# Small Diameter Submersible

Shown with optional NPT conduit and optional FEP cable

## 611 SERIES

- Hydrostatic level measurement for use in applications including bore holes and wells with small diameters (outer diameter 0.87")
- Low power output signals for battery-powered applications, and optional temperature output available
- 5:1 turndown using optional HART® signal
- 316L Stainless Steel, PVDF and polyurethane wetted parts
- CE compliant to suppress RFI, EMI and ESD

## APPLICATIONS

- Well head measurement
- Groundwater monitoring
- Level measurement in open bodies of water
- Sewage lift and pumping stations
- Setting ponds and rainwater basins

## SPECIFICATIONS

| | |
|---|---|
| **Output signals** | 4 mA to 20 mA, 2-wire<br>4 mA to 20 mA + HART®, 2-wire<br>4 mA to 20 mA x 2 (pressure and temperature)*<br>0.1 Vdc to 2.5 Vdc, 3-wire<br>0.1 Vdc to 2.5 Vdc x 2 (pressure and temperature)* |
| **Pressure ranges**** | 0 in$H_2O$ to 50 in$H_2O$ through 0 psig to 100 psig |
| **Accuracy** | ± 1.0% of span (± 0.5% of span optional)<br>Includes non-linearity, hysteresis, zero offset and end value deviation per IEC 61298-2<br>Accuracy after turndown via HART®, ≤ ±1.25% of scaled span (0.75% optional)<br>Temperature sensor 14 °F to 176 °F (-10 °C to 80 °C): ≤ ± 3.3 °F |
| **Stability** | ≤ ± 0.1% of span per year |
| **Switch on time** | Output signals without HART®: ≤150 ms<br>Output signals with HART®: ≤250 ms |
| **Settling time** | Output signals without HART®: ≤100 ms<br>Output signals with HART®: ≤250 ms |
| **Durability** | > 100,000,000 full scale cycles |
| **Temperature ranges** | Compensated 32 °F to 176 °F (0 °C to 80 °C)<br>Effect ± 0.01%/ °F for zero and span<br>Standard Media 14 °F to 122°F (-10 °C to 50 °C)<br>Optional Media -40 °F to 176 °F (-40 °C to 80 °C)<br>Storage -40 °F to 176 °F (-40 °C to 80 °C) |
| **Power requirement***** | 4mA to 20 mA: 8 Vdc to 36 Vdc<br>4 mA to 20 mA and HART®: 12-36 Vdc<br>0.1 to 2.5 Vdc: 3.6 - 36 Vdc |
| **Load limitations** | 4 mA to 20 mA: ≤ (Vpower - 8 V) / 0.022 A<br>4 mA to 20 mA and HART®: ≤ (Vpower - 9.6 V) / 0.022 A |
| **Proof pressure** | 5 times range |
| **Measuring element** | Cap: PVDF<br>Sensor: 316 stainless steel, optional Hastelloy C-276<br>Cable: Polyurethane, optional FEP |
| **Connection** | 316 stainless steel |
| **Housing material** | 316 stainless steel, 318 LN optional |
| **Environmental rating** | IP68 |
| **Electromagnetic rating** | CE compliant to EMC norm EN 61326:2014<br>RFI, EMI and ESD protection |
| **Electrical protection** | Reverse polarity protection, short circuit and resistance to overvoltage :DC 40V and increased overvoltage for lightning protection. Normal discharge current ≥10 kA, Rise time 8/20 µs |
| **Max. submersion depth** | 325 ft./100 meters |
| **Vibration** | 4 g's according to IEC 60068-2-6 |
| **Weight** | Approximately 10.6 oz. with standard nosecone - cable .5 lb per 10 ft. |

* Temperature measurement is based on the media temperature range
** Other ranges and measuring units available including bar, mbar, MPa, kPa, and $mH_20$
*** Unregulated

⚠ **WARNING:** This product can expose you to chemicals including Lead and Nickel, which are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

## ORDERING INFORMATION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **SERIES** | **611** | | | **611H** | 318LN/Hastelloy C-276 | | |
| **PRESSURE RANGES** | **50 inH$_2$O** | 0 inH$_2$O to 50 inH$_2$O | **5** | 0 psig to 5 psig (11.5 ftH$_2$O) | **50** | 0 psig to 50 psig (115 ftH$_2$O) | **100A** 0 psia to 100 psia |
| | **100 inH$_2$O** | 0 inH$_2$O to 100 inH$_2$O | **10** | 0 psig to 10 psig (23.1 ftH$_2$O) | **100** | 0 psig to 100 psig (230.8 ftH$_2$O) | |
| | **150 inH$_2$O** | 0 inH$_2$O to 150 inH$_2$O | **15** | 0 psig to 15 psig (34.6 ftH$_2$O) | **25A** | 0 psia to 25 psia | |
| | **250 inH$_2$O** | 0 inH$_2$O to 250 inH$_2$O | **25** | 0 psig to 25 psig (57.7 ftH$_2$O) | **50A** | 0 psia to 50 psia | |
| | psig = gauge pressure | psia = absolute pressure | Other ranges and measuring units available on request | | | | |
| **ACCURACIES** | **1** | ±1.0 of span | | | **2** | ±0.5% of span | |
| **OUTPUT SIGNALS** | **1** | 4 mA to 20 mA, 2-wire | | | **48** | 0.1 Vdc to 2.5 Vdc, 3 wire** | |
| | **43** | 4 mA to 20 mA, 2-wire and HART® signal | | | **49** | 0.1 Vdc to 2.5 Vdc x 2 (pressure and temperature) *, ** | |
| | **47** | 4 mA to 20 mA x 2 (pressure and temperature)* | | | | | |
| **PROCESS CONNECTIONS** | **N** | Nosecone | | | **W** | Weighted nosecone | |
| **ELECTRICAL CONNECTIONS** | **XX** | Standard polyurethane (PUR) cable | | | **62-XX** | Polyurethane (PUR) cable with 1/2" NPT conduit connection | |
| | **38-XX** | Optional FEP cable | | | **63-XX** | FEP cable with 1/2" NPT conduit connection | |
| | | **NOTE: XX = length of cable in feet** | | | | | |
| **OPTIONS** | **CBC** | Cable Clamp | **LP** | Lightning Protection | **JB** | Cable Junction Box (NEMA 4X) | **HT** Increased media temperature (-40 °F to 176 °F) |

**Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.**

* Temperature measurement is based on the media temperature range
** Low power is optimized for battery operation

### EXAMPLE

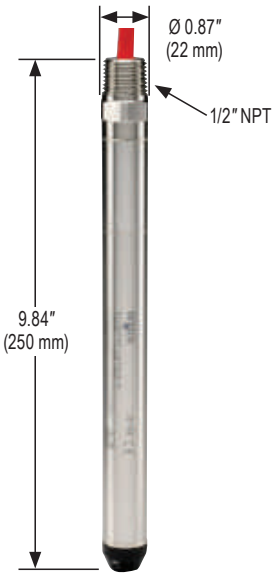
**611 – 5 – 1 – 1 – N – 50**

**Series** ..... 611 Series
**Pressure range** ..... 0 psig to 5 psig
**Accuracy** ..... ±1.0 of span
**Output signal** ..... 4 mA to 20 mA, 2-wire
**Process connection** ..... Nosecone
**Electrical connection** ..... 50 feet of submersible polyurethane cable

### WIRING CODE SCHEMATICS

| | Wiring | Cable |
|---|---|---|
| **4 mA to 20 mA & 4 mA to 20 mA,2-wire and Hart signal®** | V+ | Brown |
| | V- | Blue |
| | Case Ground | Grey |
| **4 mA to 20 mA x 2 (pressure and temperature)** | V+(pressure sensor) | Brown |
| | V- (pressure sensor) | Blue |
| | V+ (temperature sensor) | Green |
| | V- (temperature sensor) | White |
| | Case Ground | Grey |
| **0.1 Vdc to 2.5 Vdc, 3 wire** | V+ | Brown |
| | Common | Blue |
| | Output | Black |
| | Case Ground | Grey |
| **0.1 Vdc to 2.5 Vdc x 2 (pressure and temperature)** | V+ | Brown |
| | V- | Bue |
| | Output (pressure sensor) | Black |
| | Output (temperature sensor) | Green |
| | Case Ground | Grey |

### With protective cap




Protective Cap Thread M18 x 1