



SHAPEARRAY™ Field Power Unit

Model 005

The ShapeArray™ Field Power Unit (FPU) is a portable battery powered device designed to connect all models of ShapeArray to a PC running the SAARecorder software application. The FPU is convenient for use in the field or in the office when manually collecting data from an ShapeArray. The connection is made via an included USB cable or wirelessly via Bluetooth. A USB port driver is required to operate the FPU and is included in the downloadable SAARecorder application via SAASuite.

The FPU is designed to get the most out of your investment in ShapeArray instrumentation. Geotechnical instruments generally use only a few sensors. ShapeArray often has hundreds of sensors in one instrument. The FPU makes connecting to a ShapeArray in the field easier, while providing consistent results. It has an internal battery and an interface that provides the same power control, voltage boost, signal conditioning, and surge protection as other Measurand ShapeArray interfaces. The wireless interface makes data collection easy from a nearby vehicle if the weather is not perfect.

A high quality DCDC converter is used to boost and regulate the voltage supplied by the internal

12V battery that can range from 10.5V up to 15V depending on battery condition to a constant 13.5V (16.5V boost for longer cables). The FPU automatically limits ShapeArray power consumption by only applying power to the ShapeArray when the COM port is active. The capability of interfacing through longer cables is also achieved by the use of the FPU, which allows voltage to be boosted to 16.5V as required.

To protect your investment the FPU employs galvanic isolation to break fault currents from entering the ShapeArray cable due to ground potential differences, a resettable fuse to protect wiring, and surge protection via clamping devices to minimize the risk of damage by voltage transients associated with power surges and lightning induced transients. For the surge protection to be effective the FPU ground terminal must be connected to earth to form a complete circuit for the voltage clamping devices internal to the FPU.

The FPU contains a 12 V, 6Ah non spillable rechargeable battery. Its charge level can be read from the battery charge indicator located on the front panel. An auxiliary 4-pin terminal block is included and can be used to power other equipment such as a radio modem, or to check the battery voltage using a voltmeter. To recharge the battery, plug the unit into a standard power outlet. The FPU is fully sealed and splash resistant to IP67 when closed. To maintain IP67 in operation, connect ShapeArray to the exterior 4-pin circular connector, use Bluetooth, and keep the lid closed.

Related products: ShapeArray, SAASPD

SPECIFICATIONS



POWER SYSTEM	12V 6Ah LiFePO4 Lithium Battery (77Wh) Universal AC input 3-step battery charger with float charging AC power cord, permanently attached, country specific Auxiliary 4-pin terminal block for 12 V power External Grounding Terminal
SHAPEARRAY CONNECTION INTERNAL	5-pin terminal block Mating 5-pin Terminal Block Plug, Phoenix PN 1757048, DigiKey PN 277-1014-ND
SHAPEARRAY CONNECTION EXTERNAL	4-pin circular connector, Amphenol Eco Mate® series Mating 4-pin circular plug, PN C01620H00311012, DigiKey PN 361-1345-ND
COMPUTER CONNECTION USB	Measurand RS232-USB cable
COMPUTER CONNECTION WIRELESS	Bluetooth Class 1, connects with computer having internal Bluetooth, compatible with Windows 8 and beyond.
AUXILIARY POWER CONNECTION	Internal 4-pin Terminal Block Mating 4-pin Terminal Block Plug, Phoenix PN 1757035, DigiKey PN 277-1013-ND
OPERATING TEMPERATURE¹	-20 °C to +50 °C
DIMENSIONS	272 mm x 248 mm x 123 mm
WEIGHT	3.6 kg

¹ The SAAFPU and Bluetooth communication was tested at -20°C for a period of 168 hours with no signal loss or interruption.