

Advanced Anode Meter

Anode Meter

The meter is a light weight device used to measure the voltage drop across a short section of anode rod. From this measurement the current flowing through the anode rod can be calculated.



Benefits

- Increased productivity (½ second to read voltage drop)
- Improved accuracy
- No transcription errors
- Reduced operator fatigue
- Lower operating costs

Key Features

- Fully automatic operation
- High accuracy, high resolution reading
- Simple operator interface
- Full database integration
- Customizable, field upgradeable firmware
- Modern USB interface
- Site configurable for head size, pot layout, number of anodes, use of schedules



Operation

The meter is normally left attached to the host PC via the USB port, which charges the Li-Ion battery, and allows automatic download of the current shift measurement schedule as required. The operator can also manually select pots to be measured.

In operation the probes are pushed against each anode rod in turn. The voltage drop is determined automatically from an internal algorithm that is fast and efficient.

At the end of the measurement session, the meter is reconnected to the PC's USB port where the data is automatically uploaded and stored in the database.

All data is available for viewing and reporting through APG.

Measurement Methodology

The analogue input is constantly being sampled. The input floats to ~1.4v when disconnected, allowing the onboard software to determine when the meter is in use. The measurement algorithm operates as follows:

- Six successive input values must be in a plausible range
- The difference between the minimum and the maximum value must be < 0.5mV
- The average of the most recent 4 values is used as the output
- A burned-off anode (no load) will generate a 0mV measurement.



Operator Feedback

Successful Measurement

The Green LED turns on

Measurement Incomplete

The Red LED flashes, the operator is expected to retake the measurement.

Abnormal Value

The Red and Green LED flash for a second, the operator is expected to review the value and optionally retake the measurement.

Availability

The meter is available from C-Born for outright purchase, or on a monthly lease option, which may have advantages in a capital-expenditure constrained environment.

Build options include different shaft lengths and site customized software.

Other variations, such as different probe spacing or head type, will be considered on a cost/volume basis.

Further details and pricing are available at www.cborn.com/products/anodemeter/anode-meter-pricing



C-Born Software Systems

C-Born originally developed a light-weight electronic anode meter (also known as a “Pot rod”) some 20 years ago, to replace the heavy and inaccurate analog meter in use for the 30 years before that. The new automatic meter, developed over the last two years at PtHenry, is a significant leap forward, offering great benefits in productivity and ease of use

www.cborn.com/products/anodemeter

Contacts

Terry.Fogg@alcoa.com.au (Alcoa PtHenry)

David.Varley@alcoa.com.au (C-Born)

Specifications

| Physical | |
|-------------------|--|
| Length | 770mm (Custom lengths avail.) |
| Weight | 470gm |
| Probe Spacing | 95mm |
| Probe Material | Hardened Steel |
| Shaft | 15mm Carbon Fibre |
| Head | Fibreglass PCB |
| Electrical | |
| ADC - Chan 1 | 16 bit (62µV) 14 Readings/Sec 15ppm/°C Drift 0.05% Gain Error 20V Protection |
| ADC – Chan 2 | (Optional – as Ch1) |
| Battery | 3.7V Li-Ion 3000mAh Rechargeable |
| Display | 16x2 Backlit LCD |
| Indicators | Hi-intensity red & green LEDs |
| Real time clock | Yes |
| Power Supply | Inductorless design for operation in potroom magnetic field |
| Connections | |
| USB | Data IO + charge |
| WiFi | Optional |
| Serial | 2x RS232 (3.3v) |
| UEXT | Optional extended IO |
| Storage | |
| MicroSD | 8GB |
| Software | |
| Internal Firmware | .Net Micro Framework C#, VS2010 Upgradeable Customizable |
| Host (PC) | Download schedules Upload Readings Database Interface Software Updates |