Series OM Oval Gear Flowmeters

Authorized Distributor:

Clark Solutions
10 Brent Drive
Hudson, MA 01749
Toll Free: 800-253-2497
Tel: 978-568-3400
Fax: 978-568-0060
e-mail: sales@clarksol.com
www.clarksol.com

OM SERIES OVAL GEAR METERS METER NUMBER REFERENCE

SIZE

OM004	= 1/8 in.	(4mm)	0.13-9.5 GPH	0.5-36 L/hr
OM006	= 1/4 in.	(6mm)	0.5-27 GPH	2-100 L/hr
OM008	= 3/8 in.	(8mm)	4-145 GPH	15-550 L/hr
OM008	= 1/4 in. high pressure	(6 mm)	4-145 GPH	15-550 L/hr
OM015	= 1/2 in.	(15mm)	0.26-10.6 GPM	1-40 L/min
OM025	= 1 in.	(25mm)	2.6-40 GPM	10-150 L/min
OM040	= 1-1/2 in.	(40mm)	4-66 GPM	15-250 L/min
OM050	= 2 in.	(50mm)	8-120 GPM	30-450 L/min
OM080	= 3 in.	(80mm)	10-200 GPM	35-750 L/min
OM080	= 3 in. extended flow	(80mm)	13-260 GPM	50-1000 L/min
OM100	= 4 in.	(100mm)	20-400 GPM	75-1500 L/min

BODY MATERIAL

A = Aluminum
E = Extended flow aluminum version
P = PPS (73 PSI / 5 Bar)
M = Intermediate pressure aluminum meter (2000 PSI [138 Bar] max.)
S = 316L Stainless Steel
N = Intermediate press. 316L SS meters (OM004N-025N = 1450 PSI [100 bar] , OM040N-050N = 725 PSI [50 bar])
H = High Pressure 316SS (OM004H-040H = 5580 PSI [400 bar] max. OM050H = 4200 PSI [300 bar])

ROTOR MATERIAL

0 = PPS - PTFE filled (Polyphenylene Sulfide)
1 = Keishi cutting of PPS rotors (for high viscosity liquids)
5 = Stainless steel (standard on OM004 & OM006, optional on other sizes)
7 = Keishi cutting of stainless steel rotors (for high viscosity liquids)

BEARING TYPE

0 = No Bearing - PPS rotor option only
1 = Carbon Ceramic (standard with stainless steel rotors)

O-RING MATERIAL

1 = FKM (Viton™) (standard for Alum.) -5º F minimum (-15º C)
2 = EPR (Ethylene Propylene Rubber) - for ketones only
3 = PTFE encapsulated FKM (Viton™) - (standard for SS)
4 = Buna-N (Nitrile), -40º F minimum (-40º C)

MAXIMUM TEMPERATURE LIMIT

2 = 250º F (120º C) max.
(reduced to 80º C when fitted with integral instruments)

3 = 300º F (150º C) max.
(Hall Effect output only, not available with HP meters)

5 = 250º F (120º C) max. (includes integral cooling fin)

8 = 176º F (80º C) max.
(applies to Mech. Reg., OM025P & OM008 with PPS rotors)

Continued on next page.

OM SERIES OVAL GEAR METERS METER NUMBER REFERENCE

PROCESS CONNECTIONS

1 = BSPP (G) female threaded
2 = NPT female threaded
3 = Sanitary Fittings (Sanitary Fittings are 1/2" larger than the meter size)
4 = ANSI-150 RF flanged
5 = ANSI-300 RF flanged
6 = PN16 DIN flanged

CABLE ENTRIES

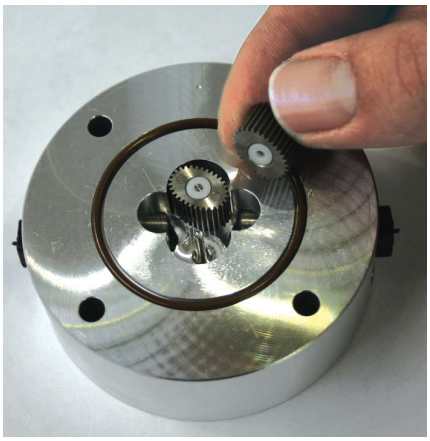
0 = 3-6mm cable gland or no cable entry [Exclusive to B2 & B3 options (OM004 to OM008 meter only)]
1 = M20 x 1.5 mm
2 = 1/2" NPT (OM004-OM008) 1/2" NPT Adaptor used for other sizes

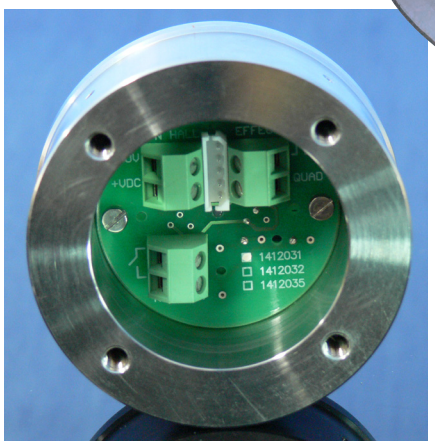
INTEGRAL OPTIONS

___ = Combination Reed Switch and Hall Effect Sensor
G5 = [GG 500] Rate / Total Display with pulse out and optional Ex. Power [Local Display w/ Pulse (60°C)]
G6 = [GX 500] Rate / Total Display w/ 4-20mA out [Local Display w/ 4-20mA (60°C)]
G7 = [GA 500] Loop powered 4-20mA analog output [Local 4-20mA (60°C)]
RS = Reed Switch only - to suit Intrinsically safe installations
E1 = Explosionproof Exd IIB T4/T6 (aluminum & stainless meters) [IECEx & ATEX mines approved]
E2 = Explosionproof Exd I/IIB T4/T6 (stainless meters only) [IECEx & ATEX mines approved]
QP = Quadrature pulse (2 NPN phased outputs) [not available with high press models]
Q1 = Explosionproof Exd (with quadrature pulse, but not available with high pressure meter) [IECEx & ATEX approved]
HR = High resolution Hall effect output (Hall Effect only) [OM004:11200ppL], OM006:4200ppL]
H1 = Explosionproof - Exd with HR Hi-res. Hall option [IECEx & ATEX approved]
PF = Pulsating flow option (Hall effect output only) [for injected combustion engines]
P1 = Explosionproof - Exd with PF pulsating flow option [IECEx & ATEX approved]
B2 = BT11 totaliser with pulse output [with scaleable pulse output]
B3 = Intrinsically safe BT11 with pulse output [IECEx & ATEX approved]
R0 = RT12 rate totaliser with all outputs (Alloy housing) [scaled pulse, alarms, 4-20mA]
R2 = RT12 rate totaliser with all outputs (GRN housing) [scaled pulse, alarms, 4-20mA]
R3 = Intrinsically safe RT12 with all outputs (GRN housing) [IECEx & ATEX approved]
R4 = RT40 rate totaliser with backlit large digit LCD [scaleable pulse output, backlight]
E0 = EB10 batch controller [2 stage DC batcher & totaliser]
M3 = 4-digit Mechanical Totalizer - litres [Resolution depends on size]
M4 = 4-digit Mechanical Totalizer - gallon [Resolution depends on size]
FI = Loop powered 4-20mA analog output 176° F (- 80° C) max. [Consult Factory for Availability with High Pressure Meters]

OM Small Capacity Flowmeters

1/8", 1/4", 3/8" Pipe Size





OM small capacity Flowmeters

Volumetric flow measurement of clean liquids or low flows used in automotive, aviation, mining, power, chemical, pharmaceutical, food, paint, petroleum industries and environmental applications. For metering additives for fuel, consumer products, water treatment and flotation cells, corrosion inhibitors, catalysts, emulsifiers, oils, grease, fragrances, adhesives, solvents, ink and insecticides. .

Features / Benefits

- High accuracy and repeatability, direct reading
- No requirement for flow conditioning (straight pipe runs)
- Stainless Steel rotors (Optional PPS Rotor for OM008 meter)
- Measures high and low viscosity liquids
- Quadrature pulse output option and bi-directional flow
- Integral 4-20mA output option
- Optional Exd I/IIB approval (ATEX, IECEx)
- PF option available for metering pulsating flows

Meter Selection

- **Aluminium** meters for petroleum products (oils and grease, fuels and fuel oils)
- **Stainless steel** meters for the chemical, cosmetic, food and pharmaceutical industries (water based liquids)
- **Blind pulse** meters available with reed switch and Hall Effect outputs. Optional Quadrature pulse and Integral 4-20mA outputs available

Integral Instruments

Options include integral LCD totalisers, flow rate totalisers and batch controllers (4-20mA, scaled pulse, alarms and batch control)

- BT LCD 5-digit reset, 8-digit cumulative totaliser
- RT12 LCD 6-digit reset, cumulative totaliser and flow rate, analog and pulse outputs
- RT40 LCD 6-digit reset, cumulative totaliser and flow rate. Backlit Display
- EB LCD 6-digit 2 stage batcher and cumulative totaliser

(Available for remote mounting and with I.S. approvals)

General Specification

Flow Rates: 0.16 - 145 US gal/hr. (0.5 - 550 litres / hr.)*
Sizes: 1/8" - 3/8" NB (4 - 8mm)
Materials: Aluminium, 316 Stainless steel

NMI Approved Meters

National Measurement Institute (NMI) Weights and Measures Approval – Australia

Meters 1" and above available with optional NMI pattern approval and quadrature pulse output

* *See also **Medium and Large Capacity** data sheets for other size meters.*

Specifications

Model Prefix:	OM004 (1/8")	OM006 (1/4")	OM008 (3/8")
Nominal size (inches):	1/8" (4mm)	1/4" (6mm)	3/8" (8mm)
*Flow range - (GPH):	(0.13-9.5)	(0.5-27)	(4-145)
- (LPH):	(0.5 - 36)	(2 - 100)	(15 - 550)
**Accuracy @ 3cp:	± 1% of reading (accuracy is ± 0.2% of reading with optional RT12 with non-linearity correction)		
Repeatability:	Typically ± 0.03% of reading		
Temperature range:	-4° F - +250° F (-20° C - +120° C), refer factory for lower temperature		
Maximum pressure:	PSI (Threaded meters)bar		
Aluminium meters:	220 (15)		
316 stainless steel:	495 (34)		
Intermediate press. SS meter:	1450 (100)	1450 (100)	1450 (100)
High pressure models:	5800 (400)	5800 (400)	5800 (400)

Electrical - for pulse meters (see below for optional outputs)

Output pulse resolution:	Pulses / gallon (Pulses / litre) - nominal		
Reed switch:	10600 (2800)	3975 (1050)	1345 (355)
Hall effect:	10600 (2800)	3975 (1050)	2690 (710)
QP-Quadrature Hall option:	10600 (2800)	3975 (1050)	2690 (710)
PF-Pulsating Flow (Hall Effect):	10600 (2800)	3975 (1050)	675 (178)
HR-High resolution Hall effect:	42400 (11200)	15900 (4200)	N/A
Reed switch output:	30Vdc x 200mA max. [maximum thermal shock 18° F (10° C) / minute]		
Hall effect output (NPN):	3 wire open collector, 5-24Vdc max., 20mA max.		
Optional outputs:	4-20mA, scaled pulse, quadrature pulse, flow alarms or two stage batch control		

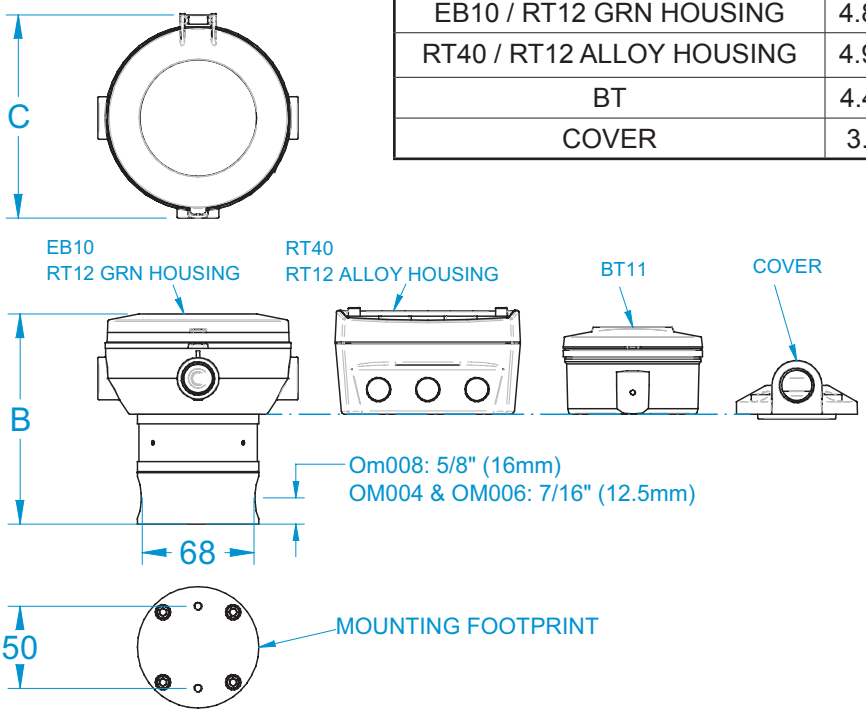
Physical

Protection class:	IP66/67 (NEMA4X), optional Exd I / IIB T4/T6, integral ancillaries can be supplied I.S. (intrinsically safe)
Overall dimensions:	Refer Below
Recommended filtration:	200 mesh (75 microns)

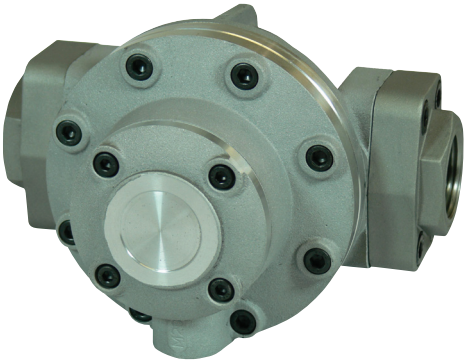
* Maximum flow is to be reduced as viscosity increases, see flow de-rating guide. Max. recommanded pressure drop is 100Kpa. (14.5 psi)
** QP and PF Options are not available with High Pressure Meters

All dimensions are inches ± .079 (millimeters ±2mm)

	B			C
OPTION	OM004	OM006	OM008	
EB10 / RT12 GRN HOUSING	4.8 / 122	4.8 / 122	5.0 / 129	4.9 / 124
RT40 / RT12 ALLOY HOUSING	4.9 / 125	4.9 / 125	5.2 / 132	3.8 / 96
BT	4.4 / 113	4.4 / 113	4.7 / 120	3.7 / 94
COVER	3.6 / 92	3.6 / 92	3.9 / 99	2.8 / 72



OM Medium Capacity Flowmeters
1/2", 1", 1-1/2", 2" Pipe Size



OM medium capacity lowmeters

Volumetric flow measurement of clean liquids used in automotive, aviation, mining, power, chemical, pharmaceutical, food, paint, petroleum industries. For distribution of fuels, fuel oils, lubricants, alcohols, solvents, blending of bio and ethanol fuels, metering of chemicals, grease, adhesives, ink, insecticides and pumps or gravity fed non-conductive liquids.

Features / Benefits

- High accuracy and repeatability, direct reading
- No requirement for flow conditioning (straight pipe runs)
- Various rotor material options
- Measures high and low viscosity liquids
- Quadrature pulse output option and bi-directional flow
- Integral 4-20mA output option
- Optional Exd I/IIB approval (ATEX, IECEx)

Meter Selection

- **Aluminium** meters for petroleum products (oils and grease, fuels and fuel oils)
- **Stainless steel** meters for the chemical, cosmetic, food and pharmaceutical industries (water based liquids)
- **Blind pulse** meters available with reed switch and Hall Effect outputs. Optional Quadrature pulse and Integral 4-20mA outputs are available

Integral Instruments

Options include integral LCD totalisers, flow rate totalisers and batch controllers (4-20mA, scaled pulse, alarms and batch control)

- BT LCD 5-digit reset, 8-digit cumulative totaliser
- RT12 LCD 6-digit reset, cumulative totaliser and flow rate, analog and pulse outputs
- RT40 LCD 6-digit reset, cumulative totaliser and flow rate. Backlit Display
- EB LCD 6-digit 2 stage batcher and cumulative totalizer
- M/V* = Mechanical registers (see model numbering)

(Available for remote mounting and with I.S. approvals)

General Specification

Flowrates: 0.26 - 150 US gal/min. (1 - 580 litres/min.)*
Sizes: 1/2" - 2" NB (15-50 mm)
Materials: Aluminium, 316 Stainless steel or Ryton (PPS)

NMI Approved Meters

National Measurement Institute (NMI) Weights and Measures Approval – Australia

Meters 1" and above available with optional NMI pattern approval and quadrature pulse output

* *See also **Small and Large Capacity** data sheets for other size meters.*

Specifications

Model Prefix:	OM015 (1/2")	OM025 (1")	OM040 (1.5")	OM050 (2")	OM050 (2")E
Nominal size (inches):	1/2" (15mm)	1" (25mm)	1.5" (40mm)	2" (50mm)	2" (50mm)
*Flow range - (GPM):	0.26 - 10.6	2.6 - 40	2.6 - 66	8 - 120	9-150
- (LPM):	1 - 40	10 - 150	15 - 250	30 - 450	35-580
	0.26 - 10.6	2.6 - 40	2.6 - 66	8 - 120	9-150
**Accuracy @ 3cp:	± 0.5% of reading (accuracy is ± 0.2% of reading with optional RT12 with non-linearity correction)				
Repeatability:	Typically ± 0.03% of reading				
Temperature range:	-4ºF - +250ºF(-20ºC - +120ºC), refer factory for lower temperature				
Maximum pressure:	PSI (Threaded meters) bar				
Aluminium meters:	990 (68)	990 (68)	435 (30)	285 (20)	285 (20)
Intermediate press. AL	-	2000 (138)	-	-	-
316 stainless steel:	990 (68)	990 (68)	435 (30)	550 (38)	
Intermediate press. SS meter:	1450 (100)	1450 (100)	725 (50)	725 (50)	
*** High pressure models:	5800 (400)	5800 (400)	5800 (400)	4350 (300)	
Max. pressure Mechanical Meter	PSI (Threaded meters) bar				
Aluminium meters	580 (40)	580 (40)	435 (30)	285 (20)	285 (20)
316 stainless steel	580 (40)	580 (40)	435 (30)	285 (20)	-

Electrical - for pulse meters (see below for optional outputs)

Output pulse resolution:	Pulses / gallon (Pulses / litre) - nominal				
Reed switch:	318 (84)	102 (27)	53 (14)	25 (6.5)	18 (4.8)
Hall effect:	636 (168)	405 (107)	212 (56)	99 (26)	73 (19.2)
QP-Quadrature Hall option:	636 (168)	204 (54)	106 (28)	49 (13)	36 (9.6)
Reed switch output:	30Vdc x 200mA max. [maximum thermal shock 50º F (10º C) / minute]				
Hall effect output (NPN):	3 wire open collector, 5-24Vdc max., 20mA max.				
Optional outputs:	4-20mA, scaled pulse, quadrature pulse, flow alarms or two stage batch control				

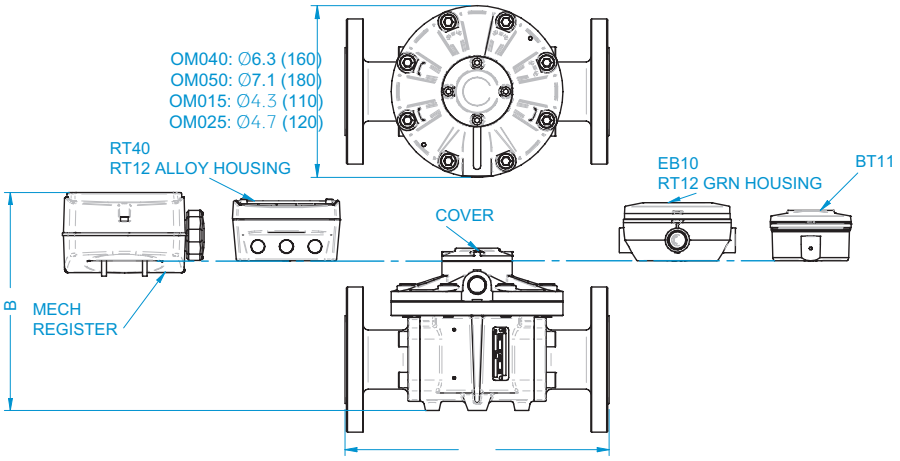
Physical

Protection class:	IP66/67 (NEMA4X), optional Exd I / IIB T4/T6, integral ancillaries can be supplied I.S. (intrinsically safe)
Overall dimensions:	Refer Below
Recommended filtration:	100 mesh (150 microns)

* Maximum flow is to be reduced as viscosity increases, see flow de-rating guide. Max. recommanded pressure drop is 100Kpa. (15 psi)
** Accuracy ± 1% of reading with M - Series mechanical registers and accuracy ± 0.5% of reading with V-series mechanical register.
*** QP and PF Options are not available with High Pressure Meters.

All dimensions are inches ± .079 (millimeters ±2mm)

MODULAR FITTING	A						CONFIGURATION	B							
	OM015	OM025A	OM025S	OM040	OM050	OM050E			OM015S	OM025A	OM025S	OM040A	OM040S	OM050	OM050E
A.N.S.I. 150 DIN16 JIS 10K	7.4 (189)	7.8 (198)	9.3 (237)	9.9 (252)	10.9 (277)	10.9 (277)	EB10/RT12 GRN Housing	6.0 (154)	5.8 (148)	6.6 (168)	6.5 (165)	7.9 (203)	7.6 (194)	8.6 (218)	10.5 (268)
							BT11 Register	5.7 (145)	5.5 (139)	6.3 (160)	6.2 (157)	7.8 (198)	7.3 (186)	8.3 (210)	10.2 (260)
							RT40/RT12 Alloy Housing	6.2 (157)	5.9 (151)	6.7 (171)	6.6 (168)	8.1 (206)	7.8 (197)	8.7 (221)	10.7 (271)
B.S.P N.P.T.	4.3 (110)	5.4 (137)	6.9 (176)	7.4 (188)	8.3 (212)	8.3 (212)	Cover	4.2 (106)	3.9 (100)	4.7 (120)	4.6 (117)	6.1 (155)	5.7 (146)	6.7 (170)	8.6 (220)
							Mech. Register	7.0 (178)	6.9 (176)	7.4 (188)	8.4 (214)	8.9 (227)	8.7 (222)	9.3 (237)	11.3 (286)



OM Large Capacity Flowmeters
3" & 4" Pipe Size

OM large capacity lowmeters

Volumetric flow measurement of clean liquids used in receipt verification, loading, un-loading and distribution management at petroleum plants, mine sites, marine and aviation facilities. For pumped or gravity fed distribution of fuels, oils, solvents, alcohols.

Features / Benefits

- High accuracy and repeatability, direct reading
- No requirement for flow conditioning (straight pipe runs)
- Various rotor material options
- Measures high and low viscosity liquids
- Quadrature pulse output option and bi-directional flow
- Integral 4-20mA output option
- Optional Exd I/IIB approval (ATEX, IECEx)

Meter Selection

- **Aluminium** meters for petroleum products (oils and grease, fuels and fuel oils)
- **Stainless steel** meters for the chemical, cosmetic, food and pharmaceutical industries (water based liquids)
- **Blind pulse** meters available with reed switch and Hall Effect outputs. Optional Quadrature pulse and Integral 4-20mA outputs are available

Integral Instruments

Options include integral LCD totalisers, flow rate totalisers and batch controllers (4-20mA, scaled pulse, alarms and batch control)

- BT LCD 5-digit reset, 8-digit cumulative totaliser
- RT12 LCD 6-digit reset, cumulative totaliser and flow rate, analog and pulse outputs
- RT40 LCD 6-digit reset, cumulative totaliser and flow rate. Backlit Display
- EB LCD 6-digit 2 stage batcher and cumulative totalizer
- M/V* = Mechanical registers (see model numbering)

(Available for remote mounting and with I.S. approvals)

General Specification

Flowrates: 10 - 660 US gal/min. (35 - 2500 litres/min.)*
Sizes: 3" - 4" NB (80-100 mm)
Materials: Aluminium, 316 Stainless steel

NMI Approved Meters

National Measurement Institute (NMI) Weights and Measures Approval – Australia

Meters 1" and above available with optional NMI pattern approval and quadrature pulse output

* *See also **Small and Medium Capacity** data sheets for other size meters.*

Specifications

Model Prefix:	OM080	OM080E	OM100	OM100E
Nominal size (inches):	3" (80mm)	3" (80mm) E	4" (100mm)	4" (100mm) E
*Flow range - (GPM):	10 - 200	13 - 260	20 - 400	40 - 660
- (LPM):	35 - 750	50 - 1000	75 - 1500	150 - 2500
**Accuracy @ 3cp:	± 0.5% of reading (accuracy is ± 0.2% of reading with optional RT12 with non-linearity correction)			
Repeatability:	Typically ± 0.03% of reading			
Temperature range:	-4º F - +250º F (-20º C - +120º C), refer factory for lower temperature			
Maximum pressure:	PSI (Threaded meters) bar			
Aluminium meters	175 (12)	175 (12)	145 (10)	145 (10)
316 stainless steel	175 (12)	-	-	-

Electrical - for pulse meters (see below for optional outputs)

Output pulse resolution:	Pulses / gallon (Pulses / litre) - nominal			
Reed switch:	10 (2.65)	5.68 (1.55)	4.15 (1.1)	2.1 (0.56)
Hall effect:	40.5 (10.65)	22.7 (6.0)	8.3 (4.4)	8.5 (2.24)
Quadrature Hall option:	20 (5.33)	11.36 (3.0)	8.3 (2.2)	4.24 (1.12)
Reed switch output:	30Vdc x 200mA max. [maximum thermal shock 50º F (10º C) / minute]			
Hall effect output (NPN):	3 wire open collector, 5-24Vdc max., 20mA max.			
Optional outputs:	4-20mA, scaled pulse, quadrature pulse, flow alarms or two stage batch control			

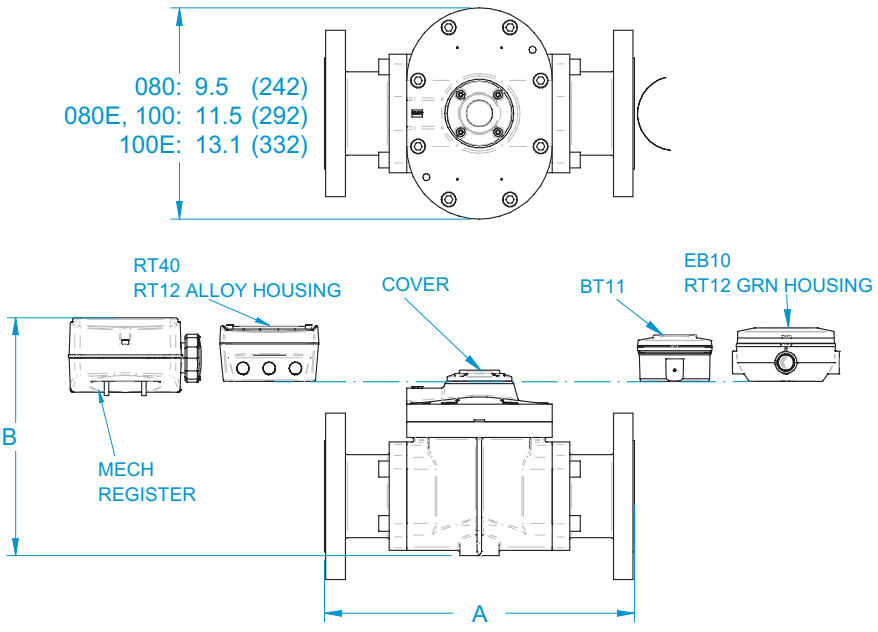
Physical

Protection class:	IP66/67 (NEMA4X), optional Exd I / IIB T4/T6, integral ancillaries can be supplied I.S. (intrinsically safe)
Overall dimensions:	Refer Below
Recommended filtration:	40 mesh (350 microns)

* Maximum flow is to be reduced as viscosity increases, see flow de-rating guide. Max. recommanded pressure drop is 100Kpa. (15 psi)
** Accuracy ± 1% of reading with M - Series mechanical registers and accuracy ± 0.5% of reading with V-series mechanical register.

All dimensions are inches ± .079 (millimeters ±2mm)

MODULAR FITTING	A				CONFIGURATION	B				
	OM080	OM080E	OM100	OM100E		OM080A	OM080S	OM080E	OM100	OM100E
A.N.S.I. 150 DIN16 JIS 10K	13.9 / 354	15.0 / 382	15.3 / 388	16.3 / 414	EBREGISTER / RT12 GRN HOUSING	10.2 / 260	10.1 / 257	10.9 / 277	12.7 / 322	15.7 / 399
					BT REGISTER	9.9 / 252	10.2 / 259	10.6 / 269	12.3 / 314	15.4 / 391
					RT40 REGISTER / RT12 ALLOY HOUSING	10.3 / 264	10.2 / 260	11.0 / 281	12.8 / 326	15.8 / 403
B.S.P. N.P.T	10.5 / 266	11.6 / 294	11.6 / 294	12.6 / 320	COVER	8.4 / 213	8.1 / 206	9.0 / 229	10.7 / 274	13.9 / 352
					MECH. REGISTER	10.6 / 270	N/A	11.3 / 288	13.1 / 333	16.4 / 416



GG500/GG510/5 SERIES ELECTRONIC CHOICE

Display With Pulse Output

GG500
Remote Mount

GG510
Local Mount

The GG500 is a remote mount Pulse-Out Transmitter with battery powered display. Choose the GG510 when a local mount is needed.

ACCURACY: ±0.1% READING

Features and Benefits:

- ✓ Provides communication with process control equipment.
- ✓ Works with G Series, G2 Turbine Meters and GM Oval Gear Meters.
- ✓ 2 Totals (Batch = Resettable, Cumulative = Non-Resettable); Rate of Flow. Factory calibrated in gallons and litres. Field calibratable. Allows user calibration. Includes non-volatile totals.
- ✓ Industry Standard Output: Unscaled Pulse.
- ✓ Easily mounted on pipe or wall.

GG500/GG510 – SPECIFICATIONS

Accuracy:	± 0.1% of reading
Output Options:	
Primary Output:	Open Collector (NPN)
Pulse-Out:	
Max. "OFF" Voltage:	60 V
Max. "ON" Current:	200 mA
Max. "ON" Voltage Drop:	< 0.5 V @ 200 mA
Electrical:	
Strain Relief:	Hubble PG7
Strain Relief Thread:	Female 1/2-20 UNF-2B
Cable:	*Remote:* Belden 9363 (500 Series only)
	Local: No cable provided
Cable Length:	20 ft. (6 m) provided (500 Series only)
Power Supply:	9-volt battery or externally powered
Voltage Supply (Min.):	7 VDC
Voltage Supply (Max.):	30 VDC
Input Options:	Hall Effect, Reed Switch, Open Collector or Low Level Sine Wave
Remote Mounting:	Pipe or wall
Operating Temperature:	+14° F to +140° F (-10° C to +60° C)
Frequency Input:	
Low Level Coil (LLC):	0 - 1000 Hz
High Level Low Freq.:	0 - 150 Hz
High Level High Freq.:	0 - 1000 Hz
Enclosure Rating:	NEMA 4X / IP55
Shipping Weight:	*Remote:* 2.0 lbs. (.90 kg)
	Local: 1.0 lbs. (.45 kg)
Calibratable:	K-factor Entry

GX500/GX510 – SPECIFICATIONS

Accuracy:	± 0.1% of reading
Output Options:	
Primary Output:	Loop (4-20 mA or 0-20 mA)
Minimum:	1.5 mA
Maximum:	25 mA
Auxiliary Outputs 0-5 V:	Single Ended
Minimum:	0.1 V
Maximum:	4.9 V
Pulse-Out:	
Max. "OFF" Voltage:	60 V
Max. "ON" Current:	200 mA
Max. "ON" Voltage Drop:	< 0.5 V @ 200 mA
Electrical:	
Strain Relief:	Hubble PG7
Strain Relief Thread:	Female 1/2-20 UNF-2B
Cable:	*Remote:* Belden 9363 (500 Series only)
	Local: No cable provided
Cable Length:	20 ft. (6 m) provided (500 Series only)
Power Supply:	2-wire, loop powered
Voltage Supply (Min.):	8.5 VDC
Voltage Supply (Max.):	35 VDC
Input Options:	Hall Effect, Reed Switch, Open Collector or
	Low Level Sine Wave
Remote Mounting:	Pipe or wall
Operating Temperature:	+32° F to +140° F (0° C to +60° C)
Frequency Input:	
Low Level Coil (LLC):	0.25 - 1000 Hz
High Level Low Freq.:	0.25 - 150 Hz
High Level High Freq.:	0.25 - 1000 Hz
Optically Isolated HLLF:	w/2500 V optical isolation
Optically Isolated HLHF:	w/2500 V optical isolation
Enclosure Rating:	NEMA 4X / IP55
Shipping Weight:	*Remote:* 2.0 lbs. (.90 kg)*Local:* 1.1 lbs. (.5 kg)
Calibratable:	K-factor Entry

Display With 4-20 mA Output

GX500
Remote Mount

GX510
Local Mount

The GX500 is a remote mount 4-20 mA Output Transmitter with display. Choose the GX510 when a local mount is needed.

ACCURACY: ±0.1% READING

Features and Benefits:

- ✓ Provides communication with process control equipment.
- ✓ Works with G Series, G2 Turbine Meters and GM Oval Gear Meters.
- ✓ 2 Totals (Batch = Resettable, Cumulative = Non-Resettable); Rate of Flow. Factory calibrated in gallons and litres. Field calibratable. Allows user calibration. Includes non-volatile totals.
- ✓ Now available with Lockout feature.
- ✓ Microprocessor-based electronics have extremely low power requirements.
- ✓ Easy to set 4-20 mA endpoints under actual flow conditions.
- ✓ A signal conditioner with industry standard current loop output.
- ✓ Easily mounted on pipe or wall.

GA500/GA510/7 SERIES ELECTRONIC CHOICE

4-20 mA Output

GA500
Remote Mount

GA510
Local Mount

The GA500 is a remote mount 4-20 mA Output Transmitter without display. Choose the GA510 when a local mount is needed.

ACCURACY: ±0.1% READING

Features and Benefits:

- ✓ Provides communication with process control equipment.
- ✓ Works with G Series, G2 Turbine Meters and GM Oval Gear Meters.
- ✓ Now available with Lockout feature.
- ✓ Microprocessor-based electronics have extremely low power requirements.
- ✓ Easy to set 4-20 mA endpoints under actual flow conditions.
- ✓ A signal conditioner with industry standard current loop output.
- ✓ Easily mounted on pipe or wall.

GA500/GA510 – SPECIFICATIONS

Accuracy:	± 0.1% of reading
Output Options:	
Primary Output:	Loop (4-20 mA or 0-20 mA)
Minimum:	1.5 mA
Maximum:	25 mA
Auxiliary Outputs 0-5 V:	Single Ended
Minimum:	0.1 V
Maximum:	4.9 V
Pulse-Out:	
Max. "OFF" Voltage:	60 V
Max. "ON" Current:	200 mA
Max. "ON" Voltage Drop:	< 0.5 V @ 200 mA
Electrical:	
Strain Relief:	Hubble PG7
Strain Relief Thread:	Female 1/2-20 UNF-2B
Cable:	*Remote:* Belden 9363 (500 Series only)
	Local: No cable provided
Cable Length:	20 ft. (6 m) provided (500 Series only)
Power Supply:	2-wire, loop powered
Voltage Supply (Min.):	8.5 VDC
Voltage Supply (Max.):	35 VDC
Input Options:	Hall Effect, Reed Switch, Open Collector or Low Level Sine Wave
Mounting:	Pipe or wall
Operating Temperature:	+32° F to +140° F (0° C to +60° C)
Frequency Input:	
Low Level Coil (LLC):	0.25 - 1000 Hz
High Level Low Freq.:	0.25 - 150 Hz
High Level High Freq.:	0.25 - 1000 Hz
Optically Isolated HLLF:	w/2500 V optical isolation
Optically Isolated HLHF:	w/2500 V optical isolation
Enclosure Rating:	NEMA 4X / IP55
Shipping Weight:	*Remote:* 2.0 lbs. (.90 kg)
	Local: 1.1 lbs. (.5 kg)

BT Series Battery Totalizers

display format (actual size)

pipe mount shown

Features

- Self powered, 8 digit LCD cumulative totalizer and large 5 digit resettable totalizer
- Robust field or meter mountable housing with protection cover
- Simple programming
- PIN protected programming
- Accepts universal pulse inputs
- IP66/67 Weatherproof (NEMA 4X)
- Intrinsically safe version
- Long battery life
- Reverse polarity protection
- Display backlighting option

Outputs

- Pre-amplified pulse
- Scaleable pulse

Also available

- Flow rate totalisers
- Ecobatch batch controllers

Overview

The BT programmable self powered totaliser is specifically designed for computing & displaying totals from flowmeters or machinery with frequency, sine wave or pulse outputs.

The instrument simultaneously displays resettable (batch) total & a cumulative total in engineering units as programmed by the user.

Ultra low power consumption is a result of innovative design which provides as much as 10 years of service from the replaceable 3.6V lithium battery. The BT may also be externally powered by 8~24Vdc.

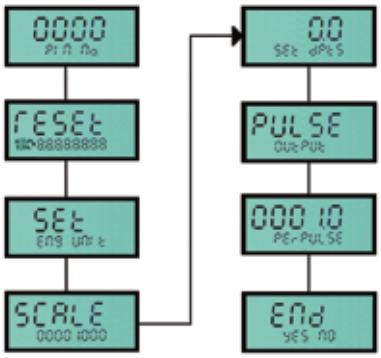
Pulse Outputs

The pulse output can be set as either a scaled or un-scaled pulse & is NPN/ PNP selectable.

The un-scaled pulse serves as a frequency amplifier for turbine or paddle wheel style flowmeters.

Programming

Simple PIN protected flow chart programming with English prompts guide you through the programming routine, greatly reducing the need to refer to the instruction manual.



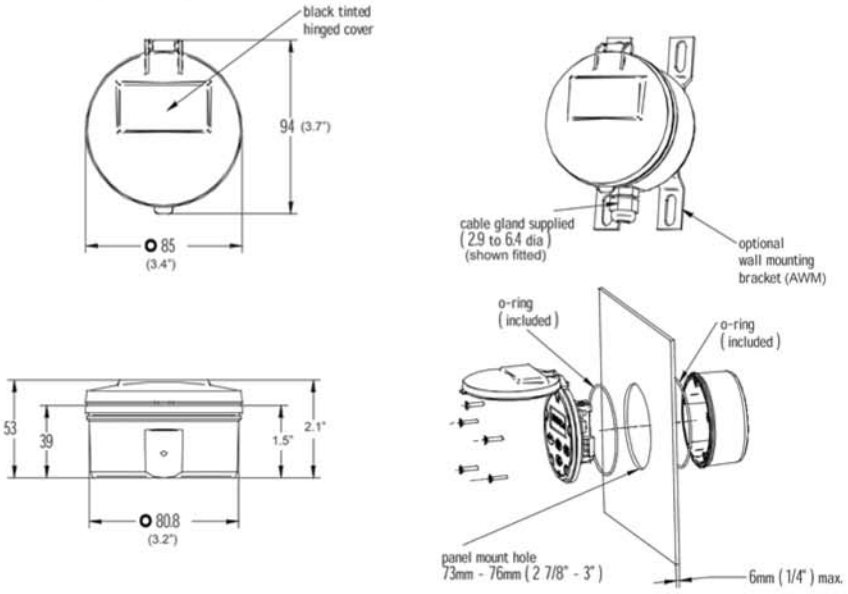
Programming Sequence

Specifications

Liquid crystal display *(LCD)*	alpha numeric LCD characters
Resettable total	5 digit x 7.5mm high, programmable to 3 decimal places
Accumulated total	8 digit x 3.6mm high, programmable to 3 decimal places
Engineering units displayed	litres, MLitres, gallons, Mgallons m3, lbs, kgs or no engineering units displayed
Input types *(pulse & frequency)*	reed switch, open collector, coil *(15mV P~P min.)*, voltage, current, namur & other proximities
Max. input frequencies	coil 5Khz, hall 2.5Khz, namur 250hz
Input scaling range	0.001~9,999,999.999 with 3 floating decimal points
Pulse outputs	NPN/PNP selectable, non-scaleable *(5Khz max.)* or scaleable *(8hz max.)*. The scaleable pulse output has a pulse width of 60msec
Operating temperature	-20~+80°C *(- 4~176°F)*, refer factory for higher / lower temp.
Power source	1 x 3.6V lithium battery, can last to 10 yrs.
External powering	8~24Vdc (drives output & backlighting)
Intrinsic safe option	Exia IIB T4
Enclosure	IP66/67 *(NEMA 4X)* glass reinforced nylon, 175g (0.4lb)
Electrical	supplied with gland to suit 3-6mm (0.1- 0.2") Ø cable
Mounting	meter mount, wall, surface, pipe & panel

IN THE INTEREST OF CONTINUED PRODUCT DEVELOPMENT THE DESIGN & SPECIFICATIONS MAY ALTER WITHOUT NOTICE

Dimensions *(mm)*



Ordering codes

FMBT110D0	cumulative & batch (reset) totalizer with pulse output

Housing type

FM	universal mount (field, surface, pipe, wall or panel mount)
MM	integral meter mount

Options

I	intrinsically safe to Exia IIB T4
B	backlighting of LCD display (requires external dc power)

Optional adaptors

AWM	stainless steel wall mount kit
APM	stainless steel 2" pipe mount kit
ACF	cooling fin for hi temp. flowmeters

ATM	fixed stem for Turbine meters
AUS	swivel stem for Turbine meters
ACG	additional cable gland


wall - surface mount


panel mounted


meter mount


meter mount


batch controller

flow rate totaliser

other instruments

FRT12 Flow Rate & Totalizer Display

LCD display FRT12 is a fully programmable self-powered flow rate totalizer specifically designed for computing & displaying flow rates & totals from flow meters with pulse, sine wave or frequency outputs.

The instrument displays resettable (batch) total, cumulative total and instantaneous flow rate in engineering units as programmed by the user.

Outputs (Under external power)

An unscaled pulse output serves as an input signal amplifier ideally suited for coil type inputs from turbine or paddle wheel meters. The output can be transmitted over long distance & is NPN/PNP selectable (current sinking or current sourcing).

Features /Benefits

- Self or external powered, 8 digit LCD total & 8 digit cumulative totalizer, 5 digit rate display
- Robust IP66/67~NEMA 4X universal mount or DIN Panel mount version
- Aluminium/GRN field & panel mountable housing
- Scaled pulse, 4-20mA (Loop Powered) Output, Dual flow inputs (A+B, A-B, A÷B), multi point linearization of flow input or frequency inputs
- High & low flow alarms & Low Frequency cutoff
- PIN protected programming
- Simple flow chart touch key programming
- Reverse polarity protection
- Non volatile memory, Long battery life
- Relay board with SPDT outputs (Optional)
- Flowmeter & pipe mount kits available
- Optional Intrinsically safe version to Exia IIB T4 version (IECEx & ATEX approved)

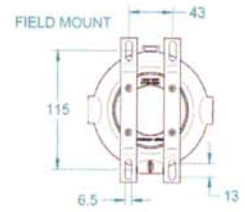
Specifications

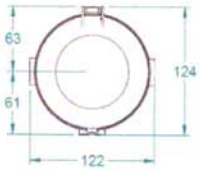
Model prefix :	FRT12
Displays	8 digit numeric display with LCD character 8 digit reset & cumulative totalizer 5 digit rate display
Memory	All programmed & accumulative data is stored permanently in non-volatile memory
Temperature range	-20°C ~ +80°C max. (-4°F ~ 176°F max.)
Signal Input	Pulse/frequency Input with reed switch Hall Effect, Voltage, Current & Coil, dual inputs (A+B,A-B,A÷B)
Pulse Output	NPN transistor, Scalable (20hz, 100mA max.)
Rate Outputs	4~20mA into 750 ohms@24Vdc, NPN/PNP solid state & relay options
Linearisation	10-point correction
Intrinsic sale option	Exia IIB T4
Battery power	Life expectancy 5 years* (Unit draws about 70μA under battery)
External Power	Regulated 8~24Vdc x 50mA min (Reverse polarity protected)
Configuring	PIN Protected data entry
Protection class	IP66/67 (NEMA4X) 3 x M20 or 1/2" NPT female conduit entries for GRN Hosuing 3 x M16 female conduit entries for Aluminium housing
K-factor range	Scale factor i.g. pulses/litre, gallon etc. programmable range 0.001 ~ 99,999.999
Engineering Units	Selectable Ltr, gal, m^3,kgs, lbs (total)./sec, /min. /hr or day (rate)

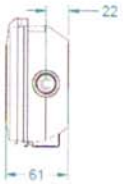
* Battery life reduces when rate is more often displayed & there is no external power connected.

Over all Dimensions:

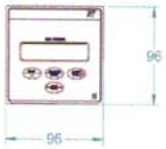
STANDARD ENCLOSURE



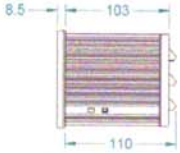




DIN PANEL MOUNT ENCLOSURE



CUTOUT DIMENSIONS
91mm x 91mm



Model Code:

FRT12	Flow rate totalizer with 4~20mA ,scalable pulse & alarm outputs, dual flow inputs
Electrical access	
1	M20 x 1.5mm (M16 x 1.5 for Aluminium housing) female threaded conduit entry ports
2	1/2" NPT female threaded conduit entry ports (Not available on aluminium housing)
Flow Input type	
D	Digital (pulse or frequency)
Power supply	
0	Self powered (battery) or regulated 8~24 Vdc
Housing type	
FM	Universal mount (field or panel) - GRN Housing
MM	Integral meter mount- GRN Housing*
FA	Universal mount (field or panel) - Aluminium Alloy Housing*
MA	Integral meter mount- Aluminium Alloy Housing*
	* Only order MA when retro fitting instrument to OM series pulse meter
Electrical options	
R	Control output relay board interface with two SPDT relays
I	I.S intrinsically safe to Exia IIB T4 - IECEX & ATEX approved
Mechanical options	
P	Facia protector - for Aluminium housing only (3mm clear polycarbonate protection plate)

Model No. Example

FRT12	**1**	**D**	**0**	**FM**	**- I**


wall - surface mount


DIN mount field enclosure


meter mount


meter mount

Other Instruments also available:

- Battery totalizers (FBT11)
- Automatic batch controllers (FEB10)
- Flow rate totalizer with backlit large digit LCD, alarm & scalable outputs (FRT40)

FRT40 Rate And Totalizer Display

LCD display RT40 battery powered flow rate totaliser is specifically designed for computing & displaying flow rates & totals from flow meters with pulse, sine wave or frequency outputs.

The instrument displays resettable (batch) total, cumulative total and instantaneous flow rate in engineering units as programmed by the user.

Robust field & panel enclosure

Designed for the more rugged applications in mines sites & mobile installations, the RT40 LCD display has a backlight panel & large digits for distance viewing at night.

Features /Benefits

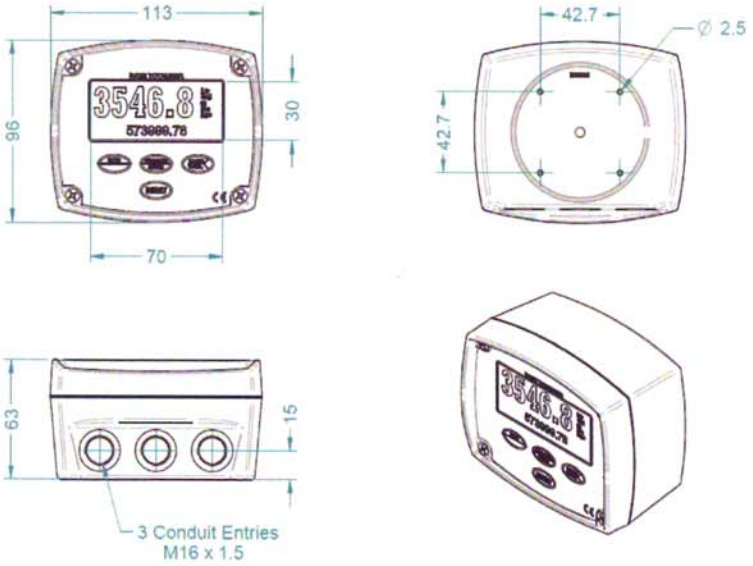
- Battery or external powered, 6 digit large LCD total & 8 digit cumulative totaliser, 5 digit rate display
- Robust IP66/67~NEMA 4X Aluminium field & panel mountable housing
- LCD Backlighting standard
- Scalable universal pulse or frequency inputs
- Scaled pulse output
- PIN protected programming
- Simple flow chart touch key programming
- Reverse polarity protection
- Long battery life
- Heavy duty facia protector shield
- Relay board with SPDT outputs
- Flowmeter & pipe mount kits

Specifications

Model prefix :	FRT40
Displays	Large backlit 6 digit numeric display with LCD character 8 digit reset cumulative totaliser 5 digit rate display
Memory	All programmed & accumulative data is stored permanently in non-volatile memory
Temperature range	-20°C ~ +80°C max. (-4°F ~ 176°F max.)
Signal Input	Pulse/frequency Input with reed switch Hall Effect, Voltage, Current & Coil
Pulse Output	NPN transistor, Scalable (20hz, 100mA max.)
Battery power	Life expectancy 5 years* (Unit draws about 70µA under battery)
External Power	Regulated 8~24Vdc x 50mA min (Reverse polarity protected)
Configuring	PIN Protected data entry
Protection class	IP66/67 (NEMA4X) 3 x M16 x 1.5 female conduit entries
K-factor range	Scale factor i.g. pulses/litre, gallon etc. programmable range 0.001 ~ 99,999.999
Engineering Units	Selectable Ltr, gal, m^3,kgs, lbs (total)./sec, /min. /hr or day (rate)

* Battery life reduces when rate is more often displayed & there is no external power connected.

Over all Dimensions:



Model Code:

FRT40	*Flow rate totalizer with backlit large digit LCD, Scalable pulse output*
Electrical access	
1	*M16 x 1.5mm female threaded conduit entry ports*
Flow input type	
D	*Digital (pulse or frequency)*
Power supply	
0	*Self powered (battery) or regulated 8~24 Vdc*
Housing type	
FA	*Universal mount (field or panel) - Aluminium Alloy Housing*
MA	*Integral meter mount- Aluminium Alloy Housing**

** Only order MA when retro fitting instrument to OM series pulse meter*

Mechanical options	
P	*Facia protector - 3mm clear polycarbonate protection plate*

Model No. Example

FRT40	**1**	**D**	**0**	**FA**	**P**

Other Instruments also available:

- Battery totalizers (FBT11)
- Automatic batch controllers (FEB10)
- Rate totalizer with 4~20mA, alarm & scalable outputs, dual flow inputs & linearization (FRT12)

EB Series Batch Controllers

Features

- Large 8 digit batch & cumulative total LCD
- Robust IP66/67 universal mount or DIN panel mount version
- Simple programming
- PIN protected programming
- Scaleable flow inputs
- Two stage control
- Automatic overrun compensation
- Missing pulse *(no flow)* alarm
- Maximum batch size limiting
- Non volatile memory
- Multiple batcher interlock function
- Remote Run, Stop, batch set, etc

Also available

- Batching systems
- Self powered totalisers
- Flow rate totalisers

Universal field mount

DIN panel mount


Typical Ecobatch system

Overview

The EB *Ecobatch* is a fully programmable high speed batch controller specifically designed to operate with common pulse producing flowmeters such as positive displacement, turbine, mass, vortex or magnetic style.

The instrument displays batch value, batch progress & cumulative total in engineering units as programmed by the user, it also logs the total number of batches performed and total volume dispensed.

Ecobatch scrolls messages to prompt the user at each stage of operation. Batch limiting and no-flow detection are *"safeguards"* against erroneously high batch entries, loss of the flow input signal or control valve or pump failure.

Control outputs

Two independent outputs can be programmed to provide stepped control at the start and/or end of each batch. DC powered models have two solid state control outputs, DIN models can be AC or DC powered and have two single pole double throw (SPDT) control 5A relays.

An Automatic Overrun Compensation feature corrects for any batch errors attributed to slow closing valves or flow rate variations.

Network interlocks

As many as 9 *Ecobatch* controllers may be networked together, typical applications are where one liquid is being dispensed to a number of outlets or a number of different liquids are being batched via one common flowmeter. *Ecobatch* will also take an "inhibit start" signal from other control or plant equipment.

Programming

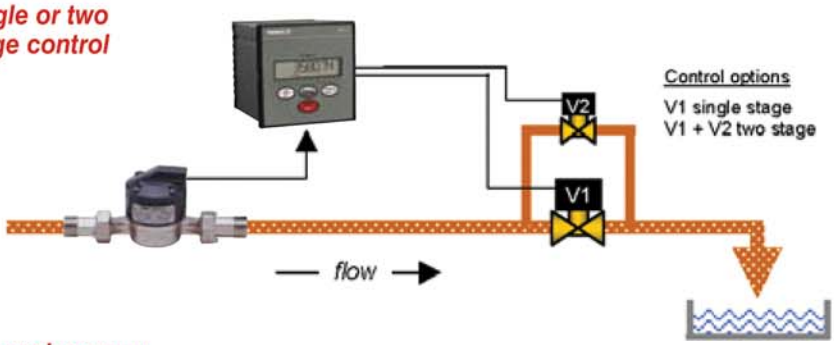
Simple PIN protected flow chart programming with English prompts guide you through the programming routine, greatly reducing the need to refer to the instruction manual.

Specifications

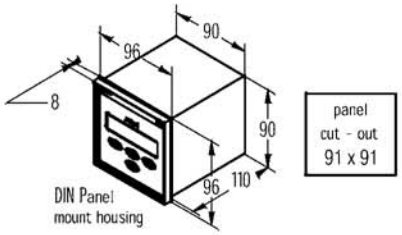
Liquid crystal display *(LCD)*	9mm high alpha numeric characters + subscripts
Batch & accumulated totals	8 digit, programmable to 3 decimal places
Engineering units displayed	litres, gallons, m3, lbs, kgs or nil eng. units displayed
Input types *(pulse & frequency)*	reed switch, open collector, coil *(15mV P~P min.)*, current, voltage, namur & other proximities. Max. frequency 10Khz
Input scaling range	0.001~9,999,999.999 with 3 floating decimal points
Control outputs *(field mount)*	Two 1A NPN open collectors, 24Vdc max.
(panel mount)	Two SPDT 5A relays *(with DIN versions)*
Alarm output *(no flow alarm)*	1A open collector *(NPN/PNP selectable)*, 24Vdc max.
Operating temperature	-10~+80°C *(14~176°F)*, refer factory for higher / lower temp.
Power requirements	12~24Vdc, 50mA, 95~260Vac *(DIN version)*
Status interlocks	Batch status output, batch inhibit input, network looping
Enclosures *(two styles)*	IP66/67 *(NEMA 4X)* GRN field mount or DIN panel mount
Mounting	meter mount, wall, surface, pipe or panel mount
Batching systems example *(see front page photo)*	Ecobatch with flowmeter & control valve eg: UM020 system 1~70 L/min, 10 bar, 90°C *(0.3-18 Usgpm, 145psi, 195°F)*

IN THE INTEREST OF CONTINUED PRODUCT DEVELOPMENT THE DESIGN & SPECIFICATIONS MAY ALTER WITHOUT NOTICE

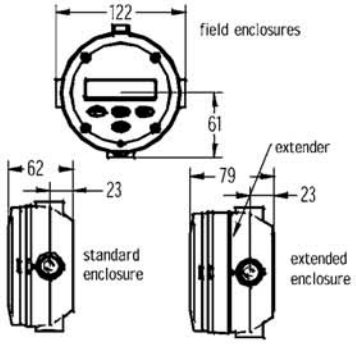
Single or two stage control



Dimensions *(mm)*



panel cut - out 91 x 91



Ordering codes *(# = electrical entries: 1 = M20, 2 = 1/2" NPT, 0 = DIN housing with terminals)*

FMEB10#	Single & two stage high speed batch controller *(cumulative & batch totals)*

Input type

D	digital *(pulse or frequency)*

*Power supply (*PM version only)*

0	12~24Vdc, 50mA	1	*95~135Vac	2	*190~260Vac

Housing type

FM	universal mount *(field, surface, pipe, wall, stem or panel mount)*
MM	integral meter mount
PM	DIN panel mount 91 x 91mm *(3.6 x 3.6")* cut out
FE	DIN mount field enclosure IP66 *(NEMA 4x)*

Refer factory for mounting accessories.


wall - surface mount


DIN mount field enclosure


meter mount


meter mount


flow rate totaliser

battery totaliser

other instruments

Y STRAINERS FOR OVAL GEAR METERS

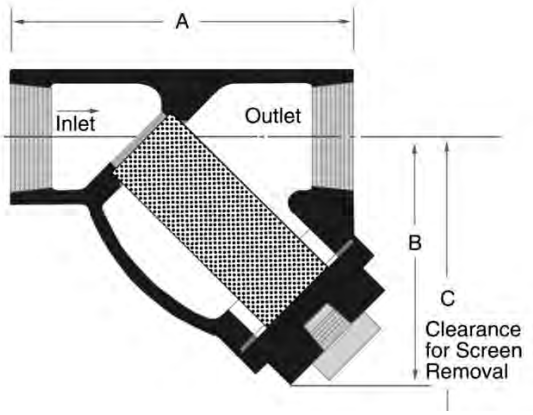
Y STRAINER – SPECIFICATIONS

Blow-off Fitting:	**1/4 inch:**	1/4" NPT
	1/2 inch:	1/4" NPT
	3/4 inch:	1/4" NPT
	1 inch:	1/2" NPT
	1-1/4 inch:	1/2" NPT
	1-1/2 inch:	1/2" NPT
	2 inch:	1/2" NPT
Screen Standard:	**1/4 inch:**	200 mesh
	1/2 inch:	60 mesh
	3/4 inch:	60 mesh
	1 inch:	60 mesh
	1-1/4 inch:	60 mesh
	1-1/2 inch:	60 mesh
	2 inch:	60 mesh
Screen Opening (inch):	**1/4 inch:**	0.011"
	1/2 inch:	0.032"
	3/4 inch:	0.032"
	1 inch:	0.032"
	1-1/4 inch:	0.032"
	1-1/2 inch:	0.032"
	2 inch:	0.032"
Shipping Weight:	**1/4 inch:**	4 lbs.
	1/2 inch:	4 lbs.
	3/4 inch:	5 lbs.
	1 inch:	6 lbs.
	1-1/4 inch:	8 lbs.
	1-1/2 inch:	10 lbs.
	2 inch:	18 lbs.

Oval Gear Meters work best with clean fluid, free of debris. GPI carries Y Strainers to fit most models of Oval Gear Meters. These strainers range from 1/4 in. to 2 in. models. All sizes come complete with blow-off and plug.

PART NUMBERS & DIMENSIONS

Part Number	Size	A	B	C
125700-01	1/4 inch:	3-1/4"	2-3/16"	3"
125700-02	1/2 inch:	3-1/4"	2-3/16"	3"
125700-03	3/4 inch:	3-5/8"	2-3/4"	3-1/4"
125700-04	1 inch:	4-1/4"	3-3/16"	4-1/8"
125700-05	1-1/4 inch:	5-1/4"	3-7/8"	5"
125700-06	1-1/2 inch:	6-1/4"	4-3/4"	5-7/8"
125700-07	2 inch:	7-5/8"	6"	8-1/8"



Select Your Strainer Size:

1/4 inch 1/2 inch 3/4 inch 1 inch

1-1/4 inch 1-1/2 inch 2 inch

Features and Benefits:

- ✓ Machined, tapered seat ensures a perfect fit for the removable, 316 Stainless Steel screen.
- ✓ 316 Stainless Steel body and all screens are 316 Stainless Steel.
- ✓ All sizes come complete with blow-off and plug. These can be replaced with ball valve for on-line blow-down of particulate.
- ✓ Rated for up to 1480 PSI at 100° F for water, oil or gas.
- ✓ Female NPT threads.

Authorized Distributor:

Clark Solutions
10 Brent Drive
Hudson, MA 01749
Toll Free: 800-253-2497 - Tel: 978-568-3400 - Fax: 978-568-0060
e-mail: sales@clarksol.com