MULTISPAN

FLOW CONTROLLER
MFC-1058

TECHNICAL SPECIFICATION

INPUT SPECIFICATION:

Input	Current : 4 TO 20mA DC
Resolution	Decimal Point Selectable: 00000/0.0000/00.000/000.00/0000.0 (For Flow rate) & Total Flow
Range Limits	0 to 99999999 For Total Flow 0 to 99999 For Flow Rate

DISPLAY AND KEYS:

Display	Upper: 8 digit, 7 seg, 0.5" Red (For Total Flow) Lower: 5 digit, 7 seg, 0.4" Green (For Flow rate)
Keys	SET, ENT , SHIFT , UP

DIMENSION:

Size	96 (H) x 96 (W) x 54 (D) mm
Panel Cutout	92 (H) x 92 (W) mm

GENERAL SPECIFICATION:

Memory	Non Volatile
Reset Option	Front Panel Reset & Back Terminal Reset

OUTPUT SPECIFICATION:

Relay Output	
Relay	2 nos.
Relay Type	1 C/O (NO-C-NC)
Rating	5A, 230V AC
Modbus Output	
RS-485 Modbus Communication	
Transmitter Supply	
24V DC	
Retransmission	
4 to 20mA DC	

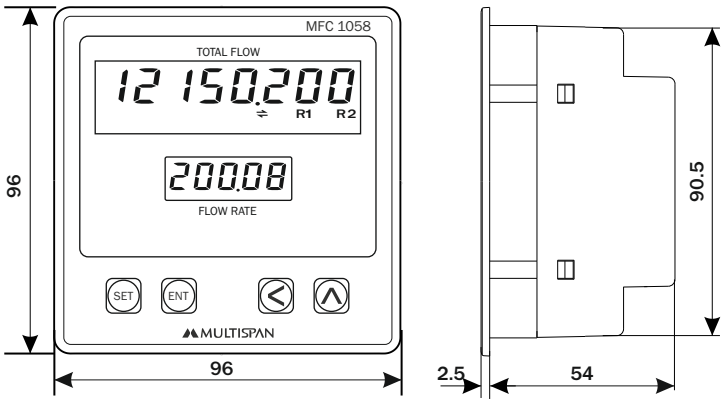
AUXILIARY SUPPLY:

Supply voltage	100 to 270V AC, 50-60Hz
Power consumption (VA RATING)	Approx 6VA @ 230V AC MAX

ENVIRONMENT CONDITION:

Operating Temp.	0°C to 55°C
Relative Humidity	UP to 95% RH (non-condensing)
Protection Level	IP-65 (Front side) As per IS/IEC 60529 : 2001

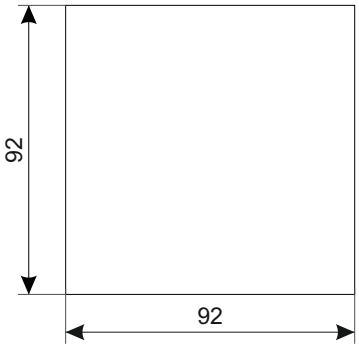
MECHANICAL INSTALLATION



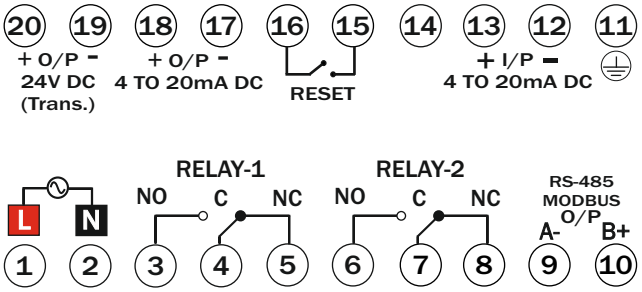
FRONT VIEW **RIGHT SIDE VIEW**

All dimensions are in mm

Panel Cutout



TERMINAL CONNECTION



KEY OPERATION

FUNCTION	PRESS KEY
OPERATOR MODE	
To enter in parameter setting mode	SET + < (For Relay Run mode selection)
	SET (For selected Relay Run mode setting)
To View Grand Total flow	<
To Reset Grand Total	< + ENT
To Reset Total Flow	ENT
PARAMETER SETTING MODE	
To set parameter value and move to next step	SET
It will select the digit to modify, when value is edited	<
To change parameter value	^
Set parameter to be save & exit	ENT

INSTALLATION GUIDELINES

1. This equipment, being built-in-type, normally becomes a part of main control panel and in such case the terminals do not remain accessible to the end user after installation and internal wiring.
2. Do not allow pieces of metal, wire clippings, or fine metallic fillings from installation to enter the product or else it may lead to a safety hazard that may in turn endanger life or cause electrical shock to the operator.
3. Circuit breaker or mains switch must be installed between power source and supply terminal to facilitate power 'ON' or 'OFF' function. However this mains switch or circuit breaker must be installed at convenient place normally accessible to the operator.
4. Use and store the instrument within the specified ambient temperature and humidity ranges as mentioned in this manual.

MECHANICAL INSTALLATION GUIDELINES

1. Prepare the panel cutout with proper dimensions as shown above.
2. Fit the unit into the panel with the help of clamp given.
3. The equipment in its installed state must not come in close proximity to any heating source, caustic vapors, oils steam, or other unwanted process byproducts.
4. Use the specified size of crimp terminal (M3.5 screws) to wire the terminal block. Tightening the screws on the terminal block using the tightening torque of the range of 0.5 N.m.
5. Do not connect anything to unused terminals.

MAINTENANCE

1. The equipment should be cleaned regularly to avoid blockage of ventilating parts.
2. Clean the equipment with a clean soft cloth. Do not use isopropyl alcohol or any other cleaning agent.
3. Fusible resistor must not be replaced by operator.

SAFETY PRECAUTION

All safety related codifications, symbols and instructions that appear in this operating manual or on the equipment must be strictly followed to ensure the safety of the operating personnel as well as the instrument.

If all the equipment is not handled in a manner specified by the manufacturer, it might impair the protection provided by the equipment.

Read complete instructions prior to installation and operation of the unit.

WARNING : Risk of electric shock.

WARNING GUIDELINES

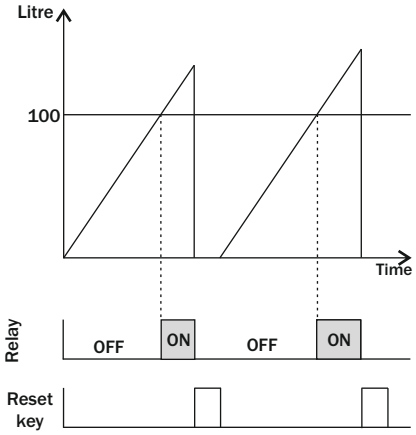
WARNING : Risk of electric shock.

1. To prevent the risk of electric shock, power supply to the equipment must be kept OFF while doing the wiring arrangement. Do not touch the terminals while power is being supplied.
2. To reduce electro magnetic interference, use wire with adequate rating and twists of the same of equal size shall be made with shortest connection.
3. Cable used for connection to power source, must have a cross section of 1mm^2 or greater. These wires should have insulations capacity made of at least 1.5kV.
4. A better anti-noise effect can be expected by using standard power supply cable for the instrument.

OPERATING MODE FUNCTION

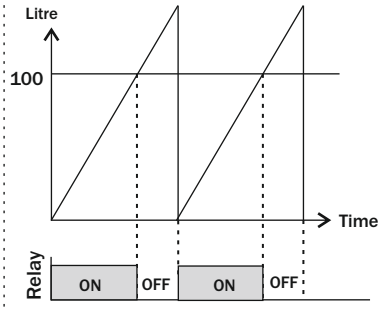
1) **Total flow Set = 100 Litre**
Time = 00.0 sec
Mode = Delay on

Example Of Delay ON Mode



Example Of Delay Off Mode

2) **Total Flow Set = 100 Litre**
Time = 05.0 sec
Mode = Delay Off

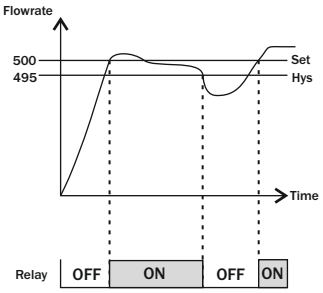


DELAY ON AND DELAY OFF FUNCTION

In Delay ON mode Relay will turn ON at setpoint and in Delay OFF mode Relay will turn ON till setpoint reach.

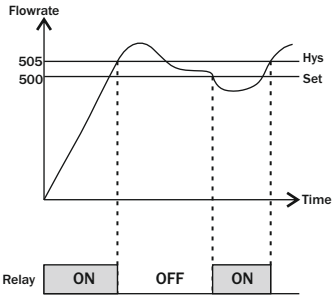
High Alarm

Set = 500 Flowrate
Hys = 5
Mode = H-AL



Low Alarm

Set = 500 Flowrate
Hys = 5
Mode = L-AL



PARAMETER MESSAGE DESCRIPTION

PASS	Password
SEt	Setpoint for total flow or flowrate
tIME	Relay time
MOdE	Relay operating mode
HYS	Hysterisis
rELY	Relay working on Total flow Or Flow Rate
rStP	Password protection For Reset Parameter
Lrng	Low Range
Hrng	High Range
dP	Decimal Point
OFSt	Offset
CF	Correction Factor
SLL	Set Low Limit
Mode	Mode
dELAY-On	Relay works on delay on mode
dELAY-OF	Relay works on delay off mode
H-AL	High alarm mode
L-AL	Low alarm mode
LPS	Liter per second
LPM	Liter per minute
LPH	Liter per hour
M3H	Meter Cube hour
M3S	Meter Per Second
M3M	Meter Per Minute
KGPS	Kilo Gram Per Second
KGPM	Kilo Gram Per Minute
KGPH	Kilo Gram Per Hour
nOnE	None : No Password For Parameter Setting
FIrSt	First : Password High Priority For Parameter Setting
SECOnd	Second : Set Point After Password For Parameter Setting
tOtLFLO"	Relay works on Total flow
FLO"rAtE	Relay works on Flow Rate
nOnE	No Relay Working
Addr	Address
bAUd	Baudrate
PrtY	Parity
dAtA	Datatype
rLr	Retransmission Low Range
rHr	Retransmission High Range
StPbt	Stop bit
btSUP	Byte swapping
LEbtSUP	Little Endian Byteswap
LEbt	Little Endian
bEbtSUP	Big Endian Byte Swap
bEbt	Big Endian

RLY RUN MODE SELECTION PASSWORD

Press (SET) + (<) key

PASS 25 — Password 25

Press (SET) key

Relay Run Mode Selection: rlMod TOTALFLOW/Flow Rate/ None — change by (^) key

Press (SET) key

Relay Run Mode Selection: r2Mod TOTALFLOW/Flow Rate/ None — change by (^) key

Press (SET) key

Password setting For Parameter: PArty First/Second/ None — change by (^) key

Press (ENT) key to save & exit

To Reset Total Flow

Press (ENT RESET) key

PASS 5 — Password = 5

Press (^) key to select Password

Press (ENT RESET) key to Reset

BASIC CONFIGURATION

Press (SET) key

PASS 25 — Password 25

Press (SET) key

Case 1 : RLY 1- Total Flow & RLY 2- Flow Rate
Case 2 : RLY 1- Flow Rate & RLY 2- Total Flow
Case 3 : RLY 1- Total Flow & RLY 2- None
Case 4 : RLY 1- Flow Rate & RLY 2- None
Case 5 : Both Relay Total Flow
Case 6 : Both Relay Flow Rate

Press (SET) key

LrnG 00000 — 0 to High range

Press (SET) key

HrnG 10000 — IOW Rang to 99999

Press (SET) key

dP 00000 — 0000.0/000.00/00.000/0.0000

Press (SET) key

OFSET 0 — -9999 TO 9999

Press (SET) key

CrFC 0 — -9999 TO 9999

Press (SET) key

SLL 3.5 — 0.0 TO 5.0

Press (SET) key

Unit LPS — /LPM/LPH/M3S/M3M/ M3H/KGPS/KGPM/KGPH Addition

Press (SET) key

rLr 10000

Press (SET) key

rHr 1000

Press (SET) key

Addr 001 — 1 to 127

Press (SET) key

bAUd 9600 — 19200,38400,115200, 2400,4800

Press (SET) key

PrtY nonE — /Even/Odd

Press (SET) key

StPbt STOPbit1 — Stop bit2

Press (SET) key

dATA LOng — /Float

Press (SET) key

btSUP LEbtSUP — /LEBT / bebt SVP / bebt

Case 1 : RLY 1- Total Flow & RLY 2- Flow Rate

SET1 00010000

Press (SET) key

SET2 10000

Press (SET) key

rMod1 dLYOn/dLYOFF

Press (SET) key

HYS 0010

Press (SET) key

rMod2 H-AL/L-AL

Press (SET) key

tIME 0000.0

Case 2 : RLY 1- Flow Rate & RLY 2- Total Flow

SET1 10000

Press (SET) key

SET2 00010000

Press (SET) key

HYS 0010

Press (SET) key

rMod1 H-AL/L-AL

Press (SET) key

rMod2 dLYOn/dLYOFF

Press (SET) key

tIME 0000.0

Case 3 : RLY 1- Total Flow & RLY 2- None

PASS 0025

Press (SET) key

SET 00010000

Press (SET) key

rMod dLYOn/dLYOFF

tIME 0000.0

Case 4 : RLY 1- Flow Rate & RLY 2- None

PASS 0025

Press (SET) key

SET 10000

Press (SET) key

HYS 0010

Press (SET) key

rMod H-AL/L-AL

Case 5 : Both Relay Total Flow

PASS 0025

Press (SET) key

SET1 00010000

Press (SET) key

SET2 00010000

Press (SET) key

rMod1 dLYOn/dLYOFF

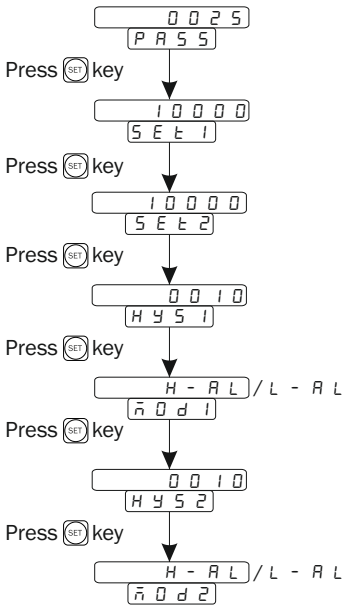
Press (SET) key

rMod2 dLYOn/dLYOFF

Press (SET) key

tIME 0000.0 — 000.0 - 999.9

Case 6 : Both Relay Flow Rate



MODBUS

Salve Address :	1 to 127
Baudrate :	2400,4800,9600,19200,38400,115200 bps
Parity :	None,Even,Odd
Datatype :	Long, Float
Read Function Register :	0x03,0x04
Write Function Register :	0x10

111111111 = Parameter is not available

Sr.No	Access Type	Parameter	Register Data Type Address
1	R	Total Flow Value	0
2	R	Total Flow DP Selection: Value 0000: 0 000.0: 1 00.00: 2 0.000: 3	2
3	R	Flow Rate	4
4	R	Grand Total Flow	6
5	R	Grand Total Flow DP Selection: Value 0000: 0 000.0: 1 00.00: 2 0.000: 3	8
6	R	Relay 1 Status Selection: Value ON: 1 OFF: 0	10
7	R	Relay 2 Status Selection: Value ON: 1 OFF: 0	12
8	R/W	Set Point 1	14
9	R/W	Set Point 2	16
10	R/W	Hysteresis 1	18
11	R/W	Hysteresis 2	20
12	R/W	Time 1	22
13	R/W	Mode 1 Selection: Value Delay OFF/Low: 1 Delay ON/High: 0	24
14	R/W	Mode 2 Selection: Value Delay OFF/Low: 1 Delay ON/High: 0	26
15	R/W	Low Range	28
16	R/W	High Range	30
17	R/W	Decimal Point Selection Selection: Value 0000: 0 000.0: 1 00.00: 2 0.000: 3	32
18	R/W	Offset	34
19	R/W	Correction Factor	36
20	R/W	Signal Low Limit	38
21	R/W	Flow Rate Unit Selection: Value LPS: 0 LPM: 1 LPH: 2 M3S: 3 M3M: 4 M3H: 5 KGPS: 6 KGPM: 7 KGPH: 8	40
22	R/W	Relay 1 Mode Selection: Value None: 0 Total Flow: 1 Flow Rate: 2	42
23	R/W	Relay 2 Mode Selection: Value None: 0 Total Flow: 1 Flow Rate: 2	44
24	R/W	Password Priority Selection: Value None: 0 First: 1 Second: 2	46
25	R/W	RT Low Count	48
26	R/W	RT High Count	50
27	R/W	Address	52
28	R/W	Baudrate Selection: Value 2400: 0 4800: 1 9600: 2 19200: 3 38400: 4 115200: 5	54
29	R/W	Parity Selection: Value None: 0 Even: 1 Odd: 2	56
30	R/W	Stop bit Selection: Value Stop bit 1: 0 Stop bit 2: 1	58
31	R/W	Data type Selection: Value Long: 0 Float: 1	60
32	R/W	byts swapping Selection: Value Lebsvp: 0 Lebt: 1 Bebtsvp: 2 Bebt: 3	62