

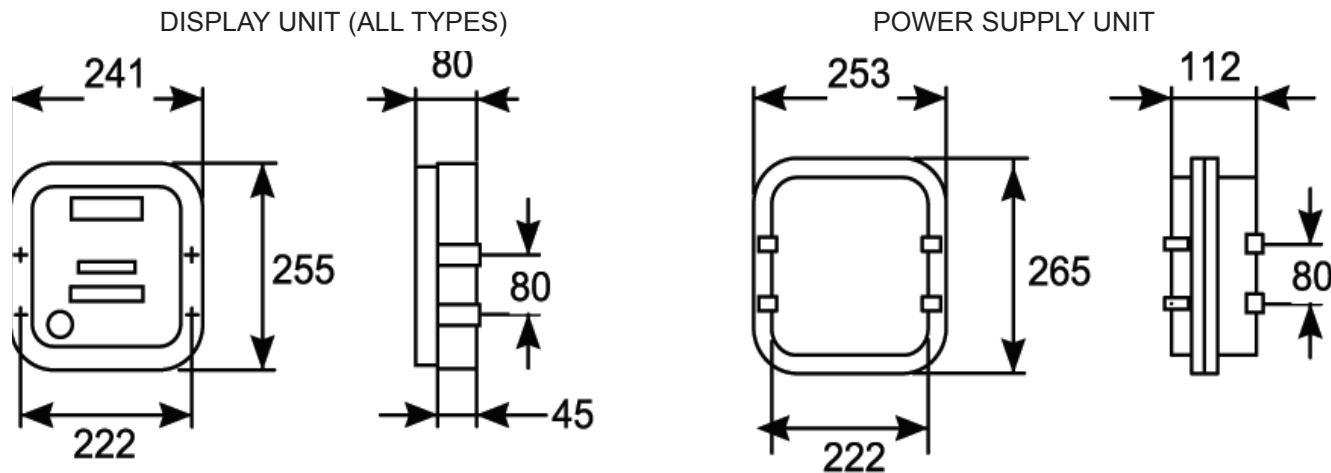


# MASTERLOAD II Electronic Meter Controller for Aircraft Refuelling Vehicles



<b>Sealing</b>	All units are designed for outdoor use and are sealed to specification IP 65.
<b>Security</b>	Watchdog circuitry Full wire sealing Automatic Error Checking Alarm reporting Data Storage for 40 transactions
<b>Operating Temperature (excluding transmitter)</b>	-20 to 40 deg C
<b>Transmitter</b>	
Temperature	-30 to 120 deg C
Fitting	Universal sealed to replace Veeder Root Head. Direct drive available for most makes of meter
Approval	EN ISO 6551-1995 Level A
Channels	3 Independent
Security	Sense Line
<b>Humidity</b>	up to 100%
<b>Safety Classification</b>	Zone 1
Approval	EEx ib IIA T4 Certificate Ex 94C2542 Power Supply Unit is fully flameproof EExd
<b>Temperature Probe PRT</b>	
Accuracy	+/-0.1 deg C
Discrimination	0.1 deg C
Range	-30 to 120 deg C
Set up	Factory set (no adjustment required)
Alarm limits	Programmable
Display	deg F or deg C selectable
Compensation	15, 20 or 31.5 deg C
<b>Location</b>	Flexible fitting max 50 metres between units

<b>Product Correction Tables</b>	IP/ASTM Table Selection to specification IP65. Generalised Crude (A Tables) Generalised Products Table 54 Table 53
<b>Display</b>	LCD Batch Min. volume - one unit 6 figures standard units, 4 + 2 decimal places selectable Max. frequency 2500 Hz
Flowrate	Sampled every 0.6 secs
Totaliser	8 figure
Remote Display	Max of 4 displays (various displayed data)
Interfaces	RS422 7 switch monitoring contacts Auto Calibration Port
ID Mode	Simple password entry
<b>Delivery Override</b>	Key Operated IP 65 Box (option)
<b>Power Supply</b>	12/24V DC
Relays	Max of 11 plug-in Typical - 1 Deadman Pulse output
Inputs	4 x (4-20mA)
<b>Power Consumption</b>	350mA max. (excluding relays)
<b>Linearisation</b>	1, 2, 4 or 8 selectable Full dynamic interpolation Accuracy +/- .02 @ measuring condition and 15 deg C if temperature compensation fitted
<b>Manual Input</b>	Density for weight indication
<b>Non Volatile Memory</b>	



The Avery Hardoll **MASTERLOAD II** is a powerful and versatile microprocessor based electronic meter controller. The unit is capable of enhancing the performance of most makes of positive displacement and turbine meters.

- Temperature compensation to ASTM tables
- Accurate, dynamic meter calibration tables
- Automatic calibration
- Flexible installation
- Interface to Deadman system
- Two way data interchange to Flowmaster and other data capture systems
- Interface to a range of ancillary equipment with 4-20 mA output



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**A Flight Refuelling company**



A Collective Member of  
**IP** THE INSTITUTE OF PETROLEUM

**MASTERLOAD II** is an intrinsically safe system ideal for use in Zone 1 hazardous areas. The system is comprised of a pulse transmitter mounted on the meter, a display unit giving readouts of batch volume, flow rate and a totaliser.



PULSE TRANSMITTER

**DISPLAYS** of Batch delivery, rate of flow / temperature and totaliser are clearly displayed on large figure Liquid Crystal Displays (LCD's). These displays may easily be configured at site to show a range of alternative values such as volume corrected to 15, 20 or 31.5 deg C. Up to three Additional display enclosures, with either repeat or supplementary information can be installed at convenient locations.

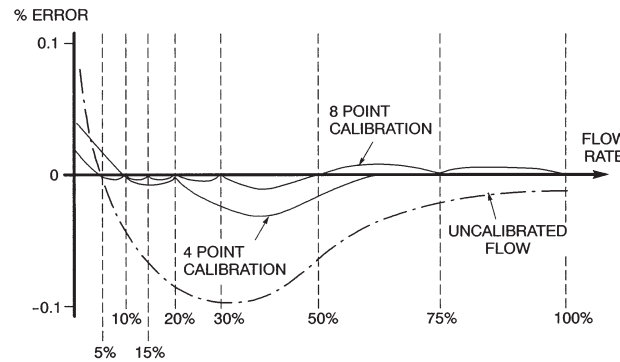
**Retro fit:** Masterload has been widely used to enhance the performance of most makes of positive displacement and turbine meters and can be supplied with new equipment or as a retrofit to existing meters.

**Masterload Flexibility**

Masterload allows the meter to be installed in any convenient position on the vehicle provided service access is maintained. The display unit is mounted to suit the operator.

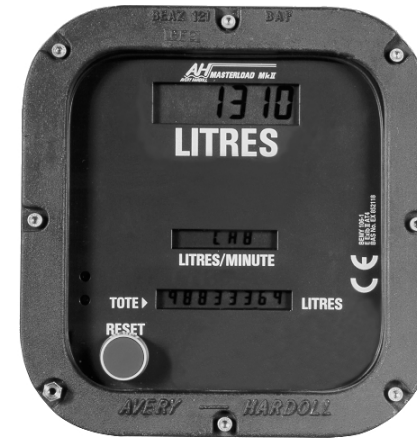
The Masterload two-way Data Interchange allows connection to Flowmaster or most other vehicle information and data capture systems. For more information on Flowmaster ask for DATA SHEET No. AH001.

**DYNAMIC CALIBRATION** provides accurate error correction across the entire flow range. Most meters are calibrated at only 1 flow rate - generally 100%. In reality, meters operate at a variety of flow rates. Masterload calibration is corrected at all flow rates to provide the highest level of accuracy. With a choice of 1, 2, 4 or 8 calibration points across the flow range - the system allows the user the flexibility to configure each Masterload to suit the requirements of his own application. Masterload performs a curve fitting exercise to provide the required correction.



TYPICAL ERROR CURVES

**TEMPERATURE COMPENSATION** is an optional facility providing a range of temperature related displays. Using a Platinum Resistance thermometer (PRT), the display may be configured to show product temperature or mean batch temperature. Alternatively, full temperature correction to standard temperature or to the IP/ASTM tables 53 and 54 may be configured.



DISPLAY UNIT



DISPLAY UNIT FITTED WITH AUTOCAL LINK

**DATA COMMUNICATION** to RS422 specification offers comprehensive two way data communication between the meters and a variety of Vehicle systems allowing data flow from the meter to the system and user input passed back to the meter. Approved to EN ISO 6551-1995 Level A, Masterload offers the highest level of data security available.

**VOLUME TO WEIGHT CONVERSION** provides a reading in weight. Available as either a simple manually entered density figure for low cost batch conversion or a dynamic input from an in-line densitometer which when linked to temperature correction offers the highest level of accuracy.

**DEADMAN INTERFACE.** The Power Supply Unit provides a permanent signal to the Deadman circuit. If an error occurs, the signal is removed and the Deadman shuts the fuelling off.

