



CALSCAN

reliable
temperature pressure
& flow measurement

Badger LT

Downhole Long Term Pressure Recorder

The Badger LT comes equipped with a large Sub CC battery for testing applications under 150°C that require long term testing where a traditional AA cell cannot supply enough power. This is useful for multi year tests or where elevated temperatures have reduced the life of the battery from self discharge.

The Badger series of tools are our toughest and most durable memory recorders we make. Deep wells are a difficult environment for a wireline operator to work on. Mistakes happen and the Badger is designed to maximize the chance of its survival.

When the tool does need service you can count on our experienced technicians to quickly diagnose and get the tool back in your hands. Turn around time is typically less than two weeks after we have received the tool at our factory in Canada.

Fault Tolerant Memory Design: The failure of one memory chip or block of memory will not result in the complete loss of a section of data.

Smart Sample: The Badger can be set to sample at a fast sample rate, such as one second, and only store if the pressure has changed by a specified amount or if a set amount of time has passed. This is useful for capturing all the transient pressure information that a reservoir engineer requires, while avoiding running out of memory.

Surface Readout (SRO): The Badger can be configured to communicate via electric line to a Hawk 9000 surface recorder. This allows for quick real-time access of the data without pulling the tool.

High Speed Download: The Badger LT can download at 68000 samples/minute, which is over four times faster than the old Badger.

Calibration: The Badger is calibrated on a primary deadweight, not another pressure sensor. This is the most accurate and repeatable method for calibration. All tools are calibrated starting from 0°C, not room temperature. This allows accurate pressure measurements even in shallow wells where the temperature near surface is below 20°C.

Shock Resistant Design: The housing is made of durable 718 Inconel™ and designed to protect the electronics from downhole impacts.

Seals: The battery barrel uses a triple seal: Two O-rings and an interference thread. The interference thread uses a pipe sealant/lubricant that protects the o-ring against chemical attack as well as reduces the pressure to the o-ring.

Field Reporting: Calwin, our windows interface software allows the operator to make quick field gradient reports and custom graphing with annotation. Graphs can be saved for later editing and can be exported in PDF format.



The Badger LT Sub CC battery has 7 times the capacity as a AA lithium Cell which allows it to run much longer tests

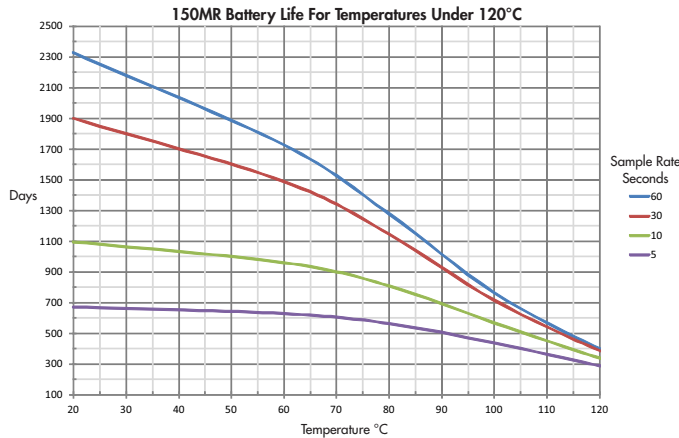
Badger LT Specifications

Battery

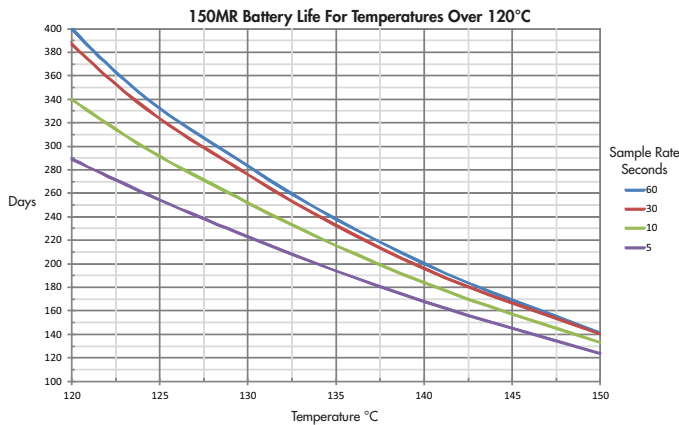
150MR Sub CC Lithium Cell for 0°C to 150°C

Battery Life 150MR

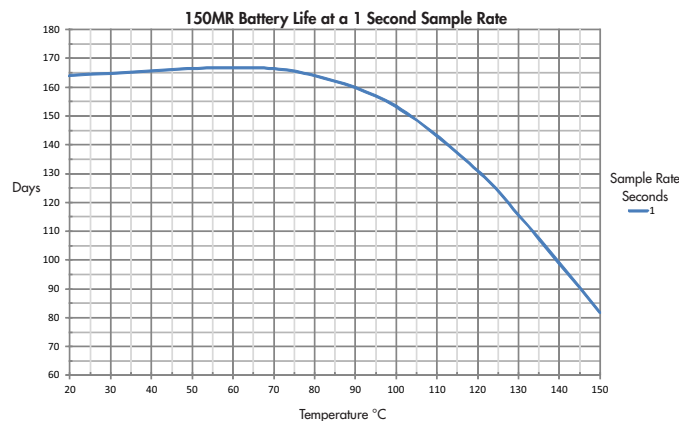
The life on a battery is temperature and sample rate dependent. On long tests its easy to fill the memory, use smart sampling or reduce the sample rate to ensure you get all the data you need.



Battery self discharge above 120°C is the dominant factor on long term tests.



Fast samples fill the memory quickly, consider using smart sampling to extend memory capacity.



For warranty, calibration, replacement battery, and local distributor information contact:

E-mail: sales@calscan.net
 Website: www.calscan.net
 Phone: (780) 944-1377
 4188 93 Street, Edmonton, Alberta, T6E 5P5

Memory

Standard Mode: 2 088 960 samples
 Smart Sample Mode: 1 392 640 samples

Sample Rate

Minimum Rate at maximum resolution: 1 sample/second
 Minimum Rate: 1 sample/0.33 second

Environmental

Temperature Range
 Standard: 0°C to 150°C

Sensor Specifications

Pressure

Type: Silicon Crystal, Sapphire, Piezoelectric
 Range: 750, 1500, 3500, 6000, 10000, 15000 psig
 Accuracy: $\pm 0.024\%$ Full Scale for Standard Temperature Range

Resolution: $\pm 0.0003\%$ Full Scale
 Resolution during smart sample: $\pm 0.0012\%$ Full Scale

Drift: Highly dependent on well conditions, downhole temperature and proper tool maintenance

< 0.005 % full scale/year for temperatures < 85°C
 < 0.010 % full scale/year for temperatures < 125°C
 < 0.024 % full scale/year for temperatures < 150°C
 For temperatures above 150°C see the Badger HT

Temperature

Type: Platinum RTD
 Accuracy: $\pm 0.5^\circ\text{C}$
 Repeatability: $< \pm 0.02^\circ\text{C}$
 Resolution: $< 0.001^\circ\text{C}$
 Drift: $< 0.1^\circ\text{C}/\text{year}$

Housing

Housing Material: 718 Inconel™ (UNS N07718)
 Housing Diameter: 1.25 inches (31.75mm)
 Housing Length: 21 inches (533.4) to 24 inches (609.6mm)

Communication:

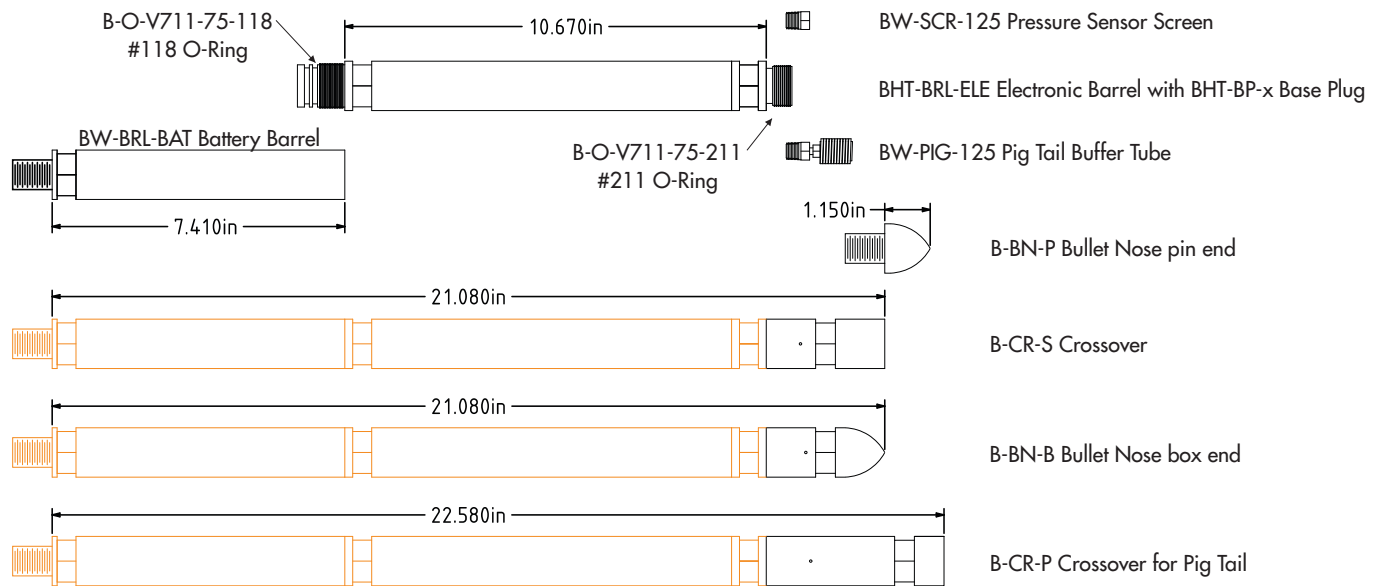
USB via Interface Box
 USB Download Speed: 68000 sample/minute

Programming and Reporting

Calwin for Windows Vista/Win7/Win8

Badger LT Specifications

Dimensions



All box and pin thread connections 3/4" Amerada (3/4" - 16 TPI UNF)
Barrel Diameter 1.25in

Part Numbers

Badger LT	BLT-Pxxxxx-S	Thread Grease 142g	BM-GR-101G-S
	Pressure Range: xxxxx in PSI	Thread Grease 454g	BM-GR-101G-L
Battery Barrel	BW-BRL-BAT	Badger Battery Barrel O-ring 50 pack	B-O-V711-75-118-Q50
Electronic Barrel	BHT-BRL-ELE	Dupont Viton V711 75-118	
Base Plug Standard	BHT-BP-S	Badger Base Plug O-ring 50 pack	B-O-V711-75-211-Q50
Base Plug F250	BHT-BP-F	Dupont Viton V711 75-211	
Bullet Nose with Pin End	B-BN-P	USB Interface and Battery Tester	I-USB-BAT
Bullet Nose with Box End	B-BN-B	Carrying Case	B-CASE
Crossover Sub	B-CR-S		
Crossover Sub for Pig Tail	B-CR-P		
Base Plug Pig Tail Buffer Tube	BW-PIG-125		
Base Plug Sensor Screen	BW-SCR-125		
Battery 21-97-150MR Sub CC cell	BAT-SCC-150MR		
SRO GO E-Line adapter 1 7/16"	BW-SRO-GO-144		
SRO TEC Wire Fishneck 1/4"	BW-SRO-FISH-250		
SRO TECWire Fishneck 1/8"	BW-SRO-FISH-125		
SRO TEC Wire Cablehead	BW-SRO-CH		
SRO TEC Wire 1/8" fittings	B-SRO-SWA-125		
SRO TEC Wire 1/4" fittings	B-SRO-SWA-250		
SRO Transmitter	B-SRO-TRAN-150		



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