

Quick Reference Guide

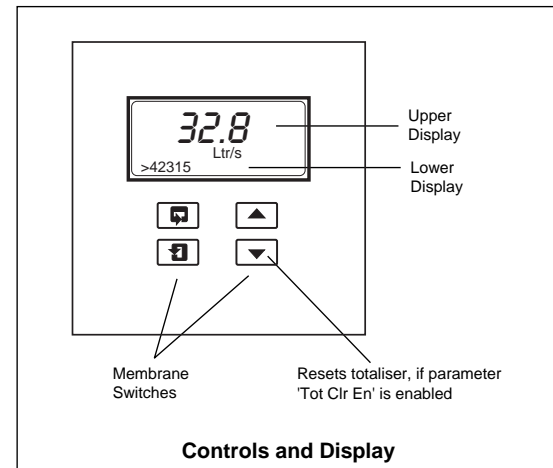


MagMaster™ Electromagnetic Flowmeters Keypad Version

IM/MM/QRG Issue 3 (12.04)



CONTROLS AND DISPLAY



Upper display gives continual update of flow rate in selected units.

By pressing the key, the lower display steps through the following sequence:

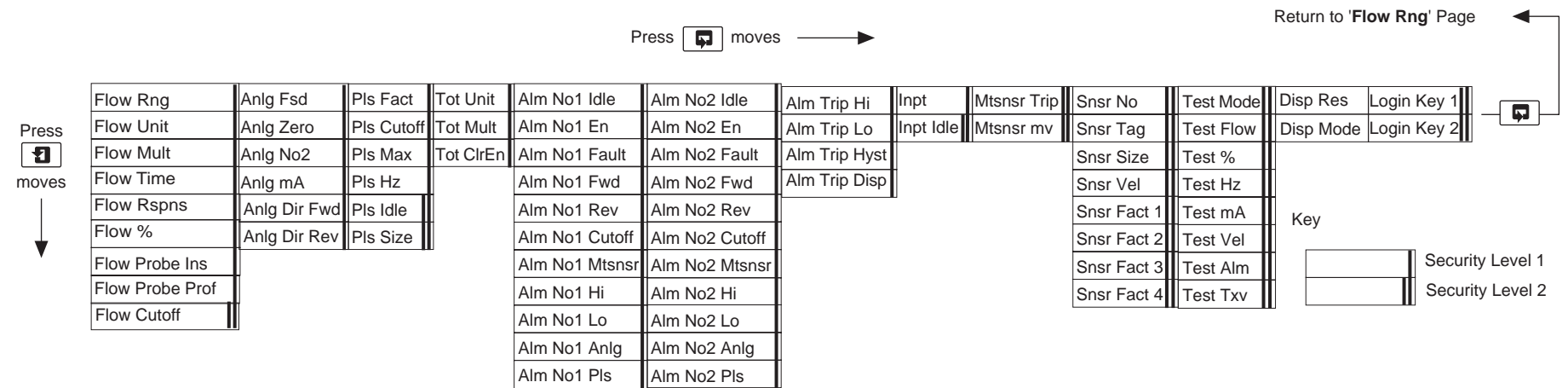
- > Forward flow total value.
- < Reverse flow total value
- * Net flow total value
- Alm** Active alarms – Any alarms are displayed sequentially if more than one alarm is present. 'Alm Clr' is displayed when no alarms are present.
- Vel** Flow Velocity
- % % of Flow Range.

Pressing the key resets the flow total displayed on the upper display, if parameter 'Tot Clr En' is enabled.

Pressing the key accesses the **Login** Parameter where it is necessary to enter a security code before any other parameters can be accessed – see **SECURITY ACCESS**.

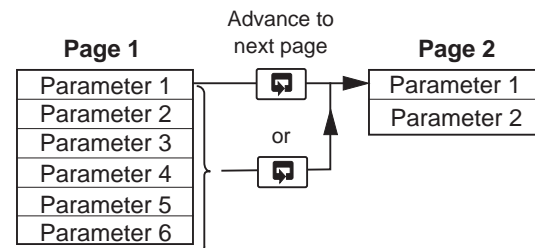
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MENU LAYOUT

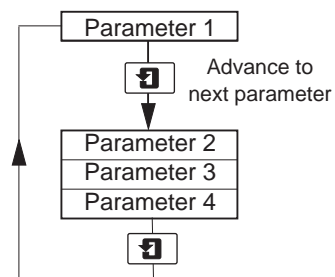


CONTROLS AND DISPLAY

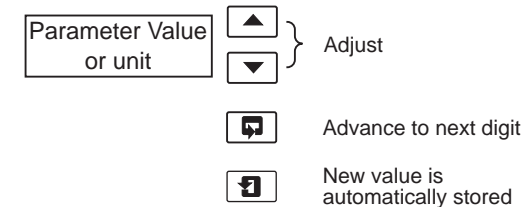
A – Advancing to Next Page



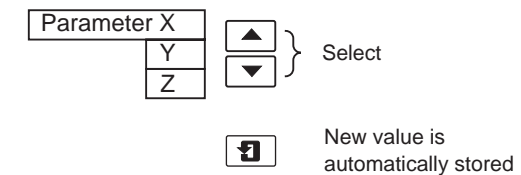
B – Moving Between Parameters



C – Adjusting and Storing a Parameter Value



D – Selecting and Storing a Parameter Choice



Depressing this switch for 5 seconds and then releasing it will exit the menu system and return to normal operating mode.

SECURITY ACCESS

Two security code levels, 1 and 2, are available, and are each accessed with a five digit number.

User Code Level 1 default number is 10760.

Engineer Code Level 2 default number is 56360.

Parameters accessible by the two levels are shown above.

At the flashing cursor on the first digit of the Login code number, press either or membrane switches to reach the required digit.

To set this digit and pass to the next digit, depress the switch. Continue until all digits have been set, and depress the switch to enter the complete code.

If an incorrect value is entered, access to subsequent programming pages is prevented and the display reverts to the **Operating Page**.

PARAMETER CHANGES

When a parameter is selected, which holds one or more variable units e.g. 'Flow Unit' parameter which can be Liters, Cubic meters, Gallons etc., proceed as follows to change the units: ('Flow Rng' selected).

'Flow Unit' selected

Press or switch to change the units.

Note. The existing units will flash at the first depression of the or switch, and further switch depressions will change the type of units displayed.

Depressing the switch will now enter the newly selected units.

This type of action is similar for all variable units.

Where numerical values are to be changed, initial depression of the or switches cause the first of five digits to be highlighted by a flashing cursor. Change the value with the and switches, the particular digit with the switch, and enter the final selection with the switch.

PROGRAMMING

The correct security level **MUST** be selected – see **SECURITY ACCESS**.

Select the parameter to read the value, or to change it as necessary. All 'live' data displayed is updated each second.

Use the key to move between pages.

Use the key to move between parameters.

The and keys change displayed values and units.

The key will accept the chosen value or unit.

FLOW MEASUREMENT

PARAMETER	DESCRIPTION																		
Flow Rng	Enter main full scale (100%) flow range (Upper Range Value) in selected flow units. # Select Units as required. Ltr (Liters) m^3 (Cubic Meters) IGal (Imp Gals) UGal (U.S. Gals) ft^3 (Cubic Feet)																		
Flow Unit																			
Flow Mult	Select multiplier as required. m (0.001) c (0.01) x1 (1) h (100) k (1000) M (1000000)																		
Flow Time	Select time units as required. s (Second) Min (Minute) Hr (Hour) Dy (Day) Wk (Week)																		
Flow Rspns	Nominal Time Constant for output. Enter Display Setting from table below for time constant required.																		
	<table border="1"> <thead> <tr> <th>Display Setting</th> <th>Seconds</th> </tr> </thead> <tbody> <tr><td>2</td><td>2</td></tr> <tr><td>3</td><td>3</td></tr> <tr><td>4</td><td>4</td></tr> <tr><td>5</td><td>8</td></tr> <tr><td>6</td><td>15</td></tr> <tr><td>7</td><td>30</td></tr> <tr><td>8</td><td>60</td></tr> <tr><td>9</td><td>120</td></tr> </tbody> </table>	Display Setting	Seconds	2	2	3	3	4	4	5	8	6	15	7	30	8	60	9	120
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2	2																		
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8	60																		
9	120																		
Flow %	Present flow as % of range.																		
Flow Probe Ins	Probe Insertion Factor.																		
Flow Probe Prof	Probe Profile Factor																		
Flow Cutoff	Flow velocity in mm/sec. below which flow set to 0.																		

ANALOG OUTPUT

PARAMETER	DESCRIPTION
Anlg Fsd	Enter output current in mA for 100% flow ($0 \leq \text{FSD} \leq 21$)
Anlg Zero	Enter output current in mA for 0% flow ($0 \leq \text{ZERO} \leq 21$)
Anlg No2	Full scale flow range for 2nd analog range, as % of main flow range.
Anlg mA	Present output current (mA)
Anlg Dir Fwd	Output responds to forward flow if set to '1'. §
Anlg Dir Rev	Output responds to reverse flow if set to '1'. §

OUTPUT PULSE

PARAMETER	DESCRIPTION
Pls Fact	Enter required output pulses per flow volume unit.#
Pls Cutoff	Flow rate (%) below which pulse output and totaliser cease to operate. Maximum output frequency in Hz.
Pls Max	Display of present output frequency in Hz (live value).
Pls Hz	
Pls Idle	Idle state for Pulse Output with no output pulse (e.g. at zero flow). 0 = Low (output transistor ON) 1 = High (output transistor OFF)
Pls Size	Enter output pulse width in msecs. (Value will be rounded up to nearest 10ms). Set to '0' for square wave output.

TOTALIZER

PARAMETER	DESCRIPTION
Tot Unit	Select totaliser measurement units.
Tot Mult	Select multiplier units required.
Tot ClrEn	Enter '1' to enable totaliser reset function to be used from front panel.

ALARMS

PARAMETER	DESCRIPTION
Alarm No1 Idle	Idle state for alarm output. With no alarm active: 0 = Low (O/P transistor ON) 1 = High (O/P transistor OFF)
Alm No1 En	0 = Alarm output disabled (set to idle state). 1 = Alarm output enabled.
Alm No1 Fault	Alarm occurs for System fault.
Alm No1 Fwd	Alarm occurs for forward flow.
Alm No1 Rev	Alarm occurs for reverse flow.
Alm No1 Cutoff	Alarm occurs for Pulse Output Cutoff.
Alm No1 Mtsnsr	Alarm occurs for empty sensor.
Alm No1 Hi	Alarm occurs for Flow \geq 'Alm Trip Hi'.
Alm No1 Lo	Alarm occurs for Flow \leq 'Alm Trip Lo'.
Alm No1 Anlg	Alarm occurs for Analogue Output over range.
Alm No1 Pls	Alarm occurs for Pulse Output over range.

ALARMS (CONTD.)

PARAMETER	DESCRIPTION
Alarm No2 Idle	Identical to, but independent of Alarm No1 above.
Alarm No2 Pls	Alarm occurs for Pulse Output over range.
Alarm No2 Hi	High flow alarm trip point as % of range.
Alarm Trip Lo	Low flow alarm trip point as % of range.
Alm Trip Hyst	Enter hysteresis for alarms as % of range.
Alm Trip Disp	Set to '1' if Hi/Lo Alarms are to be displayed.

INPUT CONTACT

PARAMETER	DESCRIPTION
Inpt	Set up external logic input function: 'Zero' sets flowrate output to zero. 'Hid' holds flowmeter output value. 'Clr' resets all totalizers. 'Anlg' selects Anlg No2 Range.
Inpt Idle	Enter inactive state of input contact: '1' for Hi normal '0' for Lo normal.

EMPTY PIPE DETECTION

PARAMETER	DESCRIPTION
Mtsnsr Trip	Set empty pipe detector trip threshold.
Mtsnsr mV	Measured value related to fluid conductivity.

SENSOR CALIBRATION

PARAMETER	DESCRIPTION
Snsr No	Serial No. (Up to 13 characters)
Snsr Tag	Tag No. (If required).
Snsr Size	Sensor calibrated bore (mm).
Snsr Vel	Display of present velocity.
Snsr Fact 1	Sensor calibration data – should agree with sensor data label
Snsr Fact 2	
Snsr Fact 3	
Snsr Fact 4	

TEST MODE

PARAMETER	DESCRIPTION
Test Mode	Set to '1' to enable.
Test Flow	Displays present flowrate. If in 'Test Mode', any value may be entered manually. ‡
Test %	Flowrate as a percentage
Test Hz	Output Frequency
Test mA	Output Current
Test Vel	Flow Velocity in sensor
Test Alm	Shows present active alarms sequentially. ('Clr' indicates no alarms are active). Ø
Test Txv	Live flow velocity (uncorrected for sensor calibration).

DISPLAY RESOLUTION

PARAMETER	DESCRIPTION
Disp Res	Enter number of decimal places required on flow display (0 to 5).
Disp Mode	Serial Communication display mode (Read Only) – attempts to edit this parameter result in display of 'Keypad Version No.' with eventual return to normal operation.

SECURITY PASSWORD

Caution. Access is **NOT** possible without the correct password. 'Lost' passwords can **ONLY** be reset by the Service Engineer.

Login Key 1	Set Level 1 security password.
Login Key 2	Set Level 2 security password.

The maximum which can be entered must not exceed 21000. The value entered may be displayed with a small error in the decimal digits e.g. 1.900 may be displayed as 1.899. This is a display characteristic and the value 1.900 will be used by the MagMaster.

§ Select both parameters for bidirectional operation (e.g. when dual current output is fitted). If both are zero, then *lowt* is always 0%.

‡ On performing a Rapid Reset/Escape to return to 'Operation' level, 'Test Mode' is automatically cancelled.

Ø If the sensor is empty or disconnected, the alarms 'Mtsnsr' and 'Coil' will be displayed as appropriate.