



**EMS Brno**

**Data Acquisition Environment**  
Hardware – Software – Cloud application  
[www.emsbrno.cz](http://www.emsbrno.cz)

## Minikin SP1



### Main features:

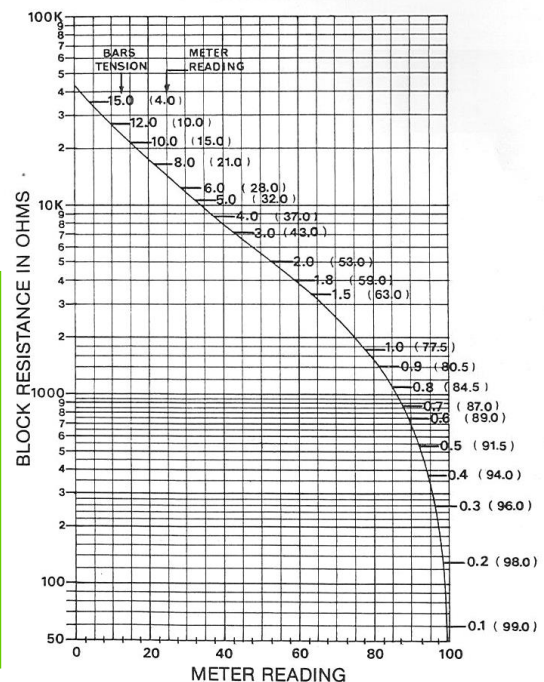
- Small datalogger intended for soil water potential measurement with Gypsum block
- Built-in datalogger temperature sensor
- Infrared wireless data access
- High accuracy
- Non-volatile memory, typically 100,000 readings
- Water sealed case
- Long lasting battery
- Gel-filled, polycarbonate moisture-resistant connector for easy replacement of weathered sensor
- Advanced Windows® software including basic statistics, regression analysis and user programmable calculation



### Specifications:

- A.C. resistance 0 to 60 kOhms
- SWP range up to -1.44 MPa
- Overall accuracy better than 2%
- Internal temperature accuracy  $\pm 0.3^\circ\text{C}$
- Fully watertight – IP 68 rating
- Operating range:  
Temperature from  $-40$  to  $60^\circ\text{C}$   
Relative humidity from 0 to 100 %

**Meter Readings vs. Soil Moisture Tension and Electrical Resistance**



## Minikin SP1

Minikin SP1 is small water-sealed datalogger designed for the resistance measurement. It uses square wave symmetrical alternating current. Datalogger is intended for the measurement of soil water potential with sensor which electrical conductivity is related to soil water potential (Gypsum block, Delmhorst). The temperature of the datalogger is measured for the estimation of the soil or an ambient temperature.

The datalogger case is watertight, made from stainless steel and polyethylene terephthalate (PETE).

The non-volatile data memory can store typically 100,000 measured values what is enough for more than six years of storing of two measured variables in hourly intervals. According to measuring mode, the new data may be either overwritten on top of oldest data in the memory or the measurement stops when the memory is full.

The long-lasting primary cell battery assures more than two-year measurement of two variables in 10-minutes interval. The battery can be replaced directly by user.

As each EMS system, the datalogger is supported with sophisticated Mini32 software with many advanced features including file linking up and statistics.

### Specification

Memory size	256 kByte
Resolution	16 bits
Clock accuracy (-10 to 40 °C)	better than $\pm 15$ sec/month
Measuring intervals	10 min to 4 hrs
Storing intervals	10 min to 4 hrs
Memory capacity with measuring interval 1 hour	ca 6 years
Battery lifetime with measuring interval 1 hour	ca 4 years
Measuring range	0 to -1.44 MPa
Datalogger internal temperature accuracy	$\pm 0.3$ °C
Protection rating	IP68
Size (diameter x length)	30 x 93 mm (without sensor)
Weight	97 (without sensor)
Operating environment temperature	-40 to 60 °C
Operating environment humidity	0 to 100%
Battery	SAFT LS14250CNA

**Software:** Mini32 universal software is running under Windows® 7, 8 and 10. The software assures all necessary operations – system setup, data downloading and processing. Its data processing part is made for work with large and long-time data series. It offers exceptionally sophisticated visualization and data manipulation, it includes basic statistic features, creates and prints graphs and exports data to different file formats.