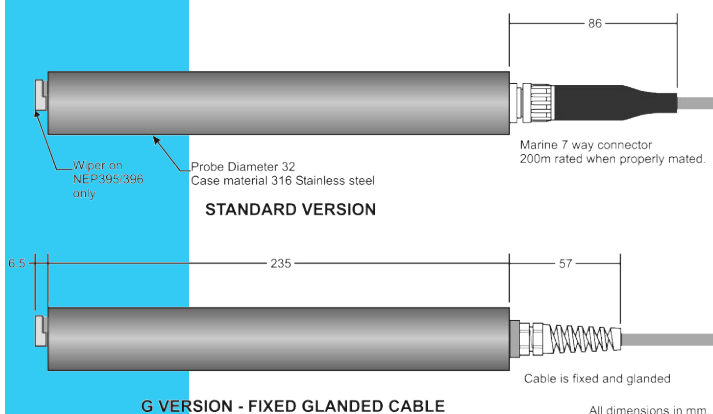
- 1) Monitoring of streams and rivers.
- 2) Monitoring of water storage bodies including stratification studies.
- 3) Intermediate and final effluent treatment monitoring.
- 4) Hydrological run off studies.
- 5) Ground and bore water analysis.
- 6) Drinking water filtration efficiency.
- 7) Industrial process monitoring.
- 8) Sludge and dredge monitoring.

Which model is best used is dependent on the application, the measuring environment, the logging equipment and the monitoring period (deployment times) required.

Specifications:

Technique	90° modulated infra-red (ISO7027).		
Ranges	40, 100, 400 and 1,000NTU – range selection set by user, initially set at 100NTU. Other range values available at additional cost up to 3,000NTU.		
Resolution	Range	RS232/SDI-12	Analogue
	40NTU	±0.01NTU	±0.06NTU
	100NTU	±0.02NTU	±0.15NTU
	400NTU	±0.1NTU	±0.60NTU
	1,000NTU	±0.2NTU	±1.50NTU
Repeatability	±1% at 25°C.		
Linearity	Better than 1% for 40NTU, 100NTU and 400NTU, 3% for 1,000NTU.		
Temp Coefficient	Better than ±0.05%/°C.		
Outputs	All models - RS232 - 1200BPS, 7 data bits, even parity, one stop bit. NEP390/395 - SDI-12 Protocol (V1.3). NEP391/396 - Analogue Voltage (0-1V or 0-2.5v), minimum load 3kohms and Analogue Current (4-20mA or 0-20mA), maximum load 350 ohms.		
Measurements	RS232 and SDI-12 interfaces Latest turbidity measurement -1 sample. Mean and Sample Variance (over 100 samples). Median (over 100 samples). Minimum (over 100 samples). Maximum (over 100 samples). Probe supply voltage. Probe internal temperature. Analogue Interface Analogue representation of the level of turbidity as a proportion of the range selected. Approximate update rate is 0.5 seconds. Voltage and current outputs operate concurrently.		
Calibration	2 or 3 point calibration for each range. May be set by the user only through the RS232 interface and for the range selected. Can revert back to factory calibration settings after user calibration.		
Power	9.6 - 16V dc, 35mA ON. 60mA ON and wiping for NEP395 and NEP396 only. STANDBY of 1.5mA on NEP390 and NEP395 only. Add a provision for an additional 20mA for the NEP391/396 if the 0/4-20mA output is used.		
Wiping	Initiated by wipe or autowipe \$ commands under the RS232 interface or M8! command under SDI-12 or for the NEP396 only it can be externally initiated by momentarily (>50msecs) bringing the RS232RX conductor to the 0V conductor.		

Wipe Time	6 seconds nominal.
Weight	NEP390/391 - 500gms – probe only, 100gms connector plus 70gms per meter of cable. NEP395/396 - 550gms – probe only, 100gms connector plus 70 gms per meter of cable.
Dimensions	NEP390/391 – 250mm long unmated, 321mm long mated to end of protective boot, 32m dia. NEP390G/391G - 292mm long including glanding and strain relief assembly, 32mm diameter. NEP395/396 - 256mm long unmated, 327mm long mated to end of protective boot, 32m dia. NEP395G/396G - 299mm long including glanding and strain relief assembly, 32mm diameter.
Construction	Stainless steel casing with protruding castellations to protect the plastic fibre-optic face. Cable connection via 7-way waterproof connector (standard version), or probe cable is glanded directly from the rear of the probe via an integrated plastic strain relief (add suffix G to standard version).
Cable	NEP390/395 - 5 core + shield, 6mm dia. PUR sheath . Conductor resistance 45 ohms per km. NEP391/396 - 7 core + shield, 6.5mm dia. PUR sheath. Conductor resistance 75 ohms per km.
Cable Length	To order - 60m (200ft) maximum for NEP390/395 , 99m (330ft) maximum for NEP391/396 .
Depth Rating	100m (330ft)
Operating Temp.	-10°C to 40°C.
Storage Temp.	-20°C to 50°C.



Specifications subject to change without notice.
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