BigDipper
Chemical Instrument

CPT 2000 series

Gas Transducer

IEEE1451.2 STIM Standard Support

Ref:CPT2000_DS_E

For gas leakage detect and alarm, as well for simple process measurement

Transducer Type

CPT2000AA	CPT2000AEX	CPT2000AW	CPT2000AT
Industry Atmosphere; Hazardous Atmosphere;	Inflammable area; Explosive area;	Indoor air; Workshop;	Atmospheric air device;

Products Series

Electronics	Introduction	Typical application
CPT2600V	0-2.5/5.0 V DC signal output, linear	In situ detect and alarm
CPT2310V	0-2.5/5.0 V DC signal output, non-linear(C= α *V2)	In situ detect and alarm
CPT2600A	0/4-20mA output, linear	Remote detect and alarm
CPT2310A	0/4-20mA output, non-linear(C= α *V2)	Remote detect and alarm
BD5CS(D)-CPT2600	MCU based, linear analog output and data communication with RS232/485. Scom supported	Analyzing and Alarm or ventilation control
BD5CB(D)-CPT2600	MCU based STIM, linear analog output and data communication with RS232/485. SCom, STIMcom and Modbus supported. Full operation interface of 4x5 keypad and 2x16LCD display for calibration and setup.	Analyzing and process control

Specifications for Instruments

Satety Certification: Ex ia for 2610,2620
Environmental Rating:
Class 1,Group A/B/C/D(PL); Class II,Group E/F/G(AL)
NEMA 7, with BD4/5_C_S/C,PL;NEMA 8, with BD4/5_M_S/C,PL;
NEMA 9, with BD4/5_M_S/C,AL

General Specifications for Sensors:

Accuracy	+/- 2.5%R
Temperature	0-60℃
Drift	<1%R /Month
Response	90% <30s
Pressure	80 to 120 kpa for most sensor.

BD5 series **Intelligent Transducer**

IEEE Standard for a Smart Transducer Interface for Sensors and Actuators &Transducer to Microprocessor Communication Protocols and Transducer Electronic Data Sheet (TEDS) Formats Compatible, 1451.1 NCAP Network support.   Analog and Digital Signals Output. Remote Setup and Operate.

- *Continuous analysis. Direct measurement in sample*
- *Accurate and reliable, low-maintenance*
- *Self diagnostic, professional intelligent, Menu-driven digital user interface*
- *Auto diagnostic and alarm, optional purge or flush accessories*
- *Easy maintenance __ on time clear or replace of sensor in sito*
- *Data log of measurements for day/month/year*

Applications:

- Atmosphere Detect and Toxic Gas Leak Alarm
- Air Conditioning Applications
- Low Temperature and Pressure Industrial Process
- Agriculture Green Room and Food Package
- Demand Controlled Ventilation

Feature

- Auto temperature compensation
- Professional data process. And Special calibration model of BigDipper Technochem
- User calibration at field to get high accuracy application
- on-line sample calibration: Standard Addition(SA), Double Known Addition(DKA), Three Know Addition(3KA), function available
- Off-line sample calibration: Known Sample Calibration(KS), Tow Known Sample Calibration (TKS), Three Known Sample Calibration(3KS), function available
- Low power design, may be drived by battery or solar battery in remote area.
- Refer to <Introduction to BD4/5 Transducer and Controller> for electronic property and functions

Electronics of STIM Transducer

- Linear analog signal output, 0/4 to 20 mA select. dedault status is 0 to 20 mA
- RS232 serial port always available, RS485 attached as to BD5xB upper configuration.
- Power supply: DC 9 to 24 V; consumption <100mA x 5V
- Intrinsic safe design

	LCD%Keypad	SCom	STIM	Modbus	KA	KS	Other callibration
BD5xS	No	Y			Y	Y	
BD5xB	No		Y	Y	Y	Y	Ok if setup with NCAP
BD5xM	Ok		Y	Y	Y	Y	Y

For more details, please refer to **: BD4&5IntE**

Atmosphere Transducer

Sampling Structure

Method	Model	Introduction
Dispersion	CPT0	Air flow
Threaded	CPT1	Pipe installation
Pump Tube	CPT9	Sealed space and to expand the sampling distance

T001-BD5xMD+CPT1-TCD2220

Device Safety Standard

		Application flammable safety	Application dust safety	Application fibor safety
CPT2610AA	Intrinsically Safe,T6	Class I, Group A,B,C,D	Class II, D1	Class III,D1
CPT2620AA	Intrinsically Safe,T6			
CPT2312AA	EEx d IIC T3			
CPT2311AA	EEx d IIC T3			
CPT2313AA	EEx d IIC T3			
CPT2410AA	EEx d IIC T5			
CPT2610AEx	Intrinsically Safe,T6			
CPT2620AEx	Intrinsically Safe,T6			
CPT2312AEx	Explosion Proof, EEx d IIC T5			
CPT2311AEx	Explosion Proof, EEx d IIC T5			
CPT2313AEx	Explosion Proof, EEx d IIC T5			
CPT2410AEx	Explosion Proof, EEx d IIC T5			
CPT2610AW	EEx d IIC T3			
CPT2620AW	EEx d IIC T3			
CPT2312AW	EEx d IIC T3			
CPT2311AW	EEx d IIC T3			
CPT2313AW	EEx d IIC T3			
CPT2410/3AW	EEx d IIC T5			
CPT2610AT	Intrinsically Safe,T6			
CPT2620AT	Intrinsically Safe,T6			
CPT2312AT	EEx d IIC T5			
CPT2311AT	EEx d IIC T5			
CPT2313AT	EEx d IIC T5			
CPT2410AT	Explosion Proof, EEx d IIC T5			

* Class by NEC code;

* Explosion Proof means the transducer was sealed to prevent gas infiltrate inside.

* Subject to application in Class I, Group A,B,C,D; Class II, D1; Class II, D2 Hazardous area, unless specified above;

* Users must supply power and wiring under the relative regulations according to industry habit.

*the shell of the transducer is always admitted to connect to ground for protection from accident short of wiring, and/or electrostatic accumulation, and EMC from environ. .

Information of Device

❶Sensors Technology and General Property

Tech	Principle	Accuracy
2110	Ceramic	$\leq \pm 10\%$
2123	Capacity	$\leq \pm 2\%$
2171	Crystal	
2310	MOS	$\leq \pm 10\%$
2410	Catalyzed	$\leq \pm 10\%$
2510	Solid electrolytes	$\leq \pm 2\%$
2610	Constant voltage electrolysis	$\leq \pm 2\%$
2620	Galvanic	$\leq \pm 2\%$

❷ Analog Electronics Transducer

Model	Introduction	Application
CPT2600V	Professional electronics, adaptation to STIM	

| CPT2600A | Professional electronics. Analog transducer | Environ |
| CPT2600AT | Professional electronics. Analog transducer | Pipe line |

✧   CPT2600AT, Professional analog electronic transmission. Economic pipe line and enviroal detector applications.

Transducer Size Information
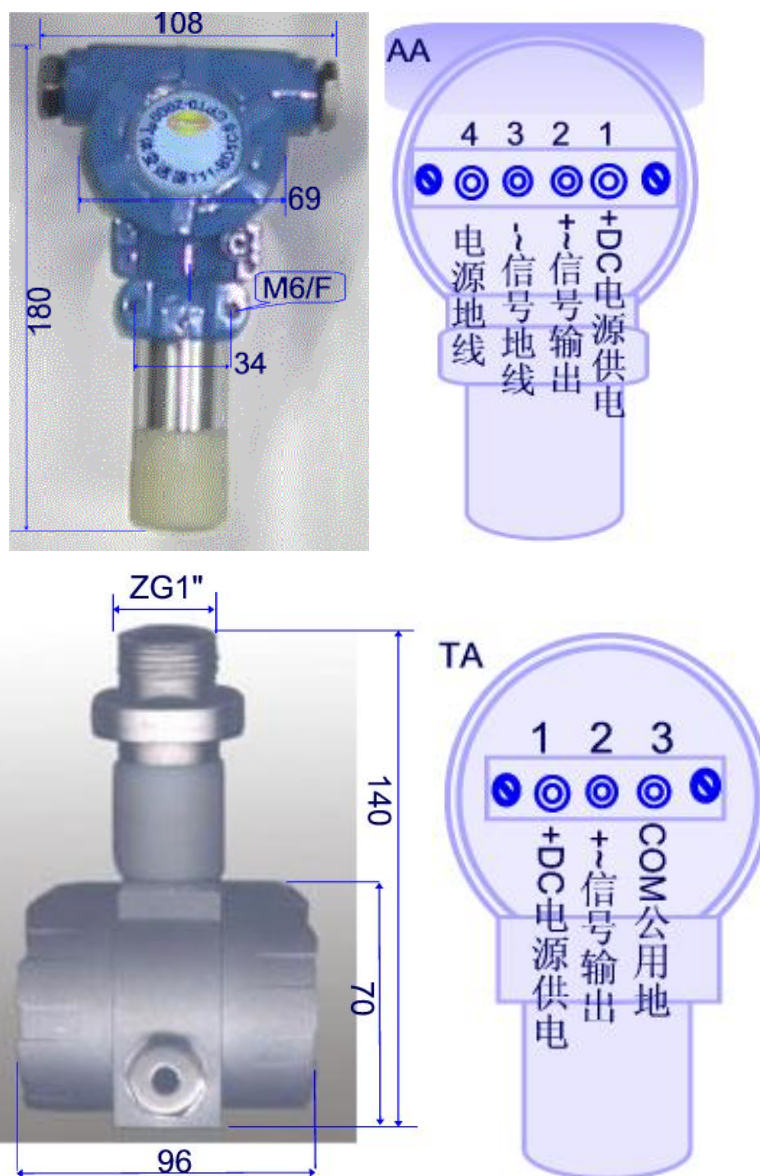
Wiring Connection

	Wire size	Hole size of Clip	Clip fixing	
CPT2000AA	6-8mm	8mm	M20*1.5	
CPT2000AEx	6-8mm	8mm	M20*1.5	
CPT2000AT	6-8mm	8mm	M20*1.5	
CPT2000AW	<6mm	6mm	Φ9 clamp	

❸Sample Structure*(Fixed parts in transducer)*

Structure	Type	RMB/USD	Information
Disperse sampling	CPA 0	300 / 36.5	Open space
Threaded pipe line	CPA 1	600 / 73.1	Pipe line 1"NPT or GZ or PG thread
Submersion	CPA 2	600 / 73.1	Sealed sensor
Pump sampling	CPA 9	1500 / 182.9	7-15m suck or pipe guiding,one pump included

Sample Accessories*(independent parts for condition of sampling)*

Structure	Type	RMB/USD	Information
FlowBy	CPA 4	1200/146.3	1" pipe connector seater; 2 valve; Pressure<1.7kgf/cm2, Temerpature:-20~60°C
FlowBy	CPA 4-3P	1700/207.3	1"pipe connector seater; 3 valve; 1 pressure meter; Pressure<1.7kgf/cm2, Temerpature:-20~60°C
FlowBy	CPA 4-4P	2400/292.8	1"pipe connector seater; 3 valve; 1 pressure meter; 1 pressure regulator. Pressure<16kgf/cm2, Temerpature:-20~60°C
Conditioner&return	CPA 8	5000/610.0	CPA 4-4P, and one pipe pump
Temperature conditioner	CPA11	2000/244.0	Air Cooller to 30°C, <140°C

❹STIM Transducer

NODEL-TYPE	COMMUNICATON	FUNCTIONS
BD5CS-50/4	STIMs-com	
BD5CB-55	IEEE1451.2	T/BD5/RS232/RS485 serial communication support; Current loop output. Simple theoretic algae and temperature compensation. 100 mA, 5V open emitter switch control/alarm
BD5CB-50/4	IEEE1451.2	RS232/RS485 serial communication support. Current loop output, full STIM standard and professional analysis. But need high level application and setup by controllers or computer. 100 mA, 5V open emitter switch control/alarm
BD5CMD-55	IEEE1451.2	RS232/RS485 serial communication support. Votage output, full STIM standard and professional analysis. But need high level application and setup by controllers or computer. 100 mA, 5V open emitter switch control/alarm
BD5CMD-50/4	IEEE1451.2	RS232/RS485 serial communication support. Field LCD display and keypad operation interface support. Voltage/current loop output, full STIM standard and professional analysis. Perfect independent analyzer/controller. 1channel 100 mA, 5V open emitter switch control/alarm; and another photo isolated 3A control output

- CPU for STIM
- Safety: Intrinsic safe/Ex Ib.
- ✧ XM3.5 is one economic choice for remote meter.

❺ Controller

Note:
- BD4CCD is the NCAP controller. So the user can organize alarm system network simply by connection. STIMcom is embedded, and Modbus is by choice to support. The network can connect as more as 247 transducers by RS485 bus.
- Indoor NCAP Monitor: pBD4CCD
- Field Ex Package: R-A013-BD4CCDg, the keypad set inside.
- ✧ Refer to "BD4&5 Electronics" for more information

Digitalizer(remote meter)

Products	Model	Introduction
LED Display	XM3.5	Analog 10 bits. 1 to 1, Power supply DC24V or AC110/220
LED Display	XM4.5	Analog 12 bits. 1 to 1, Power supply DC24V or AC110/220

* Power source is DC 24V, or 220V AC

Monitor and network controller

Products		Model	Introduction
monitor		p-BD4CCD-MB	Modbus-32. 32 STIM accessible
Instrument	Net	INS2000-MB256	320*280 LCD, 247 STIM accessible
Station			
Instrument	Net	INS2000-Ethernet	320*280 LCD, 247 STIM accessible.10BaseT, Intermet/ Intranet. Internet Navigator
Station			

- AC-DC supplier included, you must state your   local AC source, or set it in the power supply
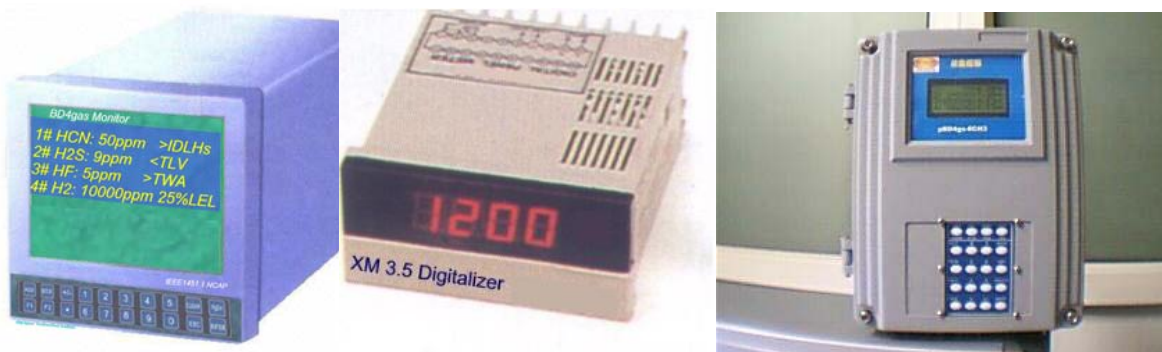
Computer Software

Computer Acquisition	Win98.1-MS	RS485, STIM/Modbus communication, IEEE1451.1 NCAP
RS485 Kit		232 to 485 converter for PC serial port.

Power Supply

	Model	Specification
DC Source	PS220-15-1.5	+15V; 10W
	PS220-15-16	+15V; 4.5W
	PS220-15-30	+15V; 4.5W
	PS220±15-0.5	±15V; 3W

● if 110 AC 50/60Hz   local power, please specify PS110.

D/A Isolator

	Signal		RMB Price
ADIsolator	4-20mA	AD202/204	300+n*400
DAIsolator	4-20mA		300+n*400

★ n=1~2

Other Accessory

	Model	Introduction
Micro printer	UP-AF40	1.3m wire and seats included
wire	5pin	Normal plastic
wire	5pin	-40-80℃/ FM100
wire	3pin	-40-80℃/FM100，anti explosive

❻Other Accessories

Products	Model	voice	Supply	Introduction
Alarmer	AL100	~100dB	DC24V	With color light flash
Ex Alarm	AL100Ex	~100dB	DC24V	With color light flash Must supplied by safe power

Ordering Information

* If there are many gases in situ, please supply field information to our engineer for solution.

http://www.big-dipper.com.cn/Products/Gas/GS_AS_E.doc

● General Sensor information

http://www.fullsense.com/Products/BD2000/GasSensorListE.pdf

* Ask for detail datasheet for sensors.

BIG DIPPER TECHNOCHEM INSTITUTE

Call: 86-10-8264.0226;   Fax:86-10-8264.0221;
P.o.Box: 603 BDTI Beijing, China 100080
http://www.fullsense.com/

Gas Sensor Available

http://www.fullsense.com/Products/BD2000/CPT2000IntE.htm
http://www.fullsense.com/Products/BD2000/GasSensorList1E.htm
http://www.fullsense.com/Products/BD2000/GasSensorList2E.htm

BD4Controller & BD5 STIM

http://www.fullsense.com/Meters/

BD4&5Introduction: http://www.fullsense.com/Meters/BD4_IntE.htm

BD4&5 Functions: http://www.fullsense.com/Meters/BD4_TB_E.thm

BD4&5 Selection: http://www.fullsense.com/Meters/BD4_Sel_E.htm

BD4_5Configuration: http://www.fullsense.com/MetersBD4_Cfg_E.htm

BD4Application: http://www.fullsense.com/Meters/BD4_AG_E.htm

Related Technical References:

http://www.fullsense.com/Network/

Scom Protocol

STIMcom Protocol

IEEE1451.1 NCAP Protocol

IEEE1451.2 STIM Protocol