3600 Series

Severe Duty Gas Mass
Flow Meter & Controller

High Performance Gas Flow Control for Industrial Environments

The Porter 3600 Series Digital Flow Control Instruments are designed specifically for applications in severe industrial environments. Various models in this series meet IP 66; NEMA 4X; Class I, Div. 2; and Atex Zone 2 requirements. Series 3600 devices will satisfy food & beverage, biotech/pharmaceutical and chemical processing applications that require frequent wash down, as well as chemical/petrochemical and industrial process applications where hazardous location certification is required.

Digital control electronics provide unparalleled accuracy, repeatability and control stability. TURCK™ electrical connectors simplify wiring and replacement. Percentage of reading accuracy, fast response and multi-gas capability, along with analog or digital I/O options make the Porter 3600 Series a versatile solution to many demanding applications.

Contact Information:

Parker Hannifin Corporation
Porter Instrument Division
245 Township Line Road
Hatfield, PA 19440

phone 215 723 4000
fax 215 723 2199
Industrial@parker.com

www.parker.com

3600 Series Features:

- NEMA 4X, IP 66 Watertight Construction
- Listed for Class 1, Division 2 Environments
- ATEX Zone 2 Certified
- Industry Standard TURCK™ Electrical Connectors
- Stainless Steel Body and Internal Components
- Digital Electronics
- Multi-Gas Capability
- 0-5 Vdc, 0-10 Vdc or 4-20 mAdc Analog I/O
- Modbus Profibus or DeviceNet Communication

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Specifications

Flow Capacity
Model 3601 controller and 3611 meter:
100 SCCM to 10 SLPM (nitrogen equivalent)
Model 3602 controller and 3612 meter:
10 SLPM to 100 SLPM (nitrogen equivalent)

Response Time (per SEMI E17-91 Settling Time)
1 to 2 seconds (consult factory for applications requiring faster response times)

Accuracy and Linearity
±1.0% of reading (20%-100% full scale); ±0.8% of reading plus ±0.2% full scale (below 20% full scale)

Repeatability
Within ±0.2% of rate at any constant temperature within operating temperature range

Rangeability (Control Range)
50:1 (2%-100% full scale) (accuracy and control)

Ambient Temperature Range
DeviceNet: -10°C to 60°C (14°F to 140°F)
All Other Protocols: -10°C to 70°C (14°F to 158°F)

Temperature Coefficient
(per SEMI E18-91 Zero Effect and Span Effect)
±0.05% full scale/ºC of zero
±0.05% of reading/°C of span

Maximum Operating Pressure: 1500 PSIG

Pressure Coefficient
(per SEMI E28-92 Total Calibration Effect)
± 0.1%/atmosphere typical using nitrogen (N_2)

Warm-up Time: 10 minutes

Setpoint Input/Flow Signal Output

Setpoint	Flow Signal
0-5 Vdc	0-5 Vdc (2K ohm min. load resist.)
0-10 Vdc	0-10 Vdc (3K ohm min. load resist.)
4-20 mAdc	4-20 mAdc (sourcing) (refer to load resistance values below)
0-100%	0-100%

(Modbus, Profibus, DeviceNet)

Load resistance values for 4-20 mAdc flow signal output: 200-750 ohm for 15-30 Vdc loop supply voltage

Power Supply Requirements
Specified 15 or 24 Vdc. Current Consumption <250 mAdc (MFC), <70 mAdc (MFM)

Electrical Connections

NEMA4X, IP66, Class 1, Div 2, ATEX, (Y)
Mating Cordsets (TURCK, Inc.):
Analog: Female/flying leads:
TURCK p/n P-RKV 71H-219-*M
Modbus: Female/flying leads:
TURCK p/n P-RKV 55H-099-*M
DeviceNet: Contact factory
Profibus: Contact factory

NEMA4X, IP66, Class 1, Div 2 (X)
Mating Cordsets (TURCK, Inc.):
Analog: Female/flying leads:
TURCK p/n P-RKV 71H-219-*M
DeviceNet: Female/Male:
TURCK p/n RSCV RKCV 5711-*M
Female/flying leads:
TURCK p/n RKCV 5711-*M

Mating Cordset for Internal Electrical Connector inside all Devices listed above:
RS232 Communications: TURCK p/n PKG 3Z-*

NEMA4X, IP66 (W)
Mating Cordsets (TURCK, Inc.):
Analog: Female/flying leads:
TURCK p/n RKSV 8T-*
Modbus: Female/flying leads:
TURCK p/n RKSV 4.5T-*
DeviceNet: Female/flying leads:
TURCK p/n RKCV 5711-*M
Female/Male:
TURCK p/n RSCV RKCV 5711-*M
Profibus: Female/flying leads:
TURCK p/n RKSWV 455-*M
Female/Male:
TURCK p/n RSSWV RKSWV 455-*M

*Cordset length indicator

Certifications (Model Dependent)

EMC Directive 89/336/EEC
Pressure Equipment Directive (97/23/EC)
Hazardous Location Classification
Enclosure Type 4X/IP66
Temperature (Ambient)
Devicenet:
-10°C to 60°C
(14°F to 140°F)
All Other Protocols:
-10°C to 70°C
(14°F to 158°F)

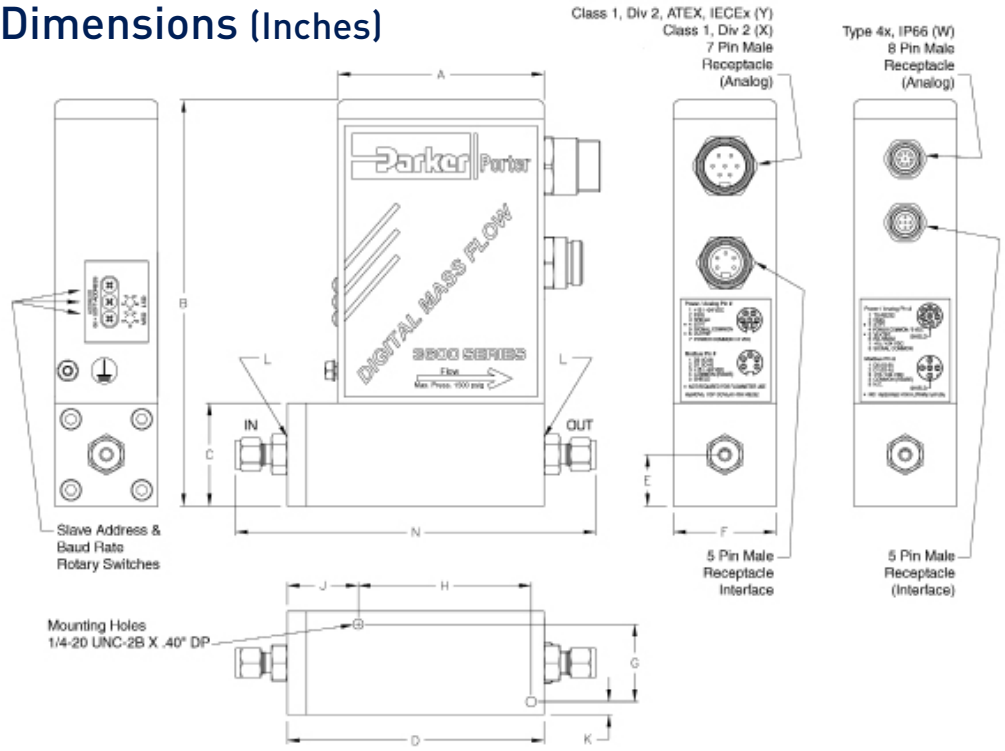
CE Ex II 3 G CE
Ex nA IIC T5 Gc IP66
ITS 10 ATEX 47238X
Cl I Div 2 Gps ABCD
Class I Zone 2

AEx nA IIC T5 IP66
Ex nA IIC T5 IP66
Intertek
4000657

Materials

Body	316 Stainless Steel
Enclosure	3/16" thick Extruded 6061 Aluminum
Sensor Assembly	316L Stainless Steel
Orifice	316 Stainless Steel (MFCs only)
Valve Components (Wetted)	302 Stainless Steel, 316 Stainless Steel, 430F Stainless Steel and Sandvik® (MFCs only)
Elastomers	Buna N, EPDM, Kalrez®, Neoprene or Viton®
Process Connections	316 Stainless Steel

Dimensions (Inches)

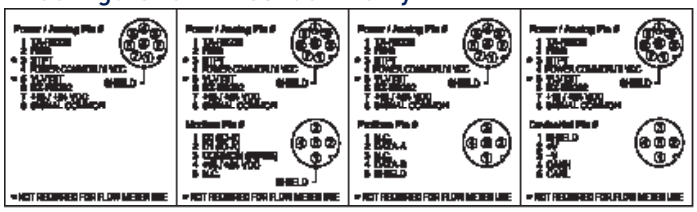


A	B	C	D	E	F	G	H	J	K	L	N
4.00	7.875	2.00	4.982	1.00	2.00	1.50	3.355	1.377	0.250	9/16-18	Ref. Table Below

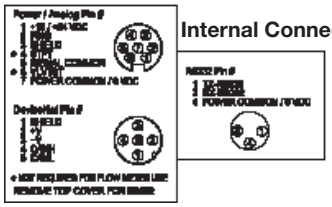
A-LOK®/CPI™					VacuSeal™		
1/8"	1/4"	3/8"	1/2"	3/4"	1/4"	3/8"	1/2"
6.822	7.002	7.122	7.282	N/A	6.862	7.162	7.162

External Wiring Diagram Cable Information and Connector Pinouts

W Configuration – Washdown Only

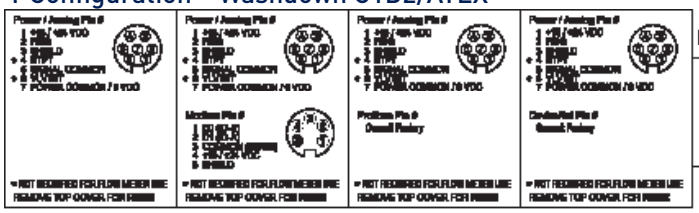


X Configuration – Washdown C1D2



Internal Connection

Y Configuration – Washdown C1D2/ATEX



Internal Connection

Ordering Information

Use the following guide to determine the specific product number you require.

The following example describes a 3600 Series Flow Controller, standard response, Modbus communications, 24 Vdc power, NEMA 4X & IP 66 Certification, Viton® elastomers and 1/4" A-LOK® connections.

Example: 3601AAMWVYAA

3601	A	A	M	W	V	Y	AA

Model

3601/3611	<10 SLPM, N_2
3602/3612	>10 SLPM, N_2

Model Revision Level

Factory Assigned

Response Time

A	1 to 2 seconds (standard)

Elastomers (Valve Seat / O-Rings)

B	Buna N/Buna N
E	EPDM/EPDM
K	Kalrez®/Kalrez®
N	Neoprene/Neoprene
V	Viton®/ Viton®

Viton® and Kalrez® are registered trademarks of DuPont Performance Elastomers L.L.C.

Assembly/Calibration Features

AA	Factory Standard

PCB Setpoint & Output Signal, Power Supply Voltage

A	0-5 Vdc (+15 Vdc)
B	0-5 Vdc (+24 Vdc)
C	DeviceNet (+15 Vdc)
D	DeviceNet (+24 Vdc)
E	0-10 Vdc (+15 Vdc)
F	0-10 Vdc (+24 Vdc)
G	4-20 mAdc (sourcing) (+15 Vdc)
H	4-20 mAdc (sourcing) (+24 Vdc)
L	Modbus (+15 Vdc)
M	Modbus (+24 Vdc)
P	Profibus DP (+24 Vdc)
R	Profibus DP (+15 Vdc)

Certification

W	NEMA 4X, IP66
X	C1D2, NEMA 4X, IP66
Y	ATEX, C1D2, NEMA 4X

(See note 1 below.)

Process Connection Size and Type

A	3/8" CPI™	**P**	1/4" Male Metal Gasket Face Seal	**X**	No Connections
B	1/8" Compression	**Q**	3/8" Male Metal Gasket Face Seal	**Y**	1/4" A-LOK®
C	1/4" Compression	**S**	1/2" Male Metal Gasket Face Seal	**Z**	Special Connections
D	3/8" Compression	**U**	3/8" A-LOK®	**1**	8mm A-LOK®
E	1/2" Compression	**V**	1/2" A-LOK®	**3**	12 mm Compression
F	1/2" CPI™	**W**	6 mm Compression	**6**	1/8" A-LOK®
H	10 mm Compression			**7**	1/8" CPI™
I	1/4" CPI™			**8**	1/4" VacuSeal™
				9	1/2" VacuSeal™

Note 1: Porter Washdown Model 3600 Product Offerings

Model Type / Certifications	Model Code Field 8	Communications Type			
		Analog	Modbus	Devicenet	Profibus
Model 3600 Mass Flow Meters/Controllers Ingress Protection, IP66 / NEMA 4X	**W**	A	A	A	A
Model 3600 Mass Flow Meters/Controllers Ingress Protection/Hazardous Environment, IP66 / NEMA 4X / Class I Div 2	**X**	N	N	A	N
Model 3600 Mass Flow Meters/Controllers Ingress Protection/Hazardous Environment, IP66 / NEMA 4X / C1D2 / ATEX	**Y**	A	A	W	W

Key: A = Available W = Available, Wiring Modifications Required N = Available, Use Model Code Y

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