

Interceptor™

Gas Sampling Systems



Affordable Composite Sampling

The Interceptor Gas Sampling System provides true representative average sampling with both time-based and flow-based capability. This compact, easy to use and install sample system delivers accurate, high quality gas samples each and every collection period. The Interceptor provides a more cost effective sampling method when compared to on-line gas chromatographs and is far more accurate and comprehensive than traditional spot sampling.



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Product Features:

- Compatible with all flow computers
- On-line serviceability
- All materials meet NACE MR0175/ISO 15156
- Standard pump construction is hard anodized 6061-T6 aluminum
- CSA approved, intrinsically safe, Class I, Div. 1, Group C & D hazardous locations
- Direct or remote mounted
- Inlet pressures from -10 Hg vacuum to 2200 PSIG
- 200°F maximum temperature



ENGINEERING YOUR SUCCESS.

Interceptor Gas Sampling Systems

Accurate Natural Gas Quality Measurement

In order to meet contractual obligations with business partners and maximize profits, accurate measurement of natural gas quality is critical for all energy companies. Whether buying or selling, non-compliant sampling systems and methods can contaminate a natural gas sample and yield erroneous BTU or gas quality values. As represented by the table below, even a small error in BTU measurement can add up and quickly lead to substantial revenue imbalances. This lost accuracy can be compounded by additional volumetric miscalculations due to natural gas composition errors. These volumetric calculations are based on accurate and correct gas analysis that can be obtained by utilizing the Parker Interceptor Natural Gas Sampling System.

Parker's Interceptor Natural Gas Sampling System delivers accurate, high quality gas samples each and every collection period. Gas compositions and flow rates can vary widely through your custody transfer points over a given billing period. Interceptor accurately obtains a representative average of the gas composition in your pipeline. It provides a more affordable sampling method when compared to complicated on-line gas chromatographs and is a more accurate method than traditional spot sampling.

The rugged Interceptor pump design, with the G-6000 control card, can be neatly packaged with Parker sample probes and cylinders to provide field selectable TIME BASED or FLOW PROPORTIONAL composite sampling. Simply program the

sampling method, select the sample bite size, and return at the end of the sample period to retrieve accurate and complete natural gas samples every time.

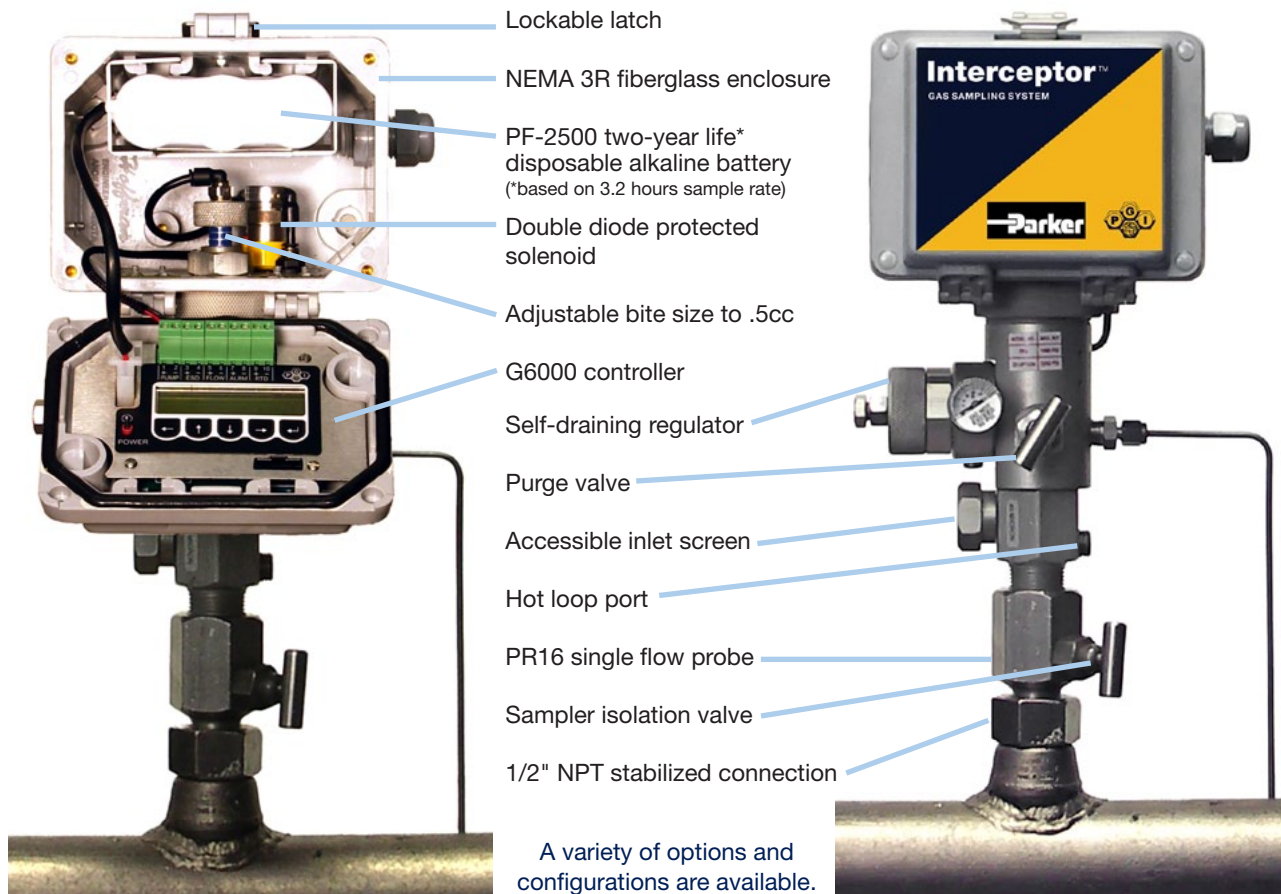
Interceptor is part of Parker's family of highly engineered Custody Transfer Components that include Hot-Shot™ Heated Enclosure Systems that meet API 14.1 requirements to maintain natural gas samples above the hydrocarbon dew point, NOVA™ Natural Gas and Liquid Sampling Systems, Direct-Mount® Systems utilized to reduce installation costs and the effects of pulsation on natural gas measurement, and ThermoSync® Temperature Systems for accurate temperature measurement.

No. of Wells	Cost/MMBTU	Calculated BTU/scf	Flow Rate (MCF/day)	Value of Gas Produced Per Day	% BTU Error	Cost of Error		
						Per Day	Per Month	Per Year
1	\$7	1,000	200	\$1,400	1%	\$14	\$420	\$5,040
					3%	\$42	\$1,260	\$15,330
					5%	\$70	\$2,100	\$25,200
200	\$7	1,000	200	\$1,400	1%	\$2,800	\$84,000	\$1,008,000
					3%	\$8,400	\$252,000	\$3,066,000
					5%	\$14,000	\$420,000	\$5,040,000



Interceptor Pump: Why Aluminum vs. Stainless?

Parker's standard pump construction is hard anodized 6061-T6 aluminum. A salt spray test conducted by an independent lab concludes that "after exposure to 192 continuous hours in a 5% salt-fog environment in accordance with ASTM B 117, the 316 stainless steel bar exhibited more severe corrosive attack than the hard anodized 6061-T6 aluminum bar."



G6000 Electronic Controller

The G6000 Control Card has the following standard features:

- Sample Rate can be set to Time-Based or Flow-Based.
- Flow Signal type is field selectable to accept pulses, voltage (1-5 volts), or current (4-20 milliamps).
- RTD input used to display and monitor heated sample enclosure temperature. (Separate 100 Ohm RTD sensor required)
- Configurable alarm output can be enabled for one or more of the following events: Low battery, Power switch off, Emergency Shut Down (ESD) detected, Low and/or High RTD temperature and Maximum Sample Count.
- Sample count limit can be set to disable pump or alarm after a fixed number of samples have been taken.
- Time-Stamped Event log for operational history.
- Pre-saved settings can be downloaded to control card to simplify installation via SA-port.
- G6000 will remember previous settings even after power is removed.



Part Number Construction

Base Model Number				Options (see next page)						
Pump	System	Mount								
PF	X	X	X	—	X	X	X	X	X	X

Pump Style			
Code	Regulator	Outlet Control	Inlet Pressure
1	No	Spring Check	50 to 90 PSI (see S2 options for under 50 PSI)
2	No	Balance Valve	90 to 1480 PSI (requires alternative source to operate solenoid)
3	Yes	Balance Valve	90 to 1480 PSI (see Z2 option for 1480 to 2200 PSI)

Mounting Methods	
Code	Description
B	DIRECT MOUNT (Includes PR65 SS Dual Flow 3/4" MNPT x 3/4" FNPT stabilized probe)
D	DIRECT MOUNT (Includes PR16 SS Single Flow 1/2" MNPT x 3/4" FNPT stabilized probe; 3/4" MNPT Process Connection – see N3 option)
L	DIRECT MOUNT (No probe; 3/4" MNPT pump connection)
P	PIPE MOUNT (No Probe; 3/8" FNPT connection; includes SS pipe mounting bracket) valid w/ C, D & M Configurations only

System Configuration					
Code	Controller	Solenoid	Electronics Enclosure	Bite Size Adjustment	Power
A	None	12 VDC	None	.1, .2, .3, .4, or .5cc selectable	Customer Supplied
B	None	6 VDC	None	.1, .2, .3, .4, or .5cc selectable	Customer Supplied
C	None	12 VDC	On top of pump	Adjustable from 0 to .5cc	Customer Supplied
D	None	6 VDC	On top of pump	Adjustable from 0 to .5cc	Customer Supplied
*K	None	12 VDC	None	Adjustable from 0 to .5cc	Customer Supplied
*L	None	6 VDC	None	Adjustable from 0 to .5cc	Customer Supplied
M	G6000	6 VDC	On top of pump	Adjustable from 0 to .5cc	PF-2500 (14 amp hour Battery)
*P	G6000	6 VDC	On top of heated enclosure	Adjustable from 0 to .5cc	PF-2500 (14 amp hour Battery)
R	None	24 VDC	On top of pump	Adjustable from 0 to .5cc	Customer Supplied
S	None	24 VDC	None	.1, .2, .3, .4, or .5cc selectable	Customer Supplied
*T	None	24 VDC	None	Adjustable from 0 to .5cc	Customer Supplied

*For heated enclosures only

System Configuration codes M and P replace all previous electronic controller options (E, F, G, H and J)

Configuration Examples:

PF1AD-M7

- Least expensive direct mount flow proportional sampler
- Unit shown requires pulse and power from external flow computer
- Probe mounts to any 1/2" NPT pipe port
- Sampler can be serviced or removed without blowing down line
- Field selectable bite size of .1, .2, .3, .4 or .5cc
- Overall inlet pressure range is -10 Hg vacuum to 90 PSI
- M7 option shown (spun end bottle mount)



PF1AD-M7

PF2MP-Z8

- For severe service locations
- Flow proportional sampling using internal two-year life* disposable alkaline battery (*based upon 3.2 hour sample rate)
- Requires customer-supplied gas/air to power actuator (90 PSI max)
- Unit shown includes new G6000 controller card
- Bite size infinitely adjustable from 0 to 0.5cc
- Can be used with single flow or dual flow hot loop type probes

Options

Note: First letter of an option is written once (Option 'M1' & 'M5' write as 'M15')

Pressure Gauge Options

G	316 SS 0-2000 PSI Liquid-Filled Pressure Gauge (previously Z9 option)
G1	316 SS 0-1000 PSI Liquid-Filled Pressure Gauge
G2	316 SS 0-100 PSI Liquid-Filled Pressure Gauge
G3	316 SS 0-30 PSI Liquid-Filled Pressure Gauge
G6	316 SS 0-600 PSI Liquid-Filled Pressure Gauge

Heated Enclosure Mounting Option

H6	Pump mounted inside heated enclosure
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Moisture/Liquid Protection Options

LS	Liquid Shut-Off Assembly
MF	Membrane Filter Assembly

Vessel Rack Options

M1	16" Fiberglass Channel Direct Mount Vessel Rack (includes aluminum bracket)
M2	16" Fiberglass Channel Direct Mount Vessel Rack (includes SS bracket)
M5	29" Pipe Mount Horizontal Vessel Rack (includes CS Mounting bracket)
M6	16" Pipe Mount Horizontal Vessel Rack (includes CS Mounting bracket)
M7	Mounting Bracket and Hardware for Spun End Cylinder (for Direct Mount only) [See G options for Gauge]
M8	316 SS Mounting Bracket for Pipe Mounted Vessel Rack (adder to M5 or M6 option)

Probe Options

N3	3/4" MNPT on Sample Probe (1/2" standard) Valid with "D" mounting method only
N4	1" MNPT on Sample Probe (1/2" standard)

Solenoid and Low-Pressure Pump Set Options

S1	25' Cable for System Configurations A or B only (replaces standard 10' cable)
S2	Low Pressure Solenoid, 12 VDC or 6 VDC, 50 PSI max. pipeline pressure (15 to 50 PSI factory-set Spring Check)
	S2P1 Low Pressure Solenoid, 5 to 15 PSI factory-set Spring Check (.5cc min. bite) PF1 only
	S2P2 Low Pressure Solenoid, Vacuum to 5 PSI factory-set Spring Check (.5cc min. bite) PF1 only*
S3	Replace 10' of Belden® wire with 25' of Belden® wire
S4	Replace 10' of Belden® wire with 15' of Belden® wire
S5	Solenoid Pipe-Away Vent to Bulkhead Fitting

Miscellaneous Options

X1	SealTite Cable Electrical Box Connector (standard is Belden® Cable Box Connector)
X2	Kel-F® Purge Valve Seat (Delrin® standard)
X4	Tefzel® Purge Valve Seat (Delrin® standard)

Pump Options

ZA	PF3 Low Temperature O-Rings (-40°F)
Z1	SS Tubing and Fittings to Solenoid (for System Configurations A, B, K or L only)
Z2	316 SS Pump and Regulator for PF3 – rated to 2200 PSI maximum inlet pressure**
Z3	316 SS Pump for PF1 and PF2 – rating changes to 2200 PSI maximum inlet pressure for the PF2 only**
Z4	"E" Nickel / 316 SS Fittings to Solenoid for H ₂ S / CO ₂ service Valid with Enclosures only
Z5	CO ₂ Service O-Rings
Z7	Install (1) V-556SDV-H8 into Hot Loop Port on Interceptor
Z8	316 SS Tee with 316 SS 0-2000 PSI Liquid-Filled Pressure Gauge at outlet port

*Requires a minimum of 30 PSI alternative source to operate solenoid.
**140°F max. temperature to meet NACE MR0175/ISO 15156



PF2MP-Z8

PF3MD-M1

- Most versatile direct mount sampler
- Selectable time based or flow proportional sampling
- Requires external signal for flow proportional sampling
- Power with internal two-year life* disposable alkaline battery (*based upon 3.2 hour sample rate)
- Probe mounts to any 1/2" NPT port
- Bite size infinitely adjustable from 0 to 0.5cc
- M1 option shown (fiberglass vessel rack)



PF3MD-M1

Spare Parts

Controller Cards	
SM-G6000-I	Controller Card only (replaces G2500 through G4000 cards)
Battery Pack	
SPF-2500	14 Amp Hour Battery Pack (System Configuration M and P)
SK-PF-22	Retrofit Bracket Kit for PF-2500 Battery Pack
Solenoid and Solenoid Kits	
SPF-5030	12 VDC Solenoid and 10' Cable Assembly (System Configuration A) [Add S1 for 25' cable]
SPF-5039	6 VDC Solenoid and 10' Cable Assembly (System Configuration B) [Add S1 for 25' cable]
SPF-5061	24 VDC Solenoid and 10' Cable Assembly (System Configuration S) [Add S1 for 25' cable]
SS-C80-555	12 VDC Solenoid (System Configuration C)
SS-C80-556	6 VDC Solenoid (System Configuration D, L, M or P – old system Configuration E, F, G or H)
SS-C80-559	24 VDC Solenoid (System Configuration R, S or T)
SS-C80-528	6 VDC Low Pressure Solenoid (50 PSI max. pipeline pressure)
SS-C80-519	12 VDC Low Pressure Solenoid (50 PSI max. pipeline pressure)
SPF-Z1	SS Tubing and Fitting to Solenoid [Z1 system option] (System Configuration A or B only)
Bite Size Selector Buttons	
SPF-5036	Bite Size Selector Button Kit (includes .1, .2, .3, .4 and .5 cc selectors)
Pump Service Kits – Complete Rebuild Pump Kit	
SK-PF-01	PF1 Series – Viton® soft goods standard, includes Pump Rod Assembly and Check Spring
SK-PF-02	PF2 Series – Viton® soft goods standard, includes Pump Rod Assembly
SK-PF-03	PF3 Series – Viton® soft goods standard, includes Pump Rod Assembly
SK-PF-ZA	PF2 Low-Temperature O-Ring Service Kit
SK-PF-16-5	CO ₂ Service PF3 Mini Rebuild Kit
P9-061	Super Lube® Synthetic Grease
PF3 Conversion from High Pressure to Low Pressure	
SK-PF-04	Spring Check Housing Conversion Kit (high to low pressure) – below 50 PSI, requires S2 solenoid option
Balance Valve Kit	
SK-PF-07	PF2 or PF3 Replacement Balance Valve
SK-PF-07-5	CO ₂ Service PF3 Balance Valve Assembly
SK-PF-07-Z2	PF2 or PF3 Replacement Balance Valve – 316 SS
Spring Check Rebuild Kit	
SK-PF-08	Outlet Spring Check Kit (PF1 only)
Regulator Kits	
SK-PF-09	Regulator Kit, Viton® soft goods (PF3 only)
SK-PF-R	Pressure Gauge / Adjustable Regulator Kit
SK-PF-RS	Pressure Gauge / Regulator Kit in 316 SS material

Pump Service Kit (Upper Body only)	
SK-PF-10	Upper Pump Body, Viton® Soft Goods Kit with Pump Rod Assembly (PF1 and PF2 only)
SK-PF-11	Upper Pump Body, Viton® Soft Goods Kit with Pump Rod Assembly (PF3 only)
Pump Service Kit (Lower Body only)	
SK-PF-12	Lower Pump Body, Viton® Soft Goods Kit (PF1, PF2 and PF3)
Inlet Strainer	
SK-PF-13	Inlet Strainer Service Kit (40 micron only)
Purge and Probe Block Valve Parts	
SK-PF-14	Tefzel® Purge Valve Seat and Viton® O-Ring Seal
SK-PF-17	Delrin® Purge Valve Seat and Viton® O-Ring Seal
SK-PF-18	Kel-F® Purge Valve Seat and Viton® O-Ring Seal
SK-PF-19	Complete Bonnet Assembly Replacement (includes Delrin® seat and seal)
Vessel Racks and Spun end Brackets	
SPF-M1	16" Fiberglass Channel Direct Mount Vessel Rack (includes aluminum bracket)
SPF-M2	16" Fiberglass Channel Direct Mount Vessel Rack (includes SS bracket)
SM-5	29" Pipe Mount Horizontal Vessel Rack (includes CS mounting bracket)
SM-6	16" Pipe Mount Horizontal Vessel Rack (includes CS mounting bracket)
SPF-M7	Aluminum Mounting Bracket and hardware for Spun End Cylinder (see SPF-G for gauge)
SM-8	316 SS Mounting Bracket for Pipe Mounted Vessel Rack (adder to M5 or M6 option)
Delta P Switch	
SPF-QA	Q55 DP Switch with 10' Cable (Note: For tube mounting on customer OFU)
SPF-QA1	Q55 DP Switch with 10' Cable and 316 SS housing
SPF-QA2	Q55 DP Switch with 10' Cable Normally Closed Switch (standard is Normally Open)
SPF-QA3	Q55 DP Switch with 10' Cable and 316 SS Pipe Mount Bracket
SPF-QA4	Q55 DP Switch with 25' Cable
Pump Pressure Gauge	
SPF-G	316 SS 0-2000 PSI Liquid-Filled Pressure Gauge (previously Z9 option)
SPF-G1	316 SS 0-1000 PSI Liquid-Filled Pressure Gauge
SPF-G2	316 SS 0-100 PSI Liquid-Filled Pressure Gauge
SPF-G3	316 SS 0-30 PSI Liquid-Filled Pressure Gauge
SPF-G6	316 SS 0-600 PSI Liquid-Filled Pressure Gauge
SPF-Z8	316 SS Tee with 316 SS 0-2000 PSI Liquid-Filled Pressure Gauge at outlet port

Sampler Cylinders and Accessories

Sample Probes

Parker offers a full range of sampling probes to meet your applications. Hot Tap, Single Flow, Dual Flow, and Direct Mount with and without block valves. Parker also offers unique stabilized connections for extra strength in high vibration installations. A wide variety of end connections are available from 1/2" (12.7 mm) to 2" (50.8 mm) and 900 ANSI Class RTJ flanges. All probes are available in 316 SS and meet the requirements of NACE MR0175 / ISO 15156.



Spun End Cylinders

- 1800 PSI DOT-3E rating
- Seamless 316 stainless steel construction to NACE MR0175 / ISO 15156 standards
- Heat code traceability
- Hydrostatic test certificates available



Ultra-Seal Constant Pressure Cylinders

- 316 SS shut-off valves on each end with Tefzel® soft seats and PTFE Pressure-Core® stem seals — standard with 5-year no-leak warranty
- Burst disc holder and 2,000 PSI SS pressure gauges
- Mag-N-Tube™ volume indicator
- Gas and liquid designs
- Patented piston with ceramic magnets and magnetic field intensifier
- DOT approved 300cc to 1,000cc
- Optional 80% fill switch provides additional operator safety
- CRN – Canadian registration certificates available



VP Series Cylinder Valves

- Features patented Pressure-Core® stem seal technology — standard with 5-year no-leak warranty
- 316 SS design meets NACE MR0175 / ISO 15156
- Provides four times the sealing area of a standard Mini Seat — 3,000 PSI @ 200° max. to 6,000 PSI @ 200° max. Seats available
- CO₂ and H₂S compatible materials standard
- Same C_v rating (.22 max.) as the conventional Mini Bonnet
- Integral rupture disc and gauge ports available



Cylinder Valves

- Miniature valves with Viton® O-Ring stem seals or PTFE stem packing
- .22 C_v rating

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PGI-INT May 2014



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