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 permenantly 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).

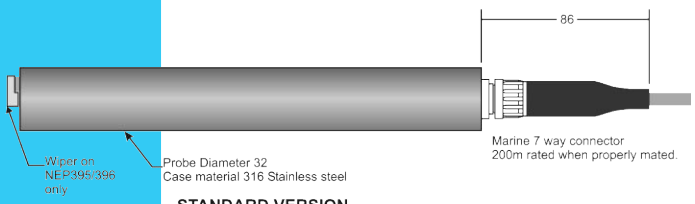
Cable **NEP390/395 -** 5 core + shield, 6mm dia. PUR sheath . Conductor resistance 45 ohms per km.
NEP391/396 - 7 core + shield, 6.5mm dia. PUR sheath. Conductor resistance 75 ohms per km.

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.



STANDARD VERSION

G VERSION - FIXED GLANDED CABLE

All dimensions in mm.

Specifications subject to change without notice.
File: NEP390 Series Brochure June 2003.indd

McVan Instruments PTY LTD
ABN 56 007 283 963
58 Geddes Street, PO Box 298, Mulgrave
Victoria 3170 AUSTRALIA
Tel: (+61-3) 9582-7333, Fax: (+61-3) 9560-1164
E-mail: info@mcvan.com, Website: www.mcvan.com

Your distributor: