



MPT-DAS-1

Electrical Impedance Tomography System

Fully Autonomous Resistivity and IP Monitoring System



- 8 Channel system; 24-bit A to D converters, one per channel
- 3-D subsurface images using ERT (electrical resistivity tomography) or EIT (electrical impedance tomography)
- Operation modes:
 - Time domain IP/resistivity
 - Base frequency of 1/64, to 13.5 Hz
 - Up to 35 user assignable windows
 - Frequency domain IP/resistivity
 - Base frequency of 1/64 to 5 Hz
 - Self Potential
 - Spectral IP
 - Seventeen pre-assigned frequencies
 - Data stream
 - Records up to 128 data values either synchronously or asynchronously with the transmitter

In **Time domain** mode the system collects IP data using 1 to 35 user assignable windows at base frequencies from 1/64 hz to 9 hz. In **Frequency domain** mode the system can acquire phase and amplitude data from 1/64 hz to 5 hz. The **Data Stream** mode allows the user to store incoming data streams of up to 128 points and then apply their own data averaging and noise rejection methods. In **Self Potential** mode, the system to measures the self-potential value at one or more receiver pairs without transmitting current. In **Spectral IP** mode, the system collects frequency domain spectral IP data. In this mode, the DAS-1 will make measurements at one or more of seventeen pre-assigned frequencies.

The data are stored in ASCII format on microSD cards in standard FAT32 format allowing easy storage and transfer of up to 8 gigabytes of data. All of the data modes and system functions can be operated under PC control or autonomously.

The MPT system easily interfaces with ERTLab 3-D inversion software which allows three-dimensional topographical modeling and inversion, creation of 2D and 3D arrays/schedules of electrical resistivity measurement and a powerful graphical environment for displaying resistivity and IP models.

- Standard unit has 64 electrode, fully independent, high isolation multiplexer
- Weather resistant anodized 5052 aluminum case
- Up to 255 additional multiplexers can be added
- Operates from single touch keypad, no moving parts
- Uses telephone-style text input
- 40 x 16 character LCD display
- Internal transmitter:
 - Auto range, auto current limit
 - Constant current or constant voltage modes
 - Short circuit and open connection detection
 - 250 Watts
 - 2.5 Amps maximum
 - 950 V peak to peak maximum
 - 12 V 30 Amp input
 - Efficiency up to 92%



Specifications:

| | |
|---------------------------------------|---|
| Input Gain Ranging | Automatic; .08, .4, 2, 10 V |
| Maximum Output Current | 2.5 Amps |
| Maximum Output Voltage | 475 Volts 950 V peak to peak |
| Maximum Output Power | 250 Watts |
| Power Supply | 12 V |
| Input Impedance | $\sim 10^9$ Ohm |
| Electrodes | Simple Metal Electrodes |
| Input (Receiver) Voltage Range | +/- 10 V, 1000 V Common Mode |
| Analogue to Digital Conversion | 24 Bit Rated A to D |
| Measurement Precision | 0.05% Typical |
| IP Measurement | User Selectable 35 Custom Windows |
| Power-Line Rejection | 60 Hz / 50 Hz |
| SP Compensation | Proprietary High-Order Polynomial |
| Waveform | Square: On+, Off, On-, Off (Time Domain) or On+, On- (Frequency Domain) |
| Operation Frequency | Programmable From 1/64 Hz to 13.5 Hz |
| Signal Processing | Continuous Stacking Over Integration Window |
| Stacking | Maximum Stacks 256 |
| Noise Reporting | As Standard Deviation |
| Noise Rejection | Proprietary Rejection of Electrode Noise |
| Multi-Channel | 8 Independent Receiver Channels |
| Memory & Data Storage | MicroSD Card |
| Data Transmission | RS-232C or USB or Direct Read of MicroSD Card |
| User Controls | Laptop Computer Software Interface |
| Receiver Weight | Approximately 19 kg (Multiplexer = 12 kg) |
| Dimensions | 47 cm X 36 cm X 31 cm |

Multi-Phase Technologies, LLC

Sparks, Nevada, USA

775-356-7844 - phone

775-356-7988 – fax

mpt3d.com