INFICON

SKY® CDG100D

Heated Capacitance Diaphragm Gauge

INFICON SKY CDG100D manometers are your best choice for accurate total pressure measurement and control. CDG100D gauges are temperature controlled at 100°C for superior performance in demanding semiconductor and plasma processes. They are available for full scale ranges from 100 mTorr to 1000 Torr, with all common flange types and fieldbus interfaces and provide a linear 0 to 10 V, gas type independent, pressure signal. INFICON capacitance manometers use an ultra pure alumina ceramic diaphragm which is corrosion proof. The advantages of the ceramic sensor are better signal stability, faster recovery from atmosphere, short warm up time and an extraordinary lifetime. INFICON CDG are high quality, cost effective pressure sensors for demanding semiconductor, plasma and vacuum applications.
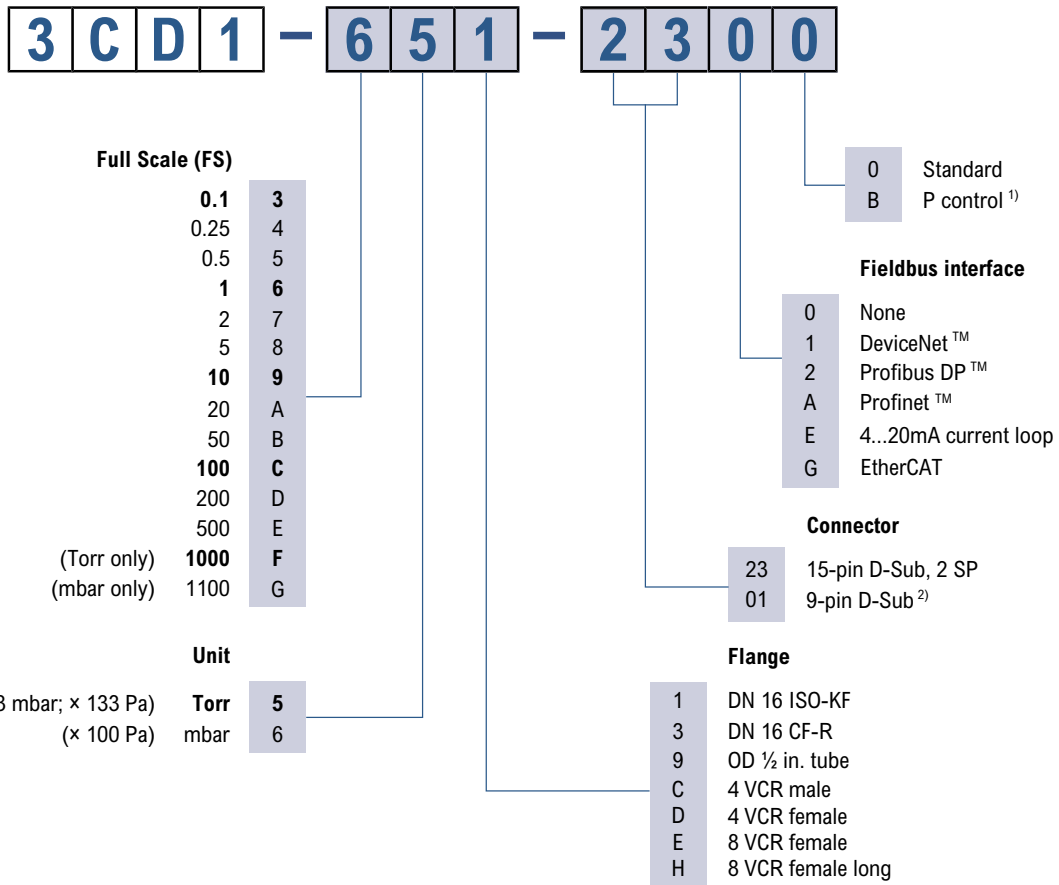
ADVANTAGES

- Lower cost of ownership, 50% faster warm up, energy efficient low power consumption
- Easy integration, wide variety of full scales, flanges and interfaces, standard with two set points
- Easy one push button or remote signal zero command, zero offset adjustable
- Diagnostic port for quick service and maintenance
- Two year warranty, longer lifetime with advanced heating concept and gauge protection
- No long term recalibration due to excellent signal stability and repeatability, even in harsh plasma applications
- Compliance and standards: CE, EN, UL, SEMI, RoHS

APPLICATIONS

- Etch, PVD, CVD and other semiconductor production processes
- Chemical and corrosive high temperature processes
- General thin film and vacuum processes requiring gauge protection

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ORDERING INFORMATION

3	C	D	1	–	6	5	1	–	2	3	0	0

Full Scale (FS)

0.1	**3**
0.25	4
0.5	5
1	**6**
2	7
5	8
10	**9**
20	A
50	B
100	**C**
200	D
500	E
(Torr only) **1000**	**F**
(mbar only) 1100	G

Unit

(× 1.33 mbar; × 133 Pa)	**Torr**	**5**
(× 100 Pa)	mbar	6

0 Standard
B P control [1]

Fieldbus interface

0	None
1	DeviceNet ™
2	Profibus DP ™
A	Profinet ™
E	4...20mA current loop
G	EtherCAT

Connector

23	15-pin D-Sub, 2 SP
01	9-pin D-Sub [2]

Flange

1	DN 16 ISO-KF
3	DN 16 CF-R
9	OD ½ in. tube
C	4 VCR male
D	4 VCR female
E	8 VCR female
H	8 VCR female long

[1] Optimized signal filter setting for pressure control
[2] Not possible with fieldbus interfaces

bold = standard products

Other flange types on request.

ACCESSORIES

Type	Part no.
Diagnostic cable RS232C; 9p-Dsub - phone jack 2.5mm (2m)[1]	303-333

[1] Diagnostic SW available upon request

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SPECIFICATION (TORR BASED STANDARD PRODUCTS)

Measurement Range	Torr	1000	100	10	1	0.1
Full scale (FS)	Pa	1333,322	13,332	1,333	133	13
	mbar	1333	133	13.3	1.3	0.13
Accuracy [1]	% of reading	0.2	0.2	0.2	0.2	0.4
Temperature effect						
on zero	% FS / °C	0.0025	0.0025	0.0025	0.0025	0.005
on span	% of reading / °C	0.02	0.02	0.02	0.02	0.02
Pressure, max.	kPa (absolute)	400	260	260	260	130
Resolution	% FS			0.003		
Lowest reading	% FS			0.01		
Lowest suggested reading	% FS			0.05		
Lowest suggested control pressure	% FS			0.5		
Temperature						
Operation (ambient) [2]	°C			+10 ... +50		
Bakeout at flange	°C			≤110		
Storage	°C			−20 ... +65		
Supply voltage				+14 ... +30 V (dc) or ±15 V (±5%)		
Power consumption						
During Heat up	W			≤15		
At operating temperature	W			≤10		
Output signal (analog)	V (dc)			0 ... +10		
Response time [3]	ms	30	30	30	30	130 / 30 [4]
Degree of protection				IP 40		
Standards						
CE conformity				EN 61000-6-2, EN 61000-6-3, EN 61010		
ETL certification				UL 61010-1, CSA 22.2 No.61010-1		
SEMI compliance				SEMI S-2		
Electrical connection				D-sub, 15-pin, male		
Setpoint						
Number of setpoints				2 (SP1, SP2)		
Relay contact	V (dc) / A (dc)			≤30 / ≤0.5		
Hysteresis	% FS			1		
Diagnostic port						
Protocol				RS232-C		
Read				pressure, status, ID,		
Set				set points, filter, zero adjust, factory reset, DC offset		
Materials exposed to vacuum				ceramics (Al_2O_3), stainless steel (AISI 316L)		
Internal volume	cm³			≤6.8		
Weight	g			892 … 964		

[1] Non-linearity, hysteresis, repeatability at 25°C ambient operating temperature without temperature effects after two hours operation

[2] Ambient temperatures >40°C may increase surface temperature above SEMI S2 compliance levels — mark "caution hot!"

[3] Increase 10 ... 90% FS

[4] For pressure control type only

SPECIFICATIONS DEVICENET

DeviceNet™	
Protocol	DeviceNet™, group 2 slave only

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DeviceNet™		
Data rate switch	kBaud	125, 250, 500 or network programmable
Cable length		
125 kbps	m (ft.)	500 (1650)
250 kbps	m (ft.)	250 (825)
500 kbps	m (ft.)	100 (330)
MAC ID		Two switches (address 00 – 63) or network programmable
Digital functions		Read pressure, select units: Torr, mbar, Pa
		Degas function, Pirani full scale adjust
		Monitor gauge status
		Safe state allows definition of behavior in case of error
		Detailed alarm and warning information
Analog functions		0 … 10 V analog output pressure indication
		two setpoint relays A + B
Visual communication indicators		LED network status (green / red)
		LED module status (green / red)
Specification		DeviceNet™ "Vacuum Gauge Device Profile"
Device type		"CG" for combination gauge
I / O slave messaging		Polling only
Setpoint relays		2
Range	mbar	1×10^{-9} … 100
Relay contact		NO, potential free
Hysteresis	% of reading	10
Contact rating	V / A (dc)	60 / 0.5
Supply voltage for DeviceNet™	V / A (dc)	+11 - +25 / 0.5
Supply voltage for gauge	V / A (dc)	+20 - +28 / 0.8
Connector for DeviceNet™		Microstyle, 5-pin
Connector for Gauges (analog output, supply voltage, setpoints)		D-Sub, 15-pin, male

SPECIFICATIONS PROFIBUS DP

Profibus DP		
Baud rates	kBaud	9.6 / 19.2 / 93.75 / 187.5 / 500
	MBaud	1.5 / 12
Address		Two switches (address 00 - 127) or network programmable
Digital functions		Read pressure, select units: Torr, mbar, Pa
		Degas function, Pirani full scale adjust
		Monitor gauge status, filament status
		Safe state allows definition of behavior in case of error
		Detailed alarm and warning information
Analog functions		0 … 10 V analog output pressure indication
		two setpoint relays A + B
Setpoint relays		2
Range	mbar	1×10^{-9} ... 100
Relay contact		NO, potential free
Hysteresis	% of reading	10
Contact rating	V / A (dc)	≤30 / ≤0.5
Connector for Profibus DP		D-Sub, 9-pin, female
Connector for BPG (analog output, supply voltage, setpoints)		D-Sub, 15-pin, male

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SPECIFICATIONS ETHERCAT

EtherCAT®

EtherCAT®		
Protocol		EtherCAT®, firmware generation 2.0
Communication standards		Semiconductor Device Profile ETG.5003 Part 1 Common Device Profile ETG.5003 Part 2080 "Specific Device Profile - Vacuum Pressure Gauge"
Process Data		Fixed PDO mapping and configurable PDO mapping
EtherCAT connector		RJ45, 8-pin (socket), IN and OUT
Cable		Shielded Ethernet CAT5e or higher
Cable length	m (ft.)	≤100 (330)
Data rate	Kbps	100000

SPECIFICATION PROFINET

Profinet™

Profinet™		
Communication protocol		protocol specialized for Profinet
Physical Layer		100BASE-Tx (IEEE 802.3)
Digital functions		
read		pressure, status, ID
set		set points, filter, zero adjust, reset, DC offset
Profinet connector		2 × RJ45, 8-pin (socket), IN and OUT
Cable		Special Ethernet Patch Cable or Crossover Cable, shielded (CAT5e quality or higher)
Cable length	m (ft.)	≤100 (330)
Data rate	Kbps	100000

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DIMENSIONS

mm (inch)

ø82 (ø3.23)

DeviceNet

10.8 (0.41)

3.8 (0.15)

145.7 (5.74)

141.9 (5.59)

110.4 (4.35)

31.5 (1.24)

13 (0.51)

OD ½" tube   DN 16 ISO-KF   DN 16 CF-R

54.1 (2.13)

8 VCR female

8 VCR female, long

64 (2.52)

79 (3.11)

4 VCR female

4 VCR male

Standard 15-pin

43.2 (1.70)

DeviceNet

16.5 (0.55)

ADDRESS   RATE NET MOD
MSD LSD   STATUS

Profibus

17.9 (0.70)

NET
ADDRESS
MSD LSD

Standard 9-pin

43.2 (1.70)

EtherCAT

17.9 (0.70)

Dev ID
x100 x0 x1
IN   OUT

Profinet

17.9 (0.70)

NET   MOD
IN   OUT

Inspired by visions. Proven by success.