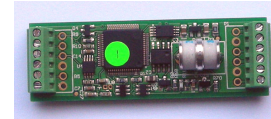


Single Channel Displacement / Crack Meter Interface

Supports SDI-12 or RS-485 digital communications



Part Number: NP-Crack-v1-G1

Introduction

The **NP-Crack-v1** is an intelligent general purpose interface suitable for direct connection to resistive displacement transducers or crack meter. The device connects to any suitable logger supports SDI-12 or RS-485 digital communications.

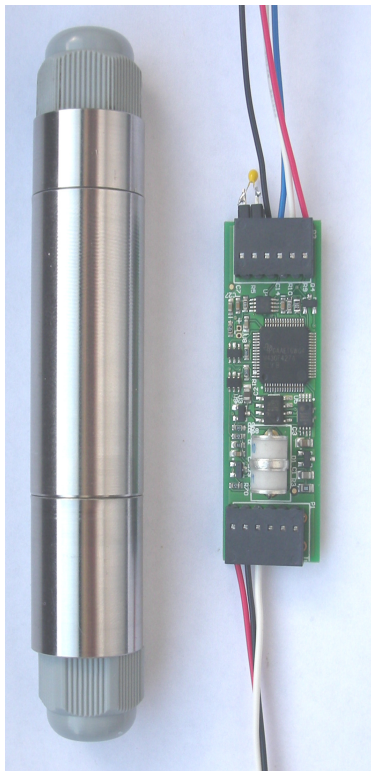
The product is available as a stand-alone PCB for inclusion for OEM applications, or as a complete sensor with a sealed waterproof enclosure.

Advantages:

- Digital data transmission - no errors due to signal losses in cable.**
- In-situ digitisation - local data conversion prevents signal corruption**
- Data in engineering / raw value - User Selected**
- Local temperature reading for thermal compensation when required.**
- Fast Project Support - Add or remove sensors when required.**
- Fully integrated into the free Q-Log Applications Software**

Features

- Support for 120 to 10 K Ohm Displacement transducers or crack meter.
- Full bridge Operation
- Precision Temperature Sensor
- User Programmable Configuration
- SDI-12 / RS-485 Digital Communication Option
- Extended SDI-12 Address Support: 0-9 , a-z
- 16 Bit Precision Low Noise ADC
- Low Power - minimal self heating effect - sensor only switched on during acquisition operation.
- Engineering and raw data values
- User Flash upgrade facility



The image opposite shows both the NP-Crack-v1 circuit board and the waterproof housing.

The sensor has been designed for operation in harsh environments and still has the ability to be easily installed in the field.

No special installation tools or plugs are required simply since all signal and sensor cables simply push into the cable clamps mounted on the front and back of the unit.

Housing

Dimensions (mm)	
Length	90
Diameter	25
Cable Gland Entry	3 - 6
Gland rating	IP 65

Measurement Commands

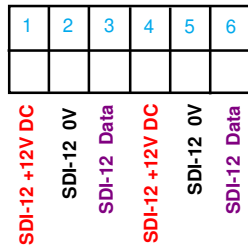
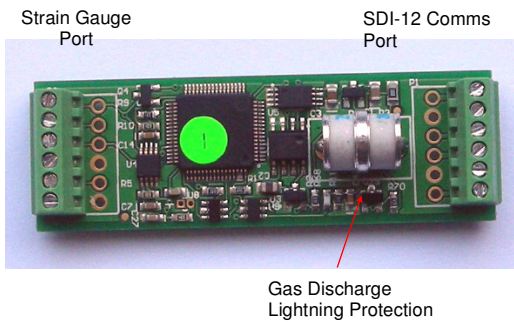
The following command can be used to test the NP-Crack-v1 sensor. SDI-12 / 485 address is 0.

[D] 0M! 0D0!

Part Numbers	Description
NP-Crack-v1-H-SDI12	Half Bridge with SDI-12 Comms
NP-Crack-v1-F-485	Full Bridge with RS-485 Comms

Power Supply	10 - 18 V
Current	1 mA at acquisition 10 uA standby
Comm's Port	Options for SDI-12 Port RS-485 Port
Max update rate	1 sec
Cable Clamp Size	1 mm diameter
Sensor Excitation	3.3 V standard Other range on request
Resolution	Range / 65536
Raw Value	Raw data mV/V
Engineering Value	m , cm, mm, User defined
Range	User defined, depends on sensor installed
Temp Sensor	Thermistor
Thermistor Type	10K 3A1 Betatherm 3 K EC95 F type material
Calibration	User defined scalable parameters
Accuracy (-8 to 25 Deg C)	0.05 Deg
RMS Noise	less than 1 uV/V
Range	-30 to + 60 Deg
Units	Deg C / Deg F user select
PCB Dimension	
Length	60 mm
Width	19.7 mm
Max depth	11.2 mm
Number Channels	1
Cable Entry	1 mm
ADC	16 Bit
Statistics	
Strain	Max, Min
Temp	Max, Min

Configuration is by User defined constants. Set the sensor to maximum and minimum displacement positions and record the raw sensor levels. Conversion factors are posted into the device using industry standard SDI-12 commands. All results returned are in engineering values.



OEM Applications

The **NP-Crack-v1** series of PCB interfaces have been designed for OEM applications. All of the boards support flash memory upgrade so any new feature that is requested can be installed by the User, or can be upgraded in the field without any special tools.

Various features can be customised such as the signal plugs and sockets, statistical calculations and communication protocol.

The excitation level and system gain settings can be adjusted at the time of manufacture.

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Low Cost PC Data Recording

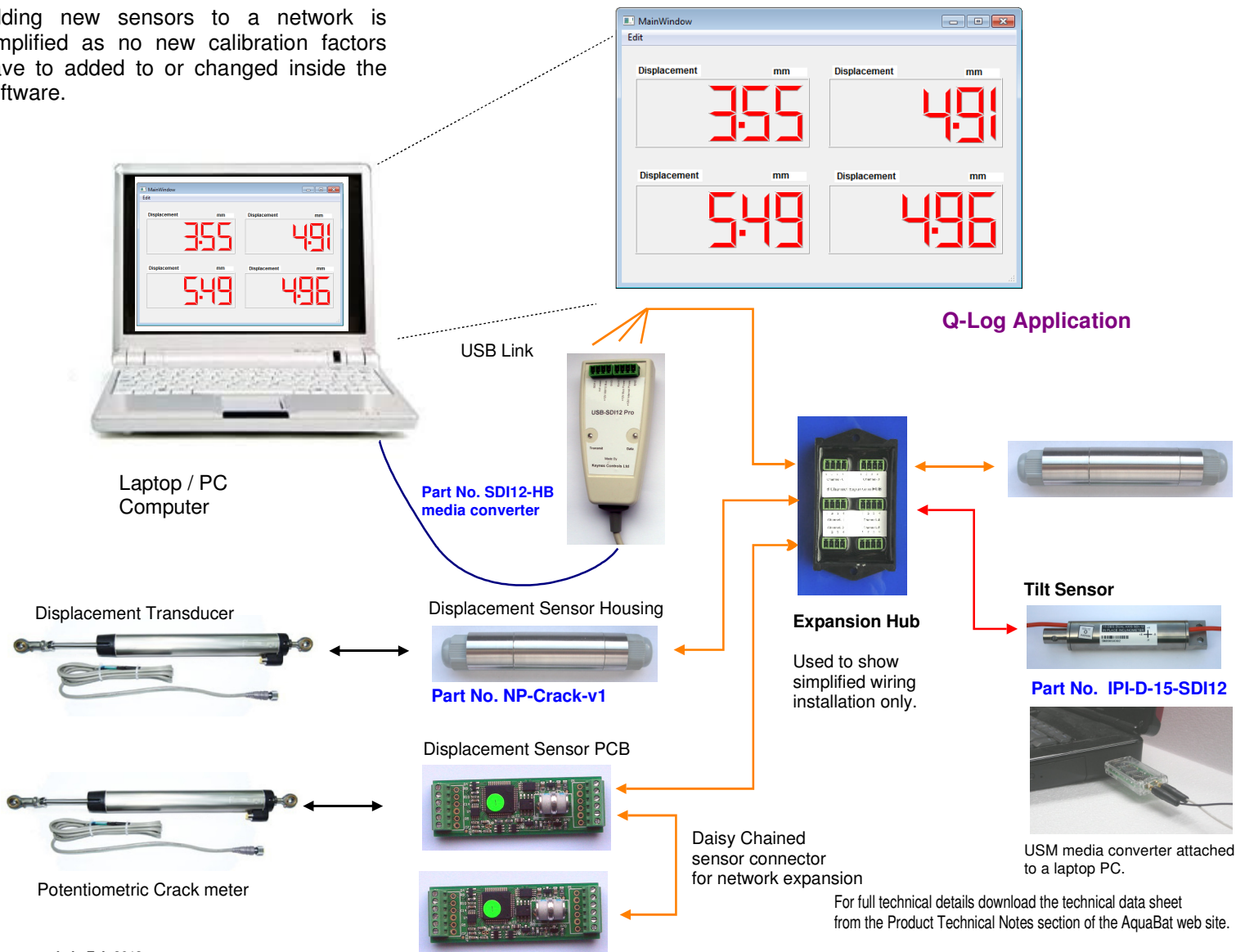
The diagram below demonstrates how a simple PC based data recording system is created using **NP-Crack-v1** interface and a single media converter.

The SDI12-HB media converter enables data from any of the intelligent sensors such as the **NP-Crack-v1**, tilt sensors, or interfaces to be recorded by the PC or laptop computer system. The use of a PC enables unlimited data recording and sensor expansion. Simply add a new USB converter to the PC to get new sensor chains up and running.

A free software application is available for testing and sensor configurations. The interface can run with any package support Comm port data access.

Additional Statistics can be added for OEM Clients

Adding new sensors to a network is simplified as no new calibration factors have to be added to or changed inside the software.



For full technical details download the technical data sheet from the Product Technical Notes section of the AquaBat web site.

<http://www.aquabat.net/web-forms/AquaBAT-tech.htm>