AccuPlus™ Additive Injectors

Bulletin SS05001E Issue/Rev. 0.2 (3/19)

AccuPlus™ is an additive injector used to accurately measure additives into a mainstream product such as gasoline, diesel, and heating oil. The flexible configuration allows single or multiple additives to be measured through a common meter using a manifold platform. The AccuPlus™ is a positive displacement meter designed with high resolution electronics that provide dependable injections over a wide range of PPM rates. Some applications may include injection of fuel performance additives, markers and dyes, cold flow enhancers and liquid fertilizers, etc.

Features

- **High accuracy flowmeter** – more accurate injections
- **Low pressure drop design** – energy efficient and less wear
- **Easy installation** – lower initial cost
- **Configurable design with single or multiple additives per meter** – more application flexibility
- **Modular assembly with calibration ports** – mechanical simplicity and easy service
- **High resolution encoder** – increased injection precision at low ppm rates

Specifications

- Nominal k-factor – 10,000 pulses/liter (10 pulses/mL)
- Maximum viscosity – 300 cSt (kinematic / for others, consult factory)

Operating Specifications

Flow Range LPM (GPM)	Flow Turndown	Repeatability	Linearity
0.48 to 12 (0.13 to 3.17)	25:1	0.10%	± 0.50%

Electrical Inputs

DC Power Range: 10 to 30 Vdc

Input Current: Quiescent Current (No Load):
27 mA @ 10 Vdc,
20 mA @ 24 Vdc, 20 mA @ 30 Vdc.

Power Consumption: ≤ 650 mW plus load

Output Signal

10 Vdc Input

Power Supply: No Load 9.7 ± 0.3 V_{p-p} square wave
270 Ω Load: 7.6 ± 0.3 V_{p-p} square wave (minimum)

24 Vdc Input

Power Supply: No Load 23.7 ± 0.3 V_{p-p} square wave
270 Ω Load: 16 ± 0.3 V_{p-p} square wave (minimum)

30 Vdc Input

Power Supply: No Load 29.7 ± 0.3 V_{p-p} square wave
270 Ω Load: 21 ± 0.3 V_{p-p} square wave (minimum)

Output Source Current
70 mA @ Vdc, 130 mA @ 24 Vdc, 160 mA @ 30 Vdc

Output Current per Channel (A & B)
Maximum Sink Current: 300 mA @ 30 Vdc
Maximum Source Current: 80 mA @ 30 Vdc

Signal Cable
Three-wire shielded for single-channel transmission.

Sizes:	Distance:
# 20 AWG (0,75 mm^2)	Up to 2,000 ft. (610 m)
# 18 AWG (1,00 mm^2)	Up to 3,000 ft. (915 m)
# 16 AWG (1,50 mm^2)	Up to 5,000 ft. (1,525 m)

Environmental
Temperature: -40°F to 140°F (-40°C to 60°C)
Humidity: 5% to 95% Non-Condensing

Electrical Safety
Approvals: FTZÚ 10 ATEX 0180 X
II 2G Ex d IIB T6 Gb

IECEx FTZU 13.0007X
Ex d IIB T6 Gb

GOST Certificate POCC
DE.ГБ05.B04154
1 Ex d IIB T6 Gb

Protection Class: IP66

AccuPlus Mechanical Ratings
Maximum Pressure: 0 - 300 psig (25 bar)

Manifold Outlet Connection: M18 x 1.5 Male Thread

Coax Inlet Connections: M18 x 1.5 Male Thread

Calibration Connection: M22 x 1.5 Female Thread (Calibration Kit Available)

Materials of Construction
Wetted Materials: 300 Series Stainless Steel
400 Series Stainless Steel
Carbon
PTFE
Viton

Non-Wetted Materials: Aluminum
Carbon Steel

Coax Valve
Manufacturer: CO-AX

Type: MK 10 NC Ex

Approximate Unit Weight: 3.5 lbs (1,5 kg)

Line Size: 0-300 psig (10 mm)

Line Port: Thread DIN ISO 228, G 3/8"

Operating Pressure: 0 – 25 Bar

Actuation: Direct-Current Magnet with Integrated Rectifier

Operating Mode: Normally Closed

Maximum Switching Cycles: 1/min 200

Switching Time: mS Opening 80 Closing 140

Electrical Connection: Molded Terminal Box with 3 m Flying Leads

Ingress Protection: IP68

Supply Voltage: 230 V 40-60 Hz AC, Fused, for Hazardous Zone Details, refer to actual Valve Manufacturer Documentation.

Energized Duty (ED) Rating: ED 100%, for Hazardous Zone Details, refer to actual Valve Manufacturer Documentation.

Insulation Rating: H 356°F (180°C), for Hazardous Zone Details, refer to actual Valve Manufacturer Documentation.

Ambient Temperature: -40°F up to +140°F (-40°C up to +60°C) with restricted ED for Hazardous Zone Details, 104°F (+40°C) with no restricted ED, refer to actual Valve Manufacturer Documentation.

Explosion Proof: PTB 03 ATEX 2045 X
II 2 G Ex mb II T4
II 2 D Este A21 IP68 T130°C

IECEx TPS 14.0002X
Ex mb llc T4 Gb
Fx lD A21 IP68 T130°C Gc

GOST Certificate POCC
DE.ГБ05.B03801
2 Ex m II T4 X

For Hazardous Zone Details, refer to actual Valve Manufacturer Documentations and Declarations.

Modeling

LEA – C – 1 – C – 1 – A – N – 0 – 0

Block Type

LEA – AccuPlus

Meter Piston Material

C – Carbon

Number of Additive Valves

1 – 1 Valve
2 – 2 Valves (includes 1 Manifold)
3 – 3 Valves (includes 2 Manifolds)
4 – 4 Valves (includes 2 Manifolds)
5 – 5 Valves (includes 3 Manifolds)
6 – 6 Valves (includes 3 Manifolds)
7 – 7 Valves (includes 4 Manifolds)
8 – 8 Valves (includes 4 Manifolds)

Valve Type

C – Coax

Power

1 – 120 VAC/60 Hz
2 – 230 VAC/50 Hz

Approval

A – ATEX / IEC Ex

Mounting Options

N – None
U – U-Bar
X – Other (Specify, Consult Factory)

Number of Manifolds for Multiple Inlet Valves * **

0 – No Manifold mounted (Max. 1 Inlet Valve)
1 – 1 Manifold mounted (Max. 2 Inlet Valves)
2 – 2 Manifolds mounted (Max. 4 Inlet Valves)
3 – 3 Manifolds mounted (Max. 6 Inlet Valves)
4 – 4 Manifolds mounted (Max. 8 Inlet Valves)

Notes:
** Spare Ports are closed with Blind Covers*
*** Total Number of Inlet Valve Ports must be equal or more than mounted Inlet Valves*

Proportional Valve

0 – No Valve
1 – Proportional Valve
(Requires min. 1 Manifold mounted)

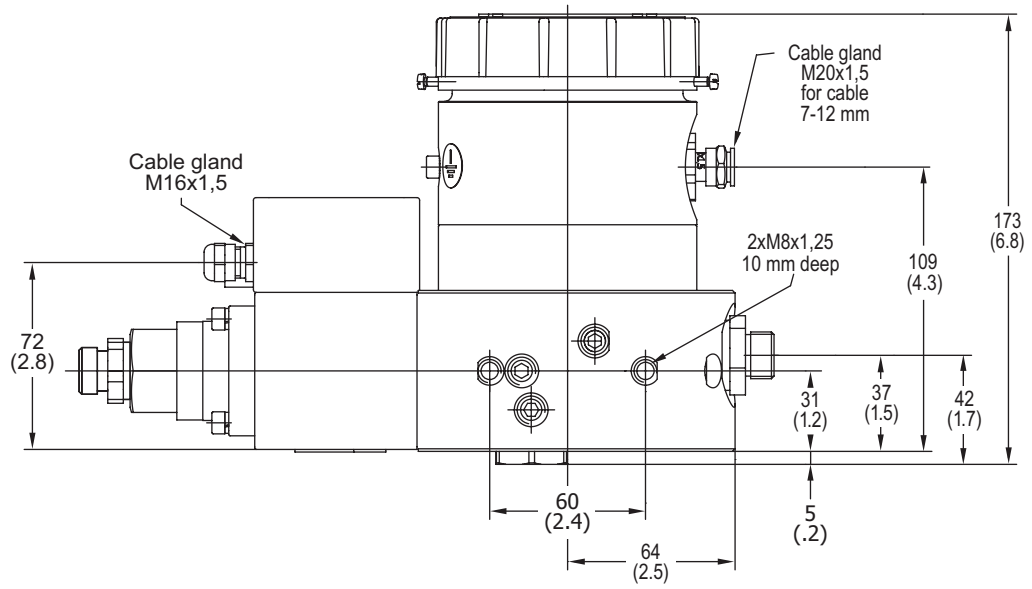
Terminal Connections: CN1

Terminal 1	+10 to +30 Vdc
Terminal 2	“A” Signal (Leading)
Terminal 3	“B” Signal (Lagging)
Terminal 4	Logic Common (Ground)
Terminal 5	No electrical connection on circuit board. These can be used for wiring connections or tie-ins (ex. RTD junction, etc.)
Terminal 6	
Terminal 7	
Terminal 8	

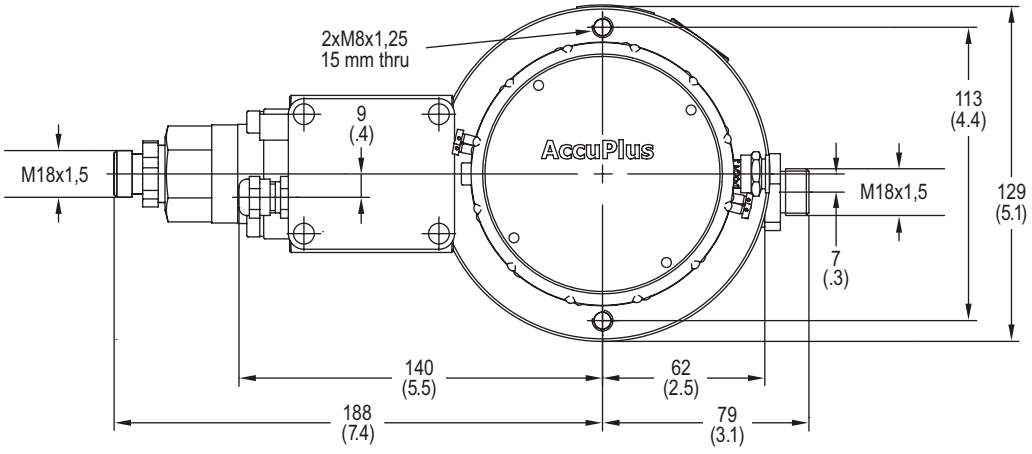
Dimensions (AccuPlus – Shown with a single additive valve)

mm (Inches)

Side View Dimensions



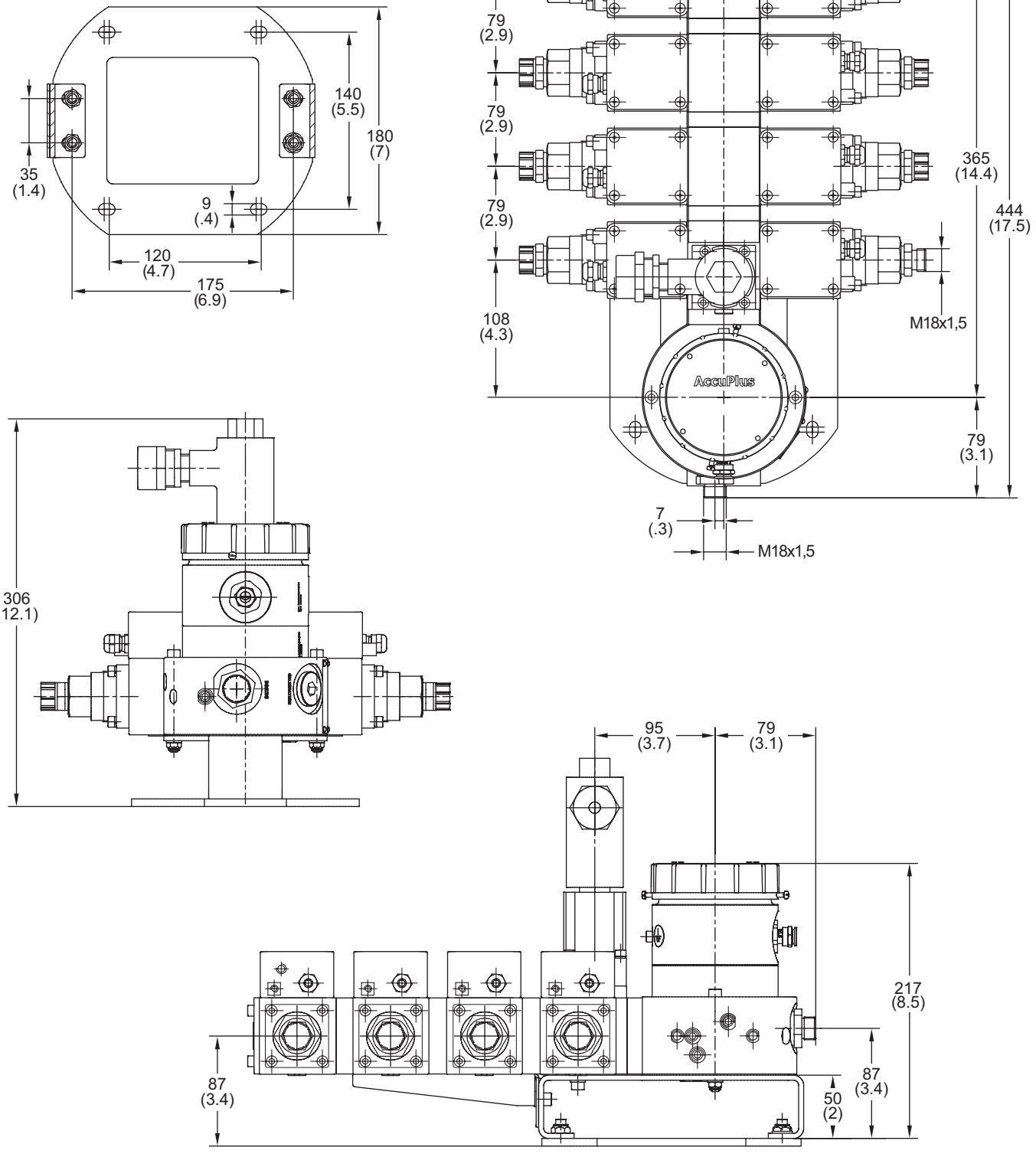
Top View Dimensions



Note: Dimensions – Millimetres to the nearest whole mm (inches to the nearest tenth), each independently dimensioned from respective engineering drawings.

Dimensions (AccuPlus – Shown with 8 additives and a proportioning valve)

mm (Inches)



Revisions included in SS05001E Issue/Rev. 0.2 (3/19):
Dimensions diagram updated on page 4.
The specifications contained herein are subject to change without notice and any user of said specifications should verify from the manufacturer that the specifications are currently in effect. Otherwise, the manufacturer assumes no responsibility for the use of specifications which may have been changed and are no longer in effect.

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