



# miniTROLL

Water Level • Temperature • Data Logging

## SUPER SMART SUPER SMALL

- water level
- temperature
- data logging
- 1 MB memory
- onboard power
- Quick-Connect™ cable
- 32-bit Win-Situ software

**WOW!**

**NEW Unbeatable technology!**



**1 mm!\***  
See water level changes as small as 1 mm with a 15 PSI sensor.

Ultimate 4-way compensation: barometric, full temperature range, plus gravitational acceleration and liquid density!



Finally, batteries as easy to replace as flashlight batteries! Simply slide two AA batteries in and out for up to 18 months of power.



Patents Pending

Get connected with our advanced, submersible Quick-Connect™ cables. Polyurethane or FEP\*, with desiccant and hydrophobic membrane.



Ultra-small onboard data logger with 1 MB of non-volatile memory. Temperature-compensated crystal clock is accurate to ±2 minutes per year.

**NEW!**  
**SDI-12**

The miniTROLL now comes with optional SDI-12 capability. Use the miniTROLL with an SDI-12 logging system or as an individual logger!

18.3 mm

**0.72**  
**inch OD!**

The new miniTROLL is the smallest, most powerful submersible data logger for water on the planet. It contains level and temperature sensors, data logger, power and memory and is only 18.3 mm (0.72 in) in diameter!

Use it to monitor subtle water level and temperature changes in pumping tests or long-term ground and surface water monitoring.

Touch the future. Experience the technology. The miniTROLL will change the way you monitor. Call today to learn more!

800.446.7488 • 307.742.8213

On the web at [www.in-situ.com](http://www.in-situ.com)



**NEW!**

**Introducing New low-cost telemetry solutions and networking**



**Low-cost telemetry**  
- Line or solar power  
- modem, cellphone, or radio

**Quad-Boxes and T-Boxes for networking**

**NEW! Win-Situ 2000**

Totally new 32-bit Win-Situ 2000 is your key to harnessing the miniTROLL's power. Included with every miniTROLL purchase.



Convenient Wizards help you set up tests, connect new devices, and edit parameters.



Create instant graphs and reports or with a click of a button, export data to Excel®.



**Power for up to 11.5 years!**

External alkaline or lithium battery packs are now available with or without pass-through communications options. Includes hydrophobic membranes and color-indicating desiccants.



**MINITROLL VERSIONS**

|                             | Standard Temperature | Standard Pressure | Advanced | Professional |
|-----------------------------|----------------------|-------------------|----------|--------------|
| Pressure channel            | -                    | ●                 | ●        | ●            |
| Temperature channel         | ●                    | -                 | -        | ●            |
| Temperature compensation    | ●                    | ●                 | ●        | ●            |
| Barometric compensation     | -                    | ●                 | ●        | ●            |
| Fluid density compensation  | -                    | -                 | ●        | ●            |
| Number of tests stored      | 1                    | 1                 | 2        | 16           |
| Linear tests                | ●                    | ●                 | ●        | ●            |
| Linear average tests        | -                    | -                 | ●        | ●            |
| Event tests                 | -                    | -                 | ●        | ●            |
| Log tests                   | -                    | -                 | -        | ●            |
| Minimum sampling rate (sec) | 0.5                  | 0.5               | 0.5      | 0.5          |
| Temperature Accuracy        | ±0.25°C              | -                 | -        | ±0.25°C      |
| Memory (data points)        | 30,000               | 30,000            | 80,000   | 440,000      |
| Telemetry capability        | -                    | -                 | ●        | ●            |
| Networking capability       | -                    | -                 | -        | ●            |
| Download speed              | 1X                   | 1X                | 2X       | 3X           |
| Downloads only new data     | -                    | -                 | ●        | ●            |

ASK ABOUT SDI-12 ONLY or SDI-12 STANDARD, ADVANCED and PROFESSIONAL VERSIONS!

**SPECIFICATIONS**

| General:                             | Internal Power Model   | External Power Model                             |
|--------------------------------------|--|--|
| <b>Dimensions</b>                    | 18.3 mm (0.72 in) OD,<br>295.9 mm (11.65 in) long  | 18.3 mm (0.72 in) OD,<br>197.4 mm (7.77 in) long |
| <b>Weight (includes backshell)</b>   | 0.31 kg (0.68 lb) with batteries   | 0.22 kg (0.48 lb)                                |
| <b>Wetted materials</b>              | 316L stainless steel, Viton®, nylon, FEP** or polyurethane (cable)   |  |
| <b>Sensors:</b>                      | Pressure Sensor  | Temperature Sensor                               |
| <b>Operating principle</b>           | integrated silicon strain-gauge pressure sensor  |  |
| <b>Ranges / Accuracies (Temp):</b>   | -5°C to 50°C (23°F to 122°F) / ±0.25°C   |  |
| <b>Ranges / Accuracies (Level):</b>  | <ul style="list-style-type: none"> <li>• 11 m, 35 ft (103.4 kPa, 15 psi) / ±0.2% FS, ±0.1% @ 15°C</li> <li>• 21 m, 69 ft (206.8 kPa, 30 psi) / ±0.1% FS, ±0.05% @ 15°C</li> <li>• 70 m, 231 ft (689.5 kPa, 100 psi) / ±0.08% FS, ±0.05% @ 15°C</li> <li>• 211 m, 692 ft (2068 kPa, 300 psi) / ±0.08% FS, ±0.05% @ 15°C</li> <li>• Higher ranges also available in addition to absolute or gauged sensors. Call for information.</li> </ul> |  |
| <b>Resolution</b>                    | 16-bit A-D convertor: 0.00531% FS (1 mm) for a 21m (30 psi sensor)   |  |
| <b>Pressure rating</b>               | 2x range/3x burst (11 m = 3x range/5x burst)   | NA   |
| <b>Operating temperature</b>         | -5°C to 50°C (23°F to 122°F)   | -5°C to 50°C (23°F to 122°F)                     |
| <b>Other:</b>                        |  |  |
| <b>Measurement schedules</b>         | linear (500 millisecond minimum), linear average, event, or true logarithmic (300ms minimum)   |  |
| <b>Processor</b>                     | Motorola HC11  |  |
| <b>Real-time clock accuracy</b>      | ±4 min/yr over operating temp. range: ±2 min/yr from 0°C to 40°C   |  |
| <b>Memory</b>                        | 1 MB flash, 220,000 Pressure + Temp pairs (Pro), 80,000 (Advanced), 30,000 (Standard) readings   |  |
| <b>Filter</b>                        | Hydrophobic membrane   |  |
| <b>Desiccant</b>                     | 0.75 g silica gel  |  |
| <b>Thermal stabilization time</b>    | 30 min to 1hr to within 0.1% of full scale, 1.5 to 2 hr to within 0.05% of full scale  |  |
| <b>Barometric equilibration time</b> | 5 min to within 0.05% of full scale for 304.8 m (1000 ft) of cable   |  |

**Estimated Battery Life:**

|                          | max. number of readings**   | long-term life               |
|--------------------------|-----------------------------|------------------------------|
|                          | sampling at 1-sec intervals | sampling at 20-min intervals |
| <b>Internal alkaline</b> | 990,000                     | 1.5 yr                       |
| <b>Internal lithium</b>  | 1,200,000                   | 2.0 yr                       |
| <b>External alkaline</b> | 6,900,000                   | 9.0 yr (3.5 yr @ 40°C)       |
| <b>External lithium</b>  | 14,800,000                  | 11.5 yr (7.0 yr @ 40°C)      |

\*\*20°C, downloading every 220,000 readings



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Visit us at our web site:

**www.in-situ.com**

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The **Monitoring Company** LLC.

**888 880 4862**

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\*The resolution for a 30psi sensor is 0.00531%FS corresponding to 0.000797psi and 1.1 mm) at average g and 1.00g/cm3.

\*\*FEP (fluorinated ethylene propylene) is the generic equivalent of DuPont Teflon.

7/01

