MAL 4.0

MINI ARC LOGGER

- Monitor all the key arc welding parameters
- Generate real-time reports track weld quality and compliance
- Remotely monitor welding operations to improve efficiency
- High accuracy and reliability
- Ensure that welds are consistently meeting quality standards
- Network connectivity
- Software packages for a variety of welding applications

Affordable and portable weld monitoring.

The MAL 4.0 is a state-of-the-art, wireless weld monitoring and data logging system that uses the latest technology to provide real-time data and connectivity.

TVC's user interfaces and software advancements enable operators to seamlessly exchange welding data at all levels, in compliance with IoT and Industry 4.0.

For training and assistance, remote assistance is provided as standard, while software updates are available anywhere in the world where the equipment is located.

All options can be retrofitted to the MAL 4.0. You can easily and quickly add new options to your system as your needs change.

- Battery-powered for easy portability and long-lasting use.
- Non-intrusive probes that do not disrupt the welding process.
- Standard voltage and current monitoring with options for other measurements.
- Options for wire feed, gas flow, travel speed, type 'K' contact temperature measurement, purge oxygen level, wireless laser depth (weld height) measurement, wireless multi-channel temperature measurement, wireless travel speed, and wireless wire feed tachometers.
- Optional pulse monitoring software for advanced weld quality analysis.
- Complete WPS programmable from root to cap
- Protected against TIG high frequency start interference.
- Network connection and USB ports for easy data transfer and storage.
- Wireless connectivity for remote monitoring and control.
- Specific operation and software packages for a variety of welding applications, including cladding, weld overlay, automatic, and robotic welding.
- Pipeline specific operation and software packages for welding in demanding environments.

- Auxiliary inputs configured to customer specification for customised welding solutions.
- RFID card user login/identification for secure access to the system.
- Bar code scanners for consumable identification for easy tracking of consumables.

The MAL 4.0 is a versatile and user-friendly welding data logger that can be used to monitor all the key arc welding parameters. It can be used anywhere, in the workshop or on remote sites, making it the most versatile and user-friendly welding data logger available today.

The standard software package for the unit allows it to monitor voltage, current, wire feed speed, travel speed, gas flow, temperature, purge oxygen levels, and automatically calculate heat input and energy.

The onboard printer option for the MAL 4.0 allows welding/QC engineers to produce hard copy prints of welding reports and specifications at the welding location. This, in conjunction with the unit's reporting software, enables them to produce real-time reports and specifications, which can be used to improve weld quality and compliance.

The MAL 4.0 can be used with all popular arc welding processes. It is protected against damage from the high frequency/high voltage start systems used by many TIG welding power sources, making it a safe and reliable choice for any welding application.

The MAL 4.0 is a durable and hard-working welding data logger that is designed to withstand demanding conditions. It can be used to monitor welding procedures, qualify welders, or perform precision welding of fine components and exotic materials in a laboratory setting.

Our optional Pulse Reporting Software makes it easy to monitor and report complex welding pulses. It calculates the peak and background values of the welding current and arc voltage, as well as the frequency and pulse width. The software also includes real-time pulse energy calculation and display, in accordance with ASME IX (2015), EEMUA Publication 158 (Third Edition), and PD ISO/TR 18491:2015.

Wireless connectivity: networking
The MAL 4.0 welding data logger offers wireless connectivity for both networking and connecting to purpose-designed transducers and sensors.

When connected to the TVC Edge Server, the MAL 4.0 can be used with TVC WeldGlobe software, allowing for remote welding data logging and display, as well as WPS storage and production monitoring. For full details on the network connectivity software for remote viewing of Production Welding, Procedure Qualification, Welder Qualification and Documentation Storage, please contact TVC.

Wireless connectivity: transducers and sensors
The MAL 4.0 Digital Wireless Sensor network allows battery-powered, application-specific transducers to be connected to the MAL 4.0 units. Currently, specialist wireless sensors and transducers are available for the following applications:

- Temperature, including multi-channel
- Wire feed speed
- Travel Speed
- Angle and position
- Gas flow measurement
- Depth (Weld Height)

With its state-of-the-art features and benefits, the MAL 4.0 can help you improve weld quality, compliance, and efficiency.

General Specifications

Applications	MMA/MIG/TIG (AC/DC)/SMAW/FCAW/SAW
Techniques	Manual/Semi-Auto/Fully-Auto/Robotic
Memory	Internal 128Gb
Screen	7-inch Full Colour TFT
Operating Temperature	0 - 50°C
Printer & Print Rates	External Dot Matrix, 2 x 1-60 secs User Selected Print Rates
Max Dimensions	355 x 255 x 188mm
Weight	9Kg (including Probes and Charger)
Battery Type	10.8V 6.6Ah Rechargeable Li-Ion Battery
Battery Charger	External 90-240V AC, Auto Selection, 3-4 Hour Charge Time

Standard Monitored Parameters

Average Current	15 - 1999A +/- 2% of FSD
Average Voltage	0 - 99.9V +/- 1% of FSD

Monitored Parameters with Optional Transducers

Average Wire Speed	0 - 30.0m/min +/- 2.5% FSD
Average Travel Speed	0 - 999cm/min +/- 1% FSD
Average Gas Flow	I0 - 120L/min +/- 5% FSD
Temperature	0 - 1000°C +/- 1% FSD
Arc Time	0.3 - 9999secs +/- 0.1%

Calculated Parameters

Arc Energy	1 - 9999kJ +/- 2% FSD +/- 1 Digit
Arc Time	0.3 - 9999secs +/- 0.1% FSD +/- 1 Digit
Heat Input	1 - 9999secs +/- 0.1% FSD +/- 1 Digit
Wire Speed	0 - 30.0m/min +/- 2.5% +/- 1 Digit
Wire Consumed	0.1 - 9999m/min +/- 2.5% FSD +/- 1 Digit
Traverse Speed	0.1 - 999cm/min +/- 1.0% FSD +/- 1 Digit
Temperature	0 - 1000°C +/- 1% of RDG +/- 1 Digit
Gas Flow	1 - 120Lt/min +/- 5.0% FSD +/- 1 Digit
Oxygen Level	1 - 50,000ppm (0.0001 - 5%) +/- 0.0001% FSD +/- 1 Digit
Weld Depth (Laser)	0.1 - 75mm +/- 0.1 FSD +/- 1 Digit

User Entered Data Parameters

Gas Flow	1 - 99.9L/min
Weld Length	0 - 9999mm

Full calibration certification provided, traceable to The National Physical Laboratory (NPL), UK. UKAS 17025 calibration available on request.

The Validation Centre (TVC) Limited reserves the right to alter or change product specifications without prior notice. Images are representative of full optional additions installed; delivered equipment and software may vary depending on options purchased.

TVC

THE VALIDATION CENTRE (TVC) LIMITED

Unit 15, Brinell Way, Great Yarmouth, Norfolk,
NR31 0LU, United Kingdom

+ 44 (0) 1493 443800

sales@tvcalx.co.uk

www.tvcalx.co.uk

Contact

sales@tvcalx.co.uk

www.tvcalx.co.uk

+44 (0) 1493 443800

The Validation Centre (TVC) Ltd
Unit 15, Brinell Way
Great Yarmouth
Norfolk
NR31 0LU
UK