



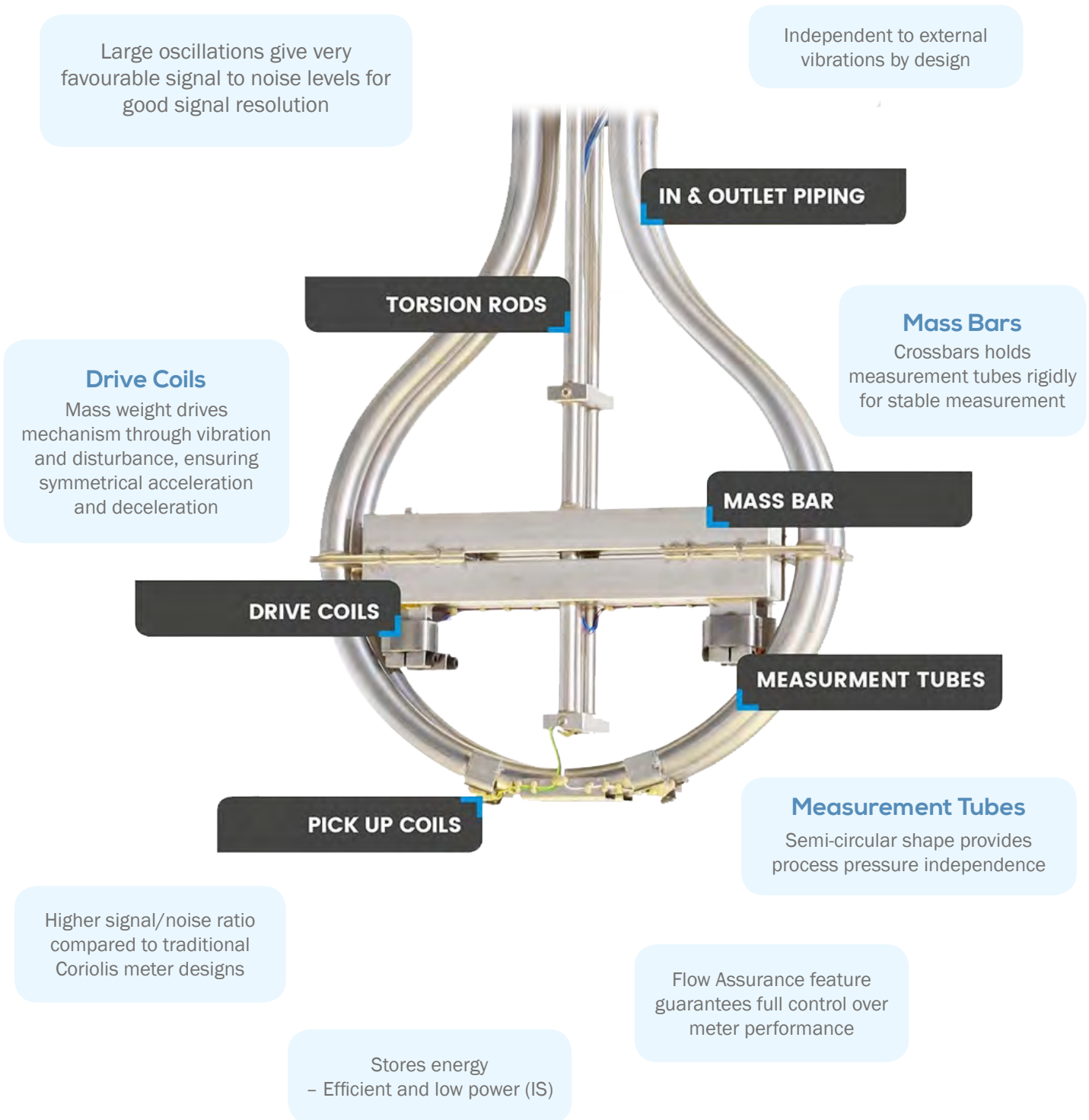
Coriolis Mass Flow Meters

For highly accurate measurement performances

Unmatched and unique Omega design Coriolis Mass Flow Meters

The starting point of any kind of best possible vessel performance management

Perfectly designed for reliable and accurate measurements under challenging conditions:



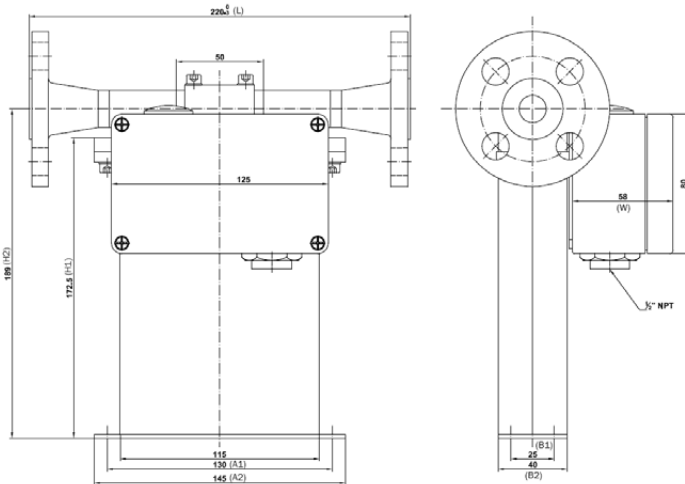
Technical Data

Measuring System	
Measuring Principle	Mass Flow Meter
Application Range	Mass Flow, Volumetric Flow, Density, Temperature
Accuracy	
Measuring Accuracy	± 0.20% of actual measured flow rate ± 0.10% of actual measured flow rate (Premium)
Density Accuracy	± 0.50% of actual measured density ± 0.10% of actual measured density (Premium)
Repeatability	Better 0.05%
Design of Construction	
FP300-FP45MT	Parallel Measuring, Removable Manifold
>FP45MT	Parallel Measuring Loops Seal Less Version
Sensors with integrated or remote transmitter *(integrated transmitter IP65)	Sensors (FP300-FP18XT): -20 °C to 120 °C (-4 °F to 248 °F)
Sensors with remote transmitter only.	Sensors (FP300-FP720T): -45 °C to 210 °C (-49 °F to 410 °F) Sensors (FP300-FP18XT): (Premium) -196 °C to 50 °C (-321 °C to 122 °F)
Power Supply	
FP16/26 Electronics	12 to 28 VDC, 3W
FP27 Electronics	100 to 240 VAC +/- 10% (48 to 62 Hz) 12 to 24 VDC +/- 10%
Outputs/ I/O, Communication	
FP16/26 Electronics	RS 485 (Modbus) only - no discrete outputs / or 4 Digital Outputs (Programmable – Pulse, Double Pulse, Error, Set-Points) + RS 485 / or 4 Digital Outputs (as above) + 1 Analog 4-20 mA (Flow, Dens. or Temperature) + RS485
FP27 Electronics	2*4/20mA, 2*Pulse/Freq, 2*DO, 2*DI, RS485 (Modbus) / or Standard HART - as standard plus HART
Harzardous Area	
FP16/26 Electronics Ingress Protection: IP20	Ex II 3 G Ex nA IIC T4 Gc
FP27 Electronics Ingress Protection: IP20 *(IP54 installed in cabinet)	ATEX approval Ex II(1) G [Ex ia Ga] IIC Use with ATEX sensor Ex II 2G Ex ib IIC T1-T6 Gb (Transmitter installed in safe area only)
Compliance	
Vibration	According Class Specification
EMC	According Class Specification

Process Connections & Dimensions

Parallel measuring tubes with flange connection and removable manifold

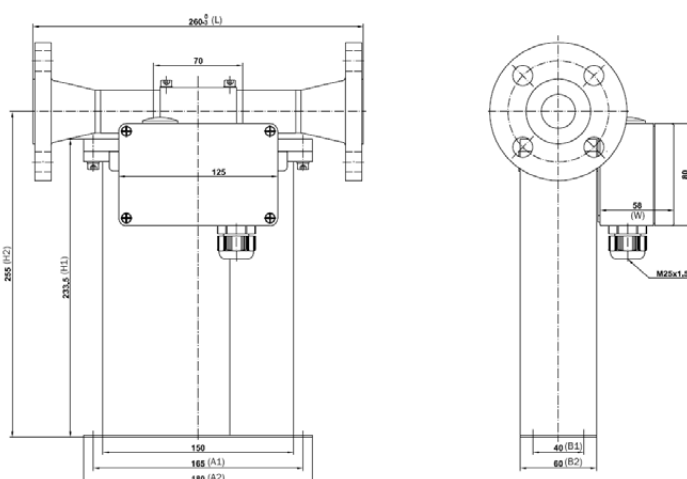
FP300 - FP600



Process Connection	Face to face length (L)	
	mm	in
ANSI 1/2" 150# RF	220	8.66
ANS 1/2" 300# RF	220	8.66
DIN DN15/PN40	220	8.66
JIS RF 10k 15A (1/2")	220	8.66
JIS RF 20k 15A (1/2")	220	8.66

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP300	8.66	5.12	5.71	0.98	1.57	6.81	7.44	0/3.94*
FP600	8.66	5.12	5.71	0.98	1.57	6.81	7.44	0/3.94*

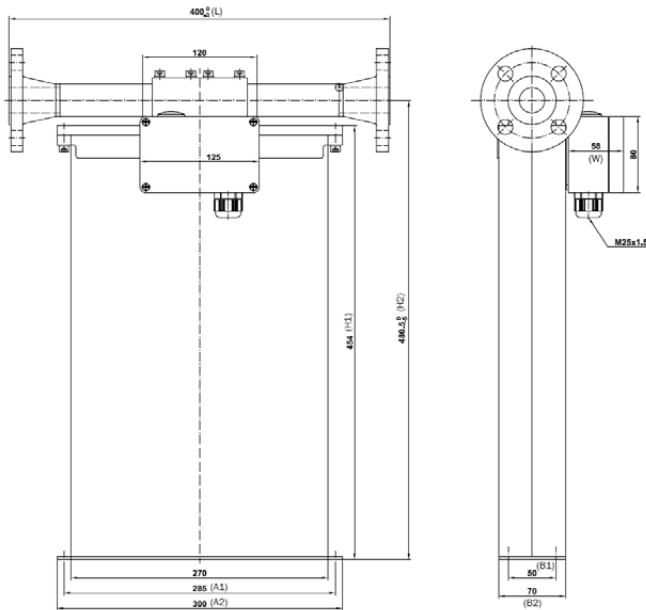
FP1200 - FP3000



Process Connection	Face to face length (L)	
	mm	in
ANSI 1/2" 150# RF	260	10.24
ANSI 1" 150# RF	260	10.24
ANSI 1/2" 300# RF	260	10.24
ANS 1" 300# RF	260	10.24
DIN DN15/PN40	260	10.24
DIN DN25/PN40	260	10.24
JIS RF 10K 15A (1/2")	260	10.24
JIS RF 10k 25A (1")	260	10.24
JIS RF 20K 15A (1/2")	260	10.24
JIS RF 20k 25A (1")	260	10.24

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP1200	10.23	6.50	7.09	1.57	2.36	9.21	10.04	0/5.91*
FP3000	10.23	6.50	7.09	1.57	2.36	9.21	10.04	0/5.91*

FP6000 - FP12MT

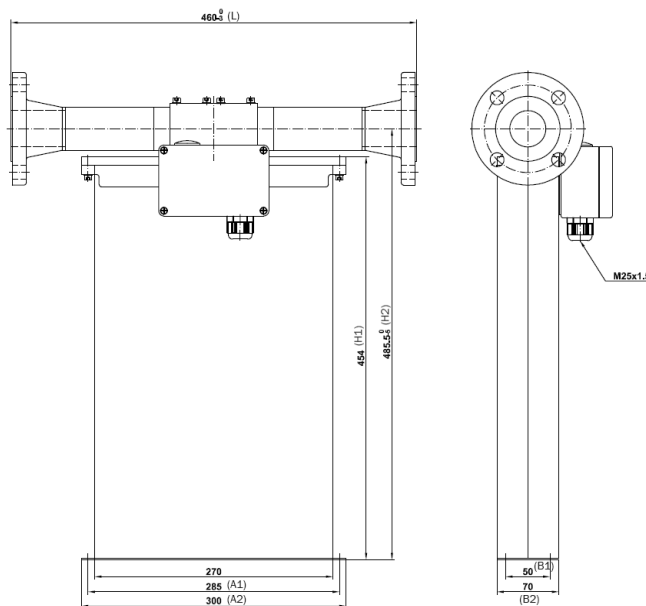


Process Connection	Face to face length (L)	
	mm	in
ANSI 1/2" 15# RF *	400	15.75
ANSI 1" 150# RF	400	15.75
ASSI 1/2" 300# RF *	400	15.75
ANS 1" 300# RF	400	15.75
DIN DN15/PN40 *	400	15.75
DIN DN25/PN40	400	15.75
JIS RF 10k 15A (1/2") *	400	15.75
JIS RF 10k 25A (1")	400	15.75
JIS RF 20k 25A (1/2")	400	15.75
JIS RF 20k 25A (1")	400	15.75

*Only for FP6000

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP6000	15.75	11.22	11.81	1.97	2.76	17.87	18.90	0/5.91*
FP12MT	15.75	11.22	11.81	1.97	2.76	17.87	18.90	0/5.81*

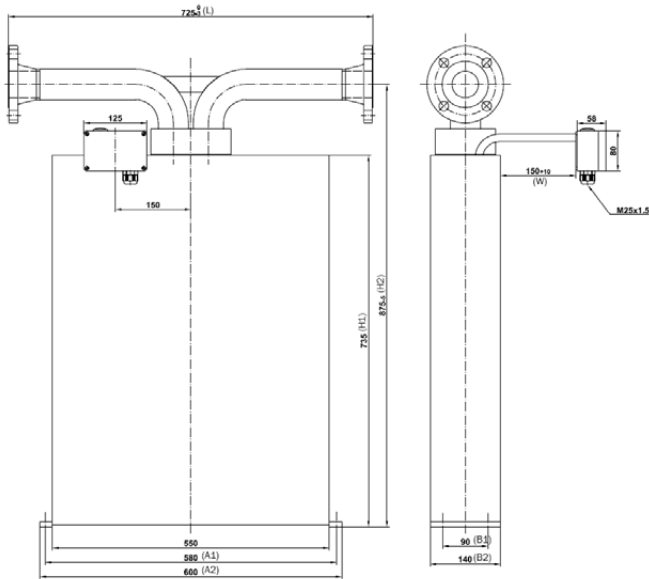
FP18MT



Process Connection	Face to face length (L)	
	mm	in
ANSI 1 1/2" 150# RF	460	18.11
ANS 1 1/2" 300# RF	460	18.11
DIN DN40/PN40	460	18.11
JIS B 2220 RF 10k 40A (1 1/2")	460	18.11
JIS B 2220 RF 20k 40A (1 1/2")	460	18.11

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP18MT	18.11	11.22	11.81	1.97	2.76	17.87	19.13	0/5.91*

FP45MT

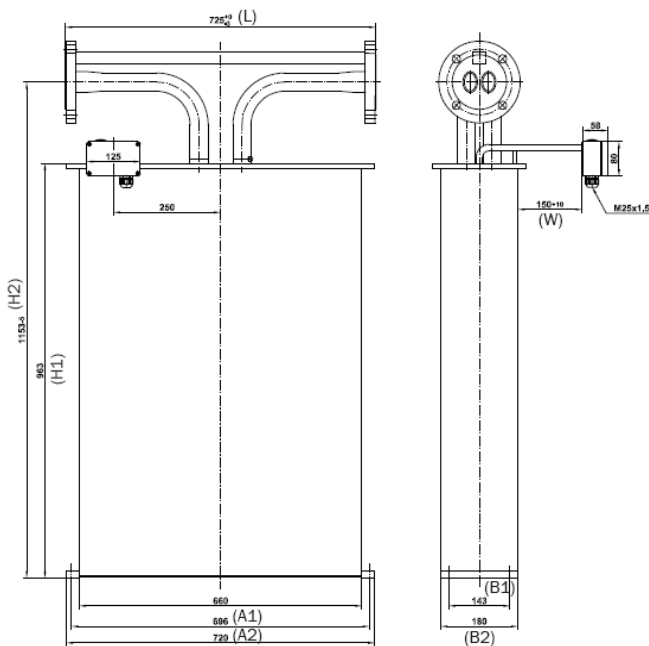


Process Connection	Face to face length (L)	
	mm	in
ANSI 2" 150# RF	460	18.11
ANSI 2" 300# RF	460	18.11
DIN DN50/PN40	460	18.11
JIS B 2220 RF 10k 50A (2")	460	18.11
JIS B 2220 RF 20k 50A (2")	460	18.11

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP45MT	28.54	22.83	23.62	3.54	5.51	28.93	34.45	5.91

Seal-less parallel measuring tube construction with flange connections

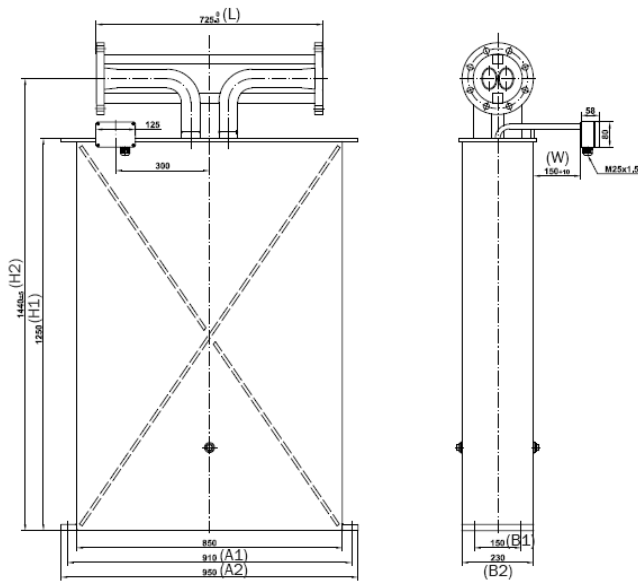
FP90MT



Process Connection	Face to face length (L)	
	mm	in
ANSI 3" 150# RF	725	28.54
ANSI 3" 300# RF	725	28.54
DIN DN80/PN40	725	28.54
JIS RF 10k 80A (3")	725	28.54
JIS RF 20k 80A (3")	725	28.54

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP90MT	28.54	27.40	11.81	1.97	2.76	17.87	19.13	0/5.91*

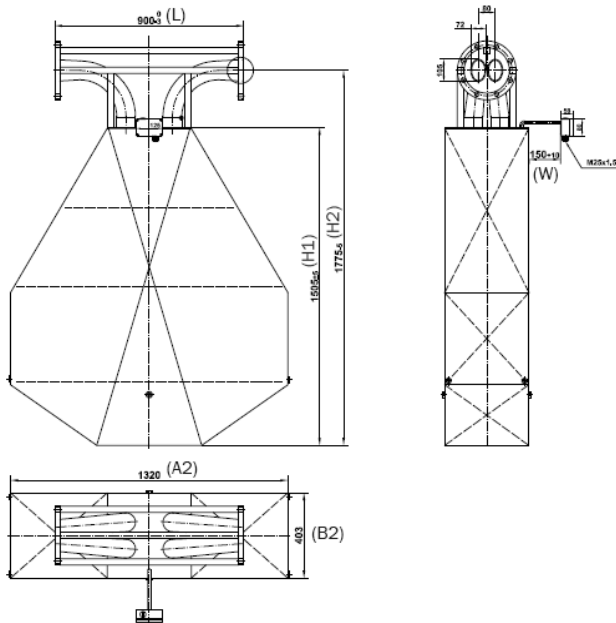
FP180T



Process Connection	Face to face length (L)	
	mm	in
ANSI 4" 150# RF	725	28.54
ANSI 4" 300# RF	725	28.54
DIN DN100/PN40	725	28.54

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP180T	28.54	35.83	37.40	5.91	9.06	49.33	56.81	5.91

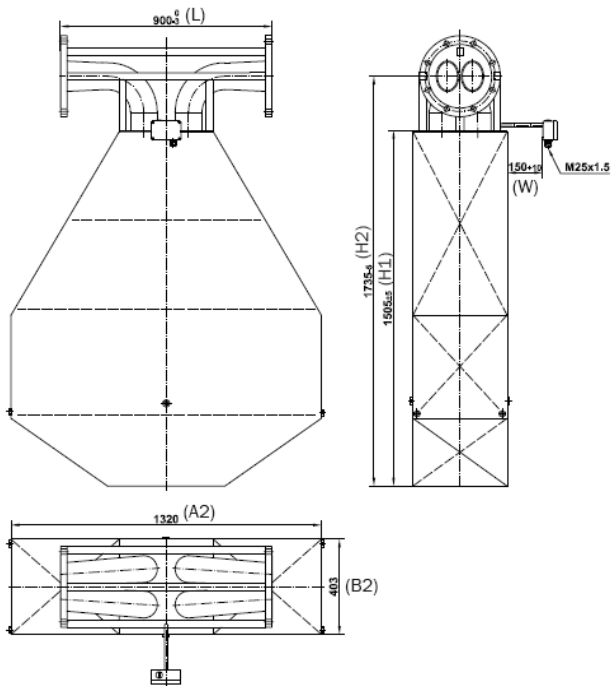
FP480T



Process Connection	Face to face length (L)	
	mm	in
ANSI 6" 150# RF	900	35.43
ANSI 6" 300# RF	900	35.43
DIN DN150/PN40	900	35.43
JIS RF 10k 50A (6")	900	35.43
JIS RF 20k 150A (6")	900	35.43

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP480T	35.43	NA	41.97	NA	15.87	59.21	69.88	5.91

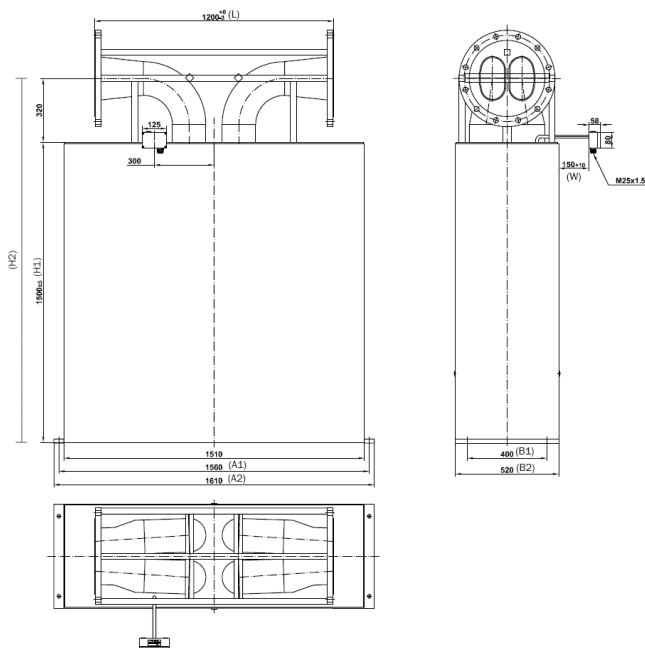
FP720T



Process Connection	Face to face length (L)	
	mm	in
ANSI 8" 150# RF	900	35.43
ANSI 8" 300# RF	900	35.43
DIN DN200/PN40	900	35.43
JIS RF 10k 200A (8")	900	35.43
JIS RF 20k 200A (8")	900	35.43

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP720T	35.43	NA	51.97	NA	15.87	59.21	68.31	5.91

FP18XT



Process Connection	Face to face length (L)	
	mm	in
ANSI 10" 300# RF	900	35.43
ANSI 12" 1500# RF	1200	47.24
ANSI 12" 300# RF	1200	47.24
DIN DN300/PN40	1200	47.24

Size	L (in)	A1 (in)	A2 (in)	B1 (in)	B2 (in)	H1 (in)	H2 (in)	W (in)
FP18XT	35.43	NA	41.97	NA	15.87	59.21	69.88	5.91

Example for typical bunker meter size (FP720T)

Measured Media

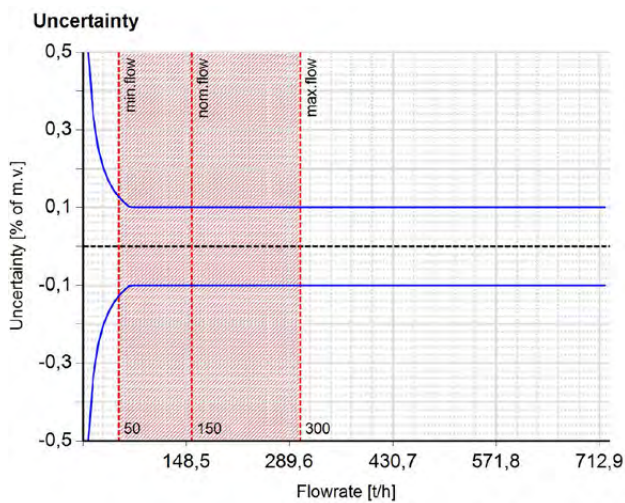
Aggregate State	Measured Media
Liquid	RMH 380
Specific	Max allowed pressure drop
Customer Requirements	1 bar

Operation Data

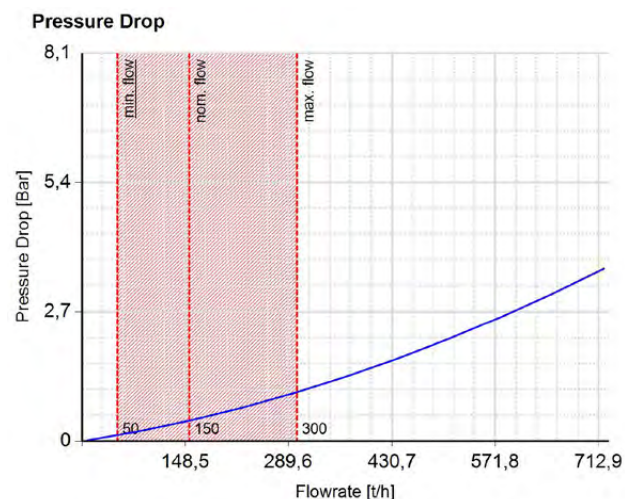
	Minimal	Nominal	Maximal	Unit	
Flow	50	150	300	t/h	(Mass)
Pressure (g.)	2	4	5	Bar	
Temperature	15	50	60	°C	
Viscosity		380		mm ² /s	
Density		991		kg/m ³	

Selected Sensor

Sensor Type	Connection
FP720T	DIN DN200/PN40



Flowrate (t/h)	Uncertainty (% m.v.)
50	0.14
75	0.10
100	0.10
130	0.10
150	0.10
150	0.10
180	0.10
200	0.10
230	0.10
250	0.10
270	0.10
300	0.10



Flowrate (t/h)	Pressure Drop (Bar)
50	0.14
75	0.17
100	0.25
130	0.33
150	0.41
150	0.41
180	0.50
200	0.59
230	0.69
250	0.79
270	0.90
300	1.00

Example for typical fuel consumption meter size (FP18MT)

Measured Media

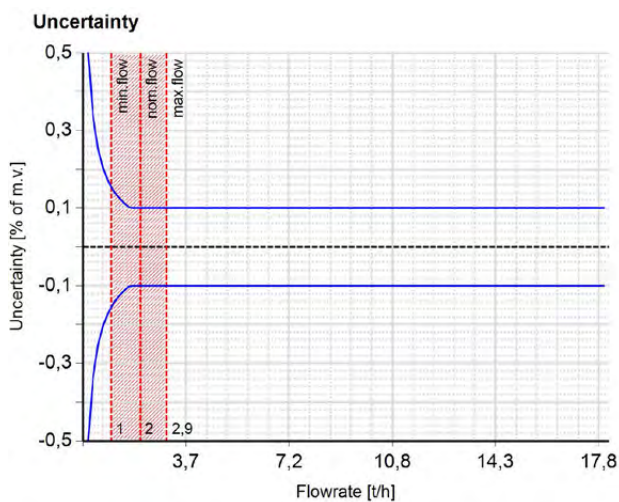
Aggregate State	Measured Media
Liquid	DMB
Specific	Max allowed pressure drop
Customer Requirements	0.1 bar

Operation Data

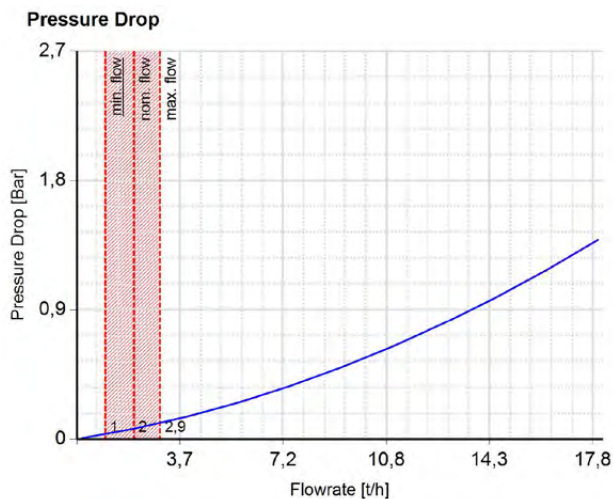
	Minimal	Nominal	Maximal	Unit	
Flow	1	2	2.9	t/h	(Mass)
Pressure (g.)	1	2	3	Bar	
Temperature	30	40	80	°C	
Viscosity		14		mm ² /s	
Density		920		kg/m ³	

Selected Sensor

Sensor Type	Connection
FP18MT	DIN DN40/PN40



Flowrate (t/h)	Uncertainty (% m.v.)
1.0	0.18
1.2	0.15
1.4	0.13
1.6	0.11
1.8	0.10
2.0	0.10
2.0	0.10
2.1	0.10
2.3	0.10
2.5	0.10
2.7	0.10
2.9	0.10



Flowrate (t/h)	Pressure Drop (Bar)
1.0	0.028
1.2	0.034
1.4	0.042
1.6	0.049
1.8	0.056
2.0	0.064
2.0	0.066
2.1	0.072
2.3	0.080
2.5	0.088
2.7	0.096
2.9	0.100

FP26 Mass Flow Transmitter

Rack/Panel Mount Multifunction Coriolis Flow Transmitter

Features

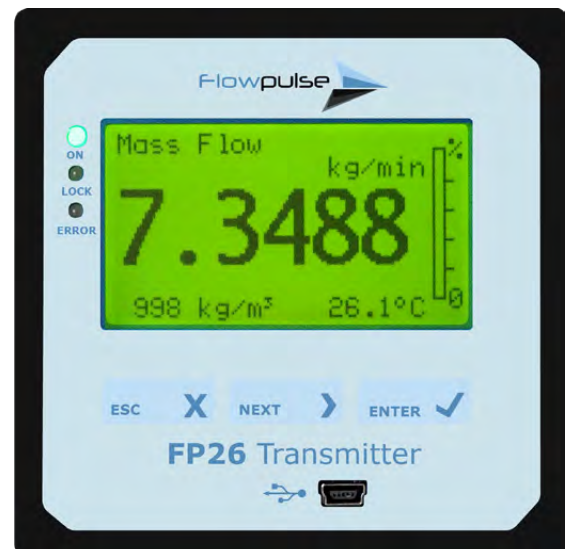
- Rack/Panel Mounting
- Operate with Flowpulse sensor in hazardous area
- Selectable unit for Mass, Volume, Density, and Temperature
- Positive, negative and net totalizers for both volume and mass flow
- Two configurable pulse/frequency/status outputs
- Analog output configurable for Mass, Volume, Density or Temperature
- Digital input configurable for zeroing, measurement hold and totalizer operations
- Connectivity to control systems through Modbus RTU
- Simple user interface - Back Lit Colour LCD display and 3 operator buttons with intuitive menu design
- USB connection for quick service & settings
- Built-in Advanced Diagnostic Set - simple publication of measurement status and/or colour changing display
- Password protected set up
- Upload and download of configuration files
- Power consumption less than 5 W
- Optional lockable front cover

Applications

- General process flow measurement
- Feed stocks and transfers
- OEM applications

Benefits

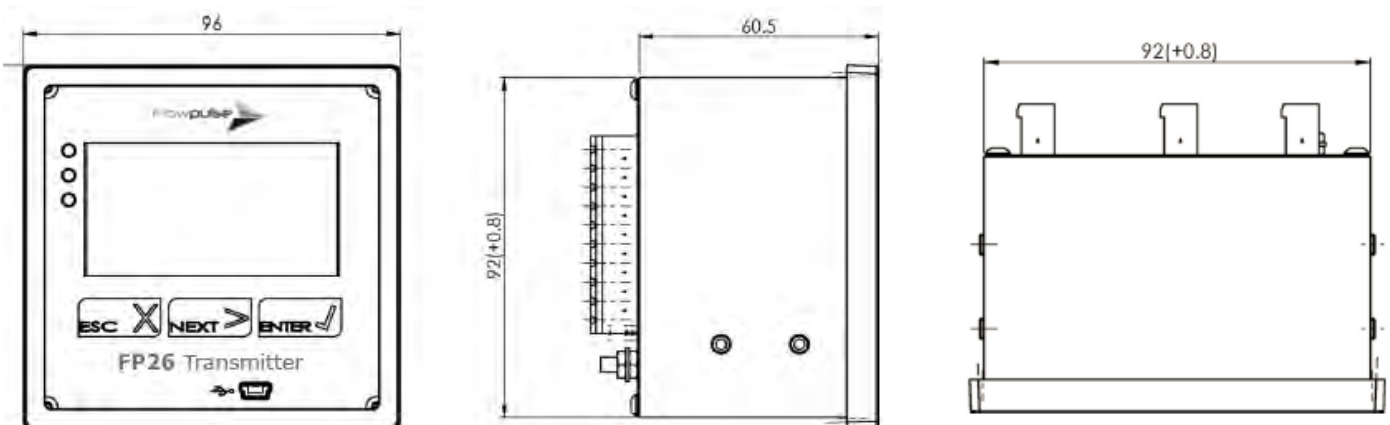
- More insight into process and measurement conditions with advanced diagnostics
- Diagnostics for proactive maintenance
- Works with all Flowpulse flow sensors
- Fast and easy set up using Flowpulse software
- Remote electronics provides installation flexibility



General Specifications

Housing	IEC 61554 Panel mount housing Lockable front cover and DIN rail mount options available
Enclosure Rating	IP20 (front). Optional IP54 front cover, lockable
Ambient Temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Dimensions	96mm x 96mm x 61/75mm
Display	High contrast backlit LCD. Screen changes colour to indicate warning or error.
Weight	0.45 kg / 1lb
Operation	3 x front panel operator buttons for all menu navigation and settings
Sensor Connection	Pluggable screw terminal strip Cable available in lengths of up to 100m for connection to remote sensor
Analog Outputs	1 x 4-20mA output (active / passive) compliant to NAMUR NE-43
Pulse/Frequency/Status Outputs	2 x configurable outputs (IEC 60946), max 10 kHz.
Digital Outputs	1 x configurable control inputs (to IEC 60946)
Power Supply	12-24 VDC +/- 10%, 4 W
Digital Data Communications	Modbus RTU (RS 485). Mini-USB for PC connection.
Hazardous Area Approvals	ATEX/IEC: Ex II (1)G [Ex ia Ga] IIC - for Ex i meter in zone 0,1 (transmitter in ordinary area). ATEX: Ex II 3G Ex nA IIC T4 Gc - for zone 2 (transmitter must be mounted in an IP54 cabinet - please consult factory)

Dimensions



FP27 Mass Flow Transmitter

Rack/Panel Mount Multifunction Coriolis Flow Transmitter

Features

- Rack/Panel Mounting
- Operate with Flowpulse sensor in hazardous area
- Selectable unit for Mass, Volume, Density, and Temperature
- Positive, negative and net totalizers for both volume and mass flow
- Two configurable pulse/frequency/status outputs - Double pulse available
- Two configurable analog outputs
- Two configurable digital status outputs
- Two configurable digital inputs
- Analog input for pressure or density
- Advanced functions: Net Oil, Baume/Brix, % Solids, Concentration, Standard Density and Standard Volume (API MPMS Ch. 11)
- Connectivity to control systems through Modbus RTU and HART
- Custody transfer version without lockout switch and seal point
- Simple user interface - Back lit colour LCD display and 3 operator buttons with intuitive menu design
- USB connection for quick service & settings
- Built-in Advanced Diagnostic Set - simple publication of measurement status and/or colour changing display
- Password protected set up
- Upload and download of configuration files
- Power consumption less than 5 W
- Optional lockable front cover



Applications

- General process flow measurement
- Feed stocks and transfers
- OEM applications

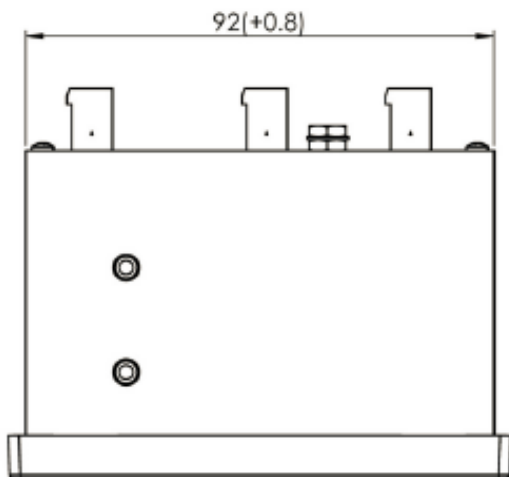
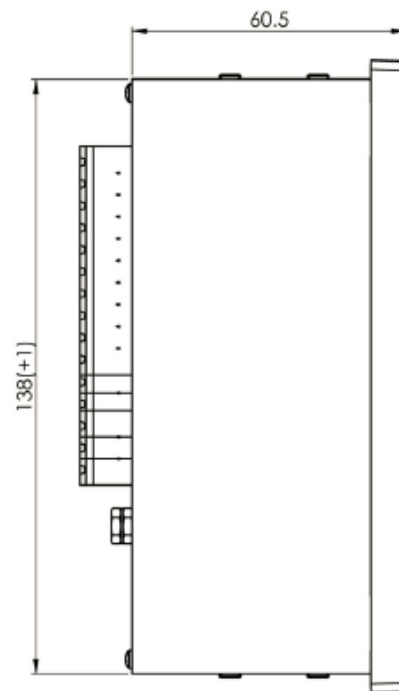
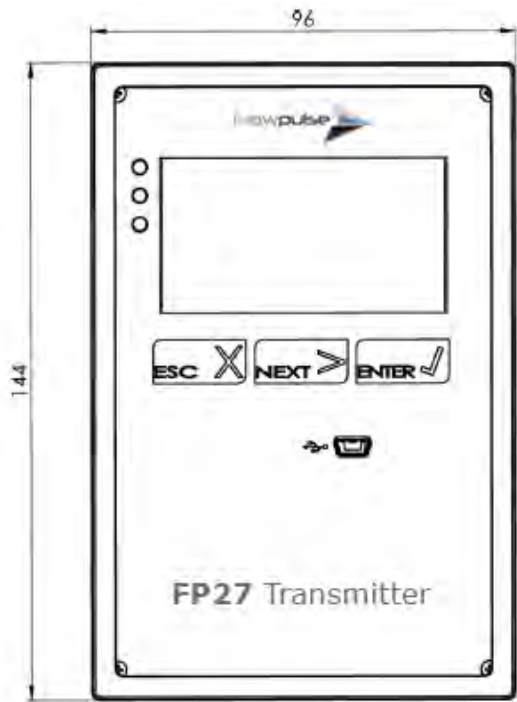
Benefits

- More insight into process and measurement conditions with advanced diagnostic
- Diagnostics for proactive maintenance
- Works with all Flowpulse flow sensors
- Fast and easy set up using Flowpulse software
- Remote electronics provides installation flexibility

General Specifications

Housing	IEC 61554 Panel mount housing. Optional lockable front cover.
Enclosure Rating	IP20 (front). Optional IP54 front cover, lockable front cover
Ambient Temperature	-20 °C to +60 °C (-4 °F to +140 °F)
Dimensions	96mm x 144mm x 61/75mm
Display	High contrast backlit LCD. Screen changes colour to indicate warning or error.
Weight	0.55 kg / 1lb
Operation	3 x front panel operator buttons for all menu navigation and settings
Sensor Connection	Pluggable screw terminal strip Cable available in lengths of up to 100m for connection to remote sensor
Analog Outputs	2 x 4-20mA output (active / passive) compliant to NAMUR NE-43
Digital Outputs	2 x configurable status inputs (to IEC 60946)
Pulse/Frequency Outputs	2 x configurable pulse/frequency outputs (IEC 60946), max 10 kHz.
Digital Inputs	2 x configurable control inputs (to IEC 60946)
Analog Input	1 x 4 - 20mA analog input for two wire pressure or density sensor
Power Supply	100-240 VAC +/- 10% (48 to 62 Hz), 5W or 12-24 VDC +/- 10%, 4W
Digital Data Communications	Modbus RTU (RS 485). Mini-USB for PC connection. HART over analog output.
Hazardous Area Approvals	ATEX/IEC: Ex II (1)G [Ex ia Ga] IIC - for Ex i meter in zone 0,1 (transmitter in ordinary area). ATEX: Ex II 3G Ex nA IIC T4 Gc - for meter in zone 2 (transmitter must be mounted in an IP54 cabinet - please consult factory)

Dimensions



FP16 Mass Flow Transmitter

Compact Multifunction Coriolis Flow Meter Transmitter

Features

- Extreme compact footprint - ideal for embedding into small systems and machines
- Mount remotely or in compact form
- Low installation cost
- High accuracy measurement through state-of-the-art signal processing
- Fully featured MODBUS communication with fast update rate
- 4-20 mA output
- Dual pulse outputs up to 10 kHz
- Low power consumption (<3W)
- DIN Rail mounting for easy integration in control cabinets and closures
- Front panel LED's give real time measurement status
- Flowpulse software for simple configuration, set up, trending, data logging and diagnostics
- Multifunction - Mass, Volume, Density and Temperature Measurement



Applications

Typical applications include:

- Pump control for blending/mixing of liquids
- Fast filling of liquids and gases
- Additive Dosing
- General flow control
- Dispensing

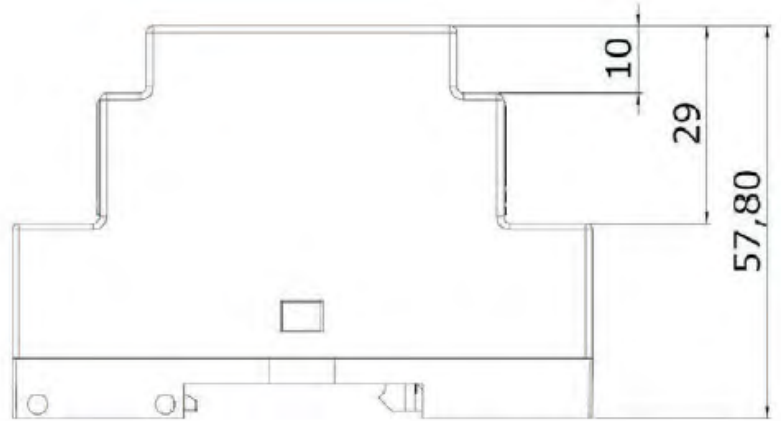
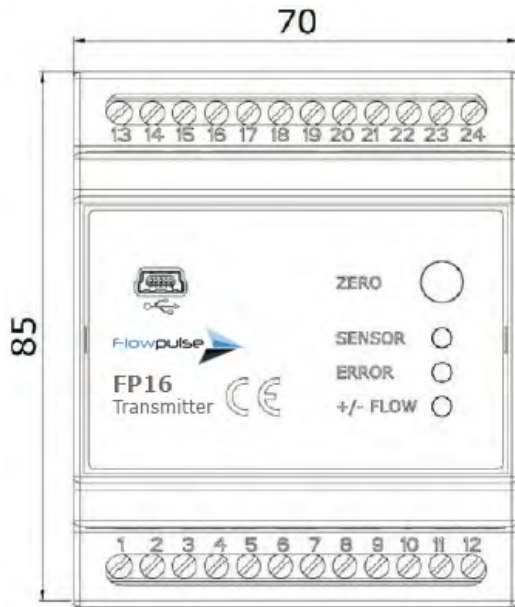
Benefits

- USB connection for configuration and maintenance
- Easy access electrical and signal terminals
- Supports multi-drop MODBUS-over-RS485 for multiple unit communication
- Connects and operates with all Flowpulse Mass Flow Sensors
- Compact mount version for cost and time effective installation
- Version for installation in ATEX Zone 2 available

General Specifications

Measurement	Mass flow, volumetric flow, density, temperature
Totalizers	Forward, reverse, net (mass flow and volumetric flow)
Units	Configurable in both ANSI and metric units
Enclosure Type	IP20/IP66 as compact version
Enclosure Material	Plastic (PC/PPO)
Electrical Connections	12 dedicated terminals for mass flow sensor connection (remote mont) 12 terminals for power and I/O
Temperature Limits	Operating: 20 to 60 °C / -4 to 140 °F Storage: -40 to 85 °C / -40 to 185 °F
Max. Humidity	95% non-condensing
Vibration	Compliant to: IEC60068-2-6, 60068-2-27, 60068-2-32
Power	12 to 28 VDC, 3W
Communications	One mini USB (type B) service port (galvanically isolated) One MODBUS via RS 485 port (fully isolated, 2 wire connection)
Input	Any Flowpulse mass flow sensor
Outputs	Two user programmable pulse, double pulse, frequency (galvanically isolated) Two user programmable status outputs (galvanically isolated) One user programmable active 4-20 mA
Flowpulse Software	Fully featured configuration and diagnostic software package supplied with each FP16 transmitter. Functions include: Configuration, diagnostics, data logging and data trending plus transmitter maintenance functions such as firmware update and tag number storage
Hazardous Area	ATEX rating Zone 2: Ex II 3 G Ex nA IIC T4 Gc - only as compact version
Weight	0.19 kg / 0.45 lb
Packing	Packing size (H x W x D): 70 x 120 x 95 mm / 2.75 x 4.72 x 3.74 inch Total weight incl. packing: 0.23 kg / 0.52 lb

Dimensions



Meter Range Overview

