

PRODUCTS - Measurement

MASTERLOAD II Electronic Meter Controller for Aircraft Refuelling Vehicles



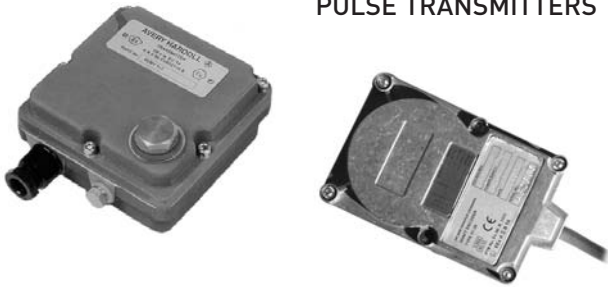
The Avery-Hardoll MASTERLOAD II is a powerful and versatile microprocessor based electronic meter controller. The unit is capable of enhancing the performance of most makes of positive displacement meters.

- Temperature compensation to ASTM tables
- Readout in weight using a Densitometer or manual S.G. entry
- Automatic calibration
- Interface to deadman system
- Interface to a range of 4-20 mA ancillary equipment
- Accurate, dynamic meter calibration
- Flexible installation
- Two way data interchange to Cab mounted data capture systems

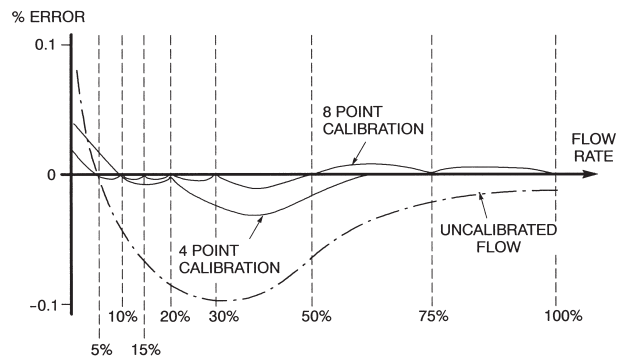
MASTERLOAD II is an intrinsically safe system ideal for use in Category 2 hazardous areas. The system is comprised of a pulse transmitter mounted on the meter, a display unit giving readouts of batch volume, flow rate and a totaliser.

DYNAMIC CALIBRATION provides accurate error correction across the entire flow range. Most meters are calibrated at only one 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.

PULSE TRANSMITTERS



DISPLAYS of batch delivery, rate of flow and totaliser are given 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 reference temperature. Additional display enclosures, with either repeat or supplementary information can be installed at convenient locations.



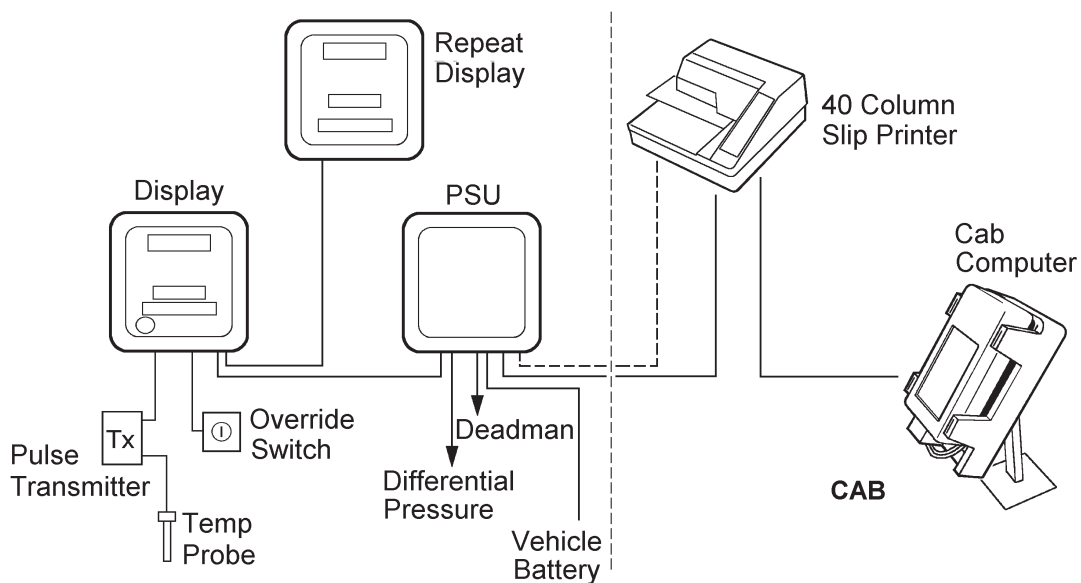
TYPICAL ERROR CURVES

Retro fit: Masterload has been widely used to enhance the performance of most makes of positive displacement meters and can be supplied as a retrofit to existing mechanical meters.

Masterload Flexibility

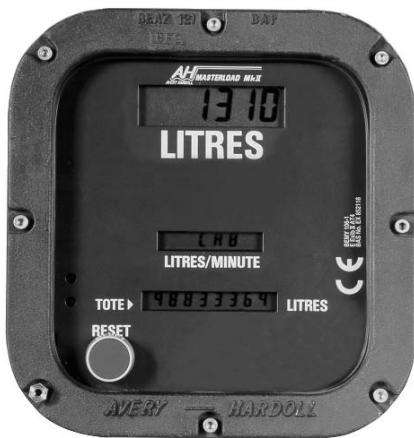
Masterload allows the meter to be installed in any convenient position since the display unit may be mounted to suit the operator.

The Masterload two-way data Interchange allows connection to most cab mounted information and data capture systems.



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.

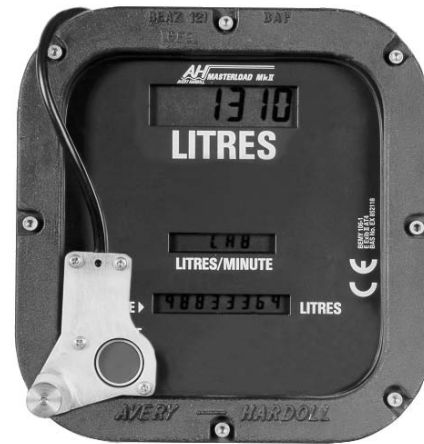
VOLUME TO WEIGHT CONVERSION provides a reading in weight. Available as either a simple manually entered density figure for low cost batch conversion or a dynamic input from an in-line densitometer which when linked to temperature correction offers the highest level of accuracy.



DISPLAY UNIT

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.

AUTOMATIC CALIBRATION when calibrated against a masterload reference meter. A simple infra-red connection links any Masterload meter to a Masterload reference meter. This allows calibration to be carried out completely automatically thus reducing down time, volume of product passed and the potential for human error. Calibration certificates are computer generated to the IP or customer's own specification.



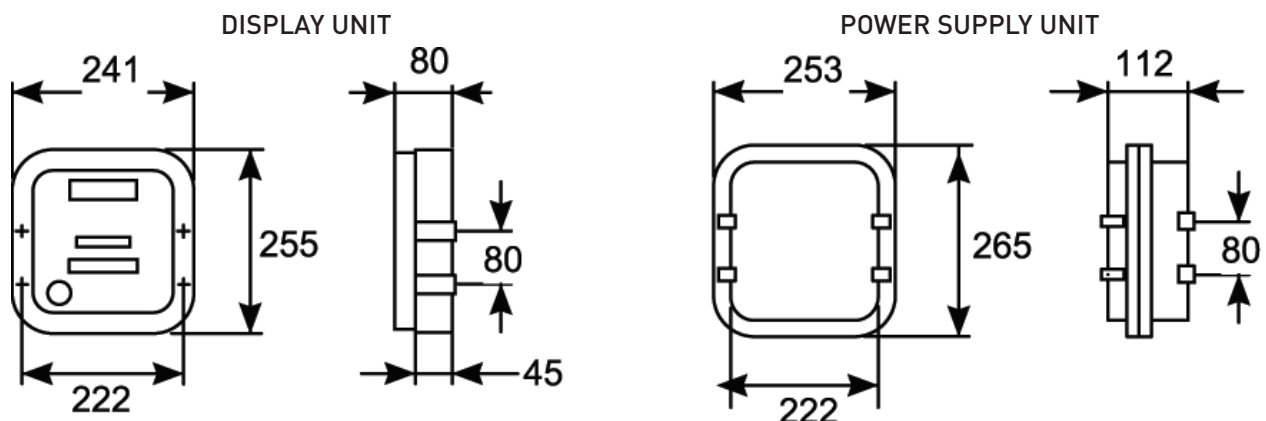
DISPLAY UNIT
FITTED WITH AUTOCAL LINK

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.

SPECIFICATION

Sealing	All units are designed for outdoor use and are sealed to specification IP 65.	Location	Flexible fitting (max 50 metres between units)
Security	Full wire sealing Automatic Error Checking Alarm reporting Data storage for 40 transactions	Product correction tables	IP/ASTM table selection to specification IP65. Generalised crude (A Tables) Generalised products Table 54 Table 53
Operating Temperature (excluding transmitter)	-20 to 40 deg C	Display	LCD
Transmitter		Batch	Min. volume - one unit six figures standard units, (2 decimal places selectable)
Temperature	-30 to 120 deg C	Flowrate	Sampled every 0.6 secs
Fitting	Direct drive available for most makes of meter	Totaliser	eight figure
Approval	EN ISO 6551-1995 Level A	Remote Display	Max of three remote displays (various displayed data)
Channels	three independent	Interfaces	RS422
Security	Sense line		seven switch monitoring contacts Auto calibration port
Humidity	up to 100%	ID Mode	Simple password entry
Safety Classification	Category 2	Delivery override	Key operated IP 65 box (option)
Atex Approvals		Power supply	12/24V DC
Power supply unit (flameproof)	II 2 G EEx d IIB T6	Relays	Max of 11 plug-in Typical - one Deadman Pulse output 4 x (4-20mA)
Certificate No.	ITS04ATEX11903	Inputs	
Display Unit	II 2 G EEx ib IIB T4	Power consumption	350mA max. (excluding relays)
Certificate No.	BAS02ATEX2199	Linearisation	1, 2, 4 or 8 selectable Full dynamic interpolation Accuracy +/- .02 @ measuring condition and 15 deg C if temperature compensation fitted
Temperature Probe PRT		Manual input	Density for weight indication
Accuracy	+/-0.1 deg C	Non volatile memory	Infinite data retention
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		

DIMENSIONS



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