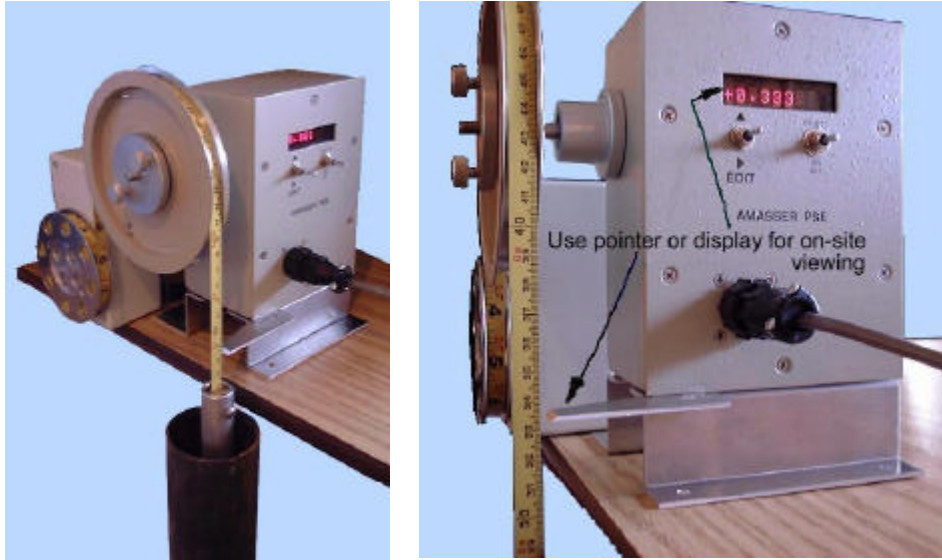


Pliant: readily yielding to influence

PARSE: Pliant Automatic Reeler with Shaft Encoder
GROUNDWATER LEVEL SENSOR



PARSE/D: Pliant Automatic Reeler with Shaft Encoder and Display Option “\D”

- Resolution of 1 mm
- SDI-12 interface
- High sampling rate of the shaft encoder during the measurement cycle ensures accurate results
- Reduced sampling rate between measurements ensures low power consumption
- Firmware provides various functions: “Measure”, “Reel-up”, “Hold Position”, ...
- **Ideal for groundwater wells but also suitable for stilling wells**

General Description:

The PARSE (Pliant Automatic Reeler with Shaft Encoder) is an innovative approach to water level monitoring that is ideal for groundwater wells but also suitable for stilling wells. It is more robust, accurate and reliable than pressure transducer installations. It combines the calibration system of current groundwater installations with the high resolution and reliability of a shaft encoder. Current installations of equipment at groundwater and stilling wells require a device with a water-sensing plumb-bob mounted to a graduated tape in order to set the initial water level. Regular visits to the stations are also required in order to ensure that the equipment is accurate as verified with the “plumb-bob” device.

The PARSE features an automated version of the “plumb-bob” calibration device combined with our PSE-SDI shaft encoder. The PSE-SDI provides the fluid tracking as well as the control algorithms for the DC motor which drives the reel-mounted graduated tape. These algorithms allow various functions such as: “Measure”, “Hold Position”, “Reel up”, etc... The resolution of the system is 1/384th of a revolution, that is, with a the 375 mm-circumference pulley the resolution is less than a millimetre.

The PARSE Measurement Cycle

The host (usually a logger) instructs the PARSE to measure the current water level with the appropriate SDI-12 command. The shaft encoder then maximizes its sampling rate as the DC motor lowers the tape and plumb-bob towards the surface of the water. The motor control algorithm ensures that the PARSE immobilizes for several seconds the moment it touches the water. This delay time allows the user to take a visual reading of the tape in cases where the measurement was initiated manually.

The measurement cycle is completed when the tape and plumb-bob are raised a few centimeters above the surface of the water and the shaft encoder returns to the reduced sampling rate (quiescent mode). The whole cycle only takes a few seconds after which the PARSE is in position and ready for the next measurement.

The Display option “\D”

The “\D” option provides an 8-digit display and two double-position switches for on-site viewing and set-up without the use of a laptop (order PARSE\D). This product, the PARSE\D, has all the features of the standard PARSE but in addition to its SDI-12 communication capability has two double-position switches that can be used to view the current fluid level or tape position as well as set up the following parameters on the 8-digit display: the encoder scale, the initial water level and the device address.

The switches also allow the various PARSE functions which are otherwise accomplished via SDI-12 commands, that is, “Measure”, “Hold Position”, “Reel up”, etc...

Note that although the fluid level is readily accessible from the display the *setup* parameters are in fact **password-protected** thus ensuring the integrity of your results.

Mechanical Interface

The PARSE comes complete and ready to install. The aluminium reel holds 15 m (standard) of punched & graduated tape that engages the 3-pin pulley mounted on the shaft encoder. The plumb-bob is shipped with the unit. Longer tape and/or extensions are available. Please inquire.

Equipment Interface

Intelligent SDI-12 communications-based shaft encoder with programmable offset and units per revolution settings. Hardware includes a +10.5 to 14V input for external battery, charger or solar panel and a 9 V alkaline battery to provide backup in the event of power supply interruption.

The SDI-12 host is generally a data logger such as the [PDAS-II](#) but can also be a direct interface between your PC and the shaft encoder such as the [PCOM-SDI](#). It is also possible to connect directly to the [PMDM/V](#) Environmental Modem without any logger.

Specifications

Processor : Atmel 89S8252 @ 3.6864 MHz.
Word Size : 8 bit data - 8 bit instruction
Memory : 89S8252, 256 bytes RAM
EEPROM 2 kbytes: SDI-12 addr. & set-up para.

Shaft Encoder

K-Model
Sensor type - two channel optical incremental encoder 96 x 4 counts per revolution
Resolution - 384 counts per revolution;
software conversion to engineering units provided in firmware. (Units per revolution)

Range

+/- 32.0 m with .375 m-circumference pulley

Reeler

Cramer DC Motor: nominal 12VDC, Volt. Reg.
MAX. speed: 30 RPM (about 7 meters/min)
Pulsing Mode engaged when water sensing

Pulley, Tape & Plumb-bob

Tape: 15 m (standard) punched & graduated
Shaft encoder pulley: 3-pin, 375mm circ.
(standard)
The plumb-bob is shipped with the unit

Physical Characteristics

The shaft encoder and reeler system that comprise the PARSE are combined on a mounting bracket. The whole unit provides for installation with five #10 holes for screws or bolts (not included).

OVERALL HEIGHT: 152 mm (6 in)
OVERALL LENGTH: 215 mm (8.5 in)
OVERALL DEPTH: 190 mm (7.5 in)

The above information is believed to be true at the time of printing. AMASS Data Technologies Inc. reserves the right to modify specifications without notice. All trademarks are owned by their respective companies.

AMASS Data Technologies Inc.
812 Proctor Ave., Box 707
Ogdensburg, New York
13669
TEL: 315 393-3793 FAX 315 393-9017

Output

SDI-12 protocol: ASCII (water-level)

Power Supply

Configured for external 12 V lead-acid battery
9 V 565 mAHr alkaline battery backup
(Only if 9 pin connector is mounted)

Connector

9 pin AMP CPC Connector
Current Carrying Capability - 1.5 Amp rating
Dielectric Withstanding Voltage >1500V

Power Consumption

DC Motor in reeler: <60mA under load; 0mA between measurements; <500mA peak during startup

PSE-SDI Shaft encoder: <5 mA quiescent
< 30 mA with maximum sampling rate of shaft position occurring during the measurement cycle

Environmental Characteristics

Operating : -40 to +55 C
Storage : -60 to +100C
Humidity : <= 100% non-condensing

AMASS Data Technologies Inc.
34 Chemin Helene, Val des Monts, QUEBEC J8N 2L7
TEL: 819 457-4926 FAX 819 457-9802
Email: amassinf@amassdata.com