



KwikSense Smart Digital Gas Transmitter



Normal

Alarm 1

Alarm 2

KwikSense Smart Digital Gas Transmitter

KwikSense smart digital gas transmitter is a field mountable device suitable for the detection and continuous monitoring of hazardous gases at industrial plant locations.

Apart from providing RS-485 MODBUS-RTU digital output signal, that can be connected to a suitable control system, such as a Uniphos controller, DCS, PLC, etc, it also provides an industry standard 4-20 mA analog output.

KwikSense is available for a large number of gases which include Oxygen, toxic gases, combustible gases & VOC.

SALIENT FEATURES:

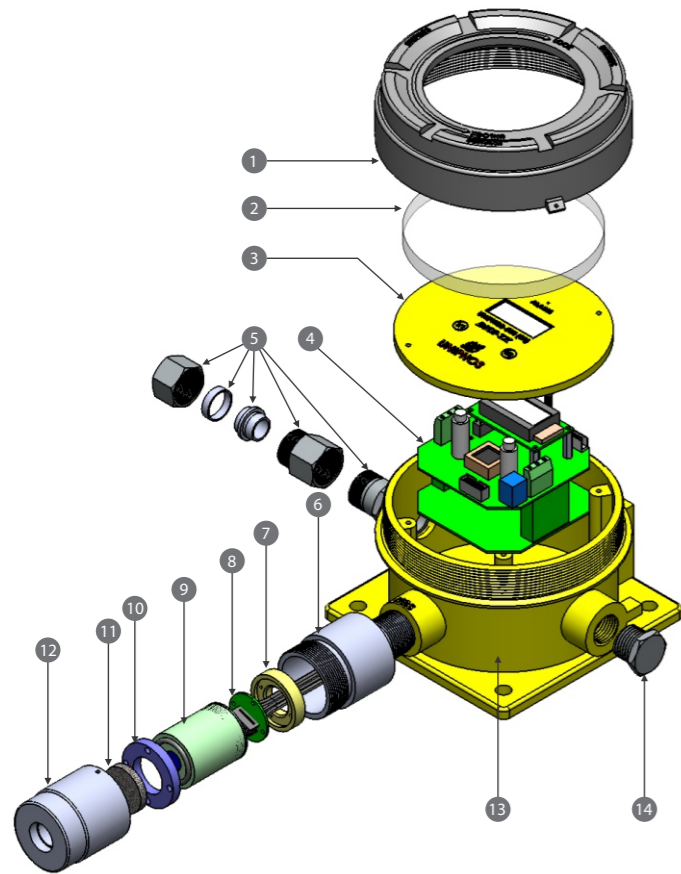
- Digital communication on MODBUS over RS 485
- HART Protocol available
- Analog Industry standard 4 -20 mA source.
- Swappable Plug-n-Play Smart Sensor Technology
- Auto-recognition of Smart Sensors, Sensor Life Indicator, Over range Indication
- Bright OLED Display for low light conditions
- Non-Intrusive Calibration using Magnetic wand
- 3 Configurable on-board Potential free relays contact
- Fault Diagnosis & Self Testing of Alarm LED's with relays
- 3 or 4 Wired system

APPLICATION AREAS

- Refineries
- Petrochemical plants
- Pharmaceutical plants
- Power industries
- Pollution monitoring
- Waste water treatment plants
- Chemical plants
- Iron and steel plants
- Duct Monitoring



EXPLODED VIEW OF KwikSense



- 1 Top cover of the Exd-certified enclosure
- 2 Toughened glass
- 3 Overlay
- 4 Electronic circuit board
- 5 Exd certified cable gland assembly
- 6 Sensor adaptor
- 7 Sensor communication PCB holder
- 8 Sensor communication PCB
- 9 Gas sensor (smart-swappable module)
- 10 Filter holding ring
- 11 SS filter
- 12 Top cover of the sensor adaptor
- 13 Exd certified flame proof enclosure (with 4 nos for PC13 mounting holes provision)
- 14 Exd certified stopper (SS316)

DESCRIPTION

KwikSense consists of two parts, viz. Digital Transmitter & Smart Gas Sensor Module. The smart gas sensor module contains gas transducer, necessary electronic for signal conditioning & retaining calibration data. This makes it independent of transmitter unit and can work on any Uniphos make digital transmitter. The transmitter recognizes the smart sensor and functions accordingly for the programmed gas.

The Digital transmitter is housed in an explosion proof ("Exd" certified) wall mountable enclosure and is virtually maintenance-free. Its revolutionary design utilizes advanced micro-controller and non-volatile memory devices that allow for enhanced diagnostics and fault analysis. Advanced design

features make installation and operation simpler and userfriendly.

Periodic calibration and bump check is recommended to assure dependable performance. Field interchangeable plug-in sensor module enables users to replace the calibrated gas sensor module at ease & as per their requirements on the site. Sensor module from the transmitter requiring calibration can be sent to the laboratory for calibration.

Gas sensor modules are available for many gases of interest (Please refer Table). These modules include one of the following sensor viz. Electro-chemical, Non dispersive Infrared, Catalytic bead, Photo-ionization, Semiconductor thin film, etc.

SMART SENSOR MODULES AVAILABLE FOR GASES

Gas Name	Gas Codes	Range	Resolution	Sensor Technology
Acetylene	099C	0 - 100% LEL	1% LEL	Pellister
Acrylonitrile*	024A	0 - 100 PPM	1 PPM	EC
Ammonia	082A	0 - 100 PPM	1 PPM	EC
Ammonia	082B	0 - 1000 PPM	1 PPM	EC
Bromine	061A	0 - 20 PPM	0.1 PPM	EC
Butanol	099D	0 - 100% LEL	1% LEL	Pellister
Carbon Dioxide	025A	0 - 5% V/V	0.01% V/V	NDIR
Carbon Dioxide	025B	0 - 100% V/V	1% V/V	NDIR
Carbon Disulfide*	021A	0 - 100 PPM	1 PPM	EC
Carbon Monoxide	020A	0 - 1000 PPM	1 PPM	EC
Chlorine	060A	0 - 20 PPM	0.1 PPM	EC
Formaldehyde*	098A	0 - 10 PPM	0.1 PPM	EC
HC (Methane)	099A	0 - 100% LEL	1% LEL	Pellister
HC (Methane)*	099G	500 - 10000 PPM	10 PPM	Solid State
Hydrogen	090A	0 - 1000 PPM	1 PPM	EC
Hydrogen	090B	0 - 100% LEL	1% LEL	EC
Hydrogen	090C	0 - 100% LEL	1% LEL	Pellister
Hydro Carbon*	099H	50 - 1000 PPM	1 PPM	Solid State
Hydrogen Cyanide	075A	0 - 100 PPM	1 PPM	EC
Hydrogen Chloride	070A	0 - 20 PPM	0.1 PPM	EC
Hydrogen Fluoride	072A	0 - 10 PPM	0.1 PPM	EC
Hydrogen Sulphide	030A	0 - 100 PPM	1 PPM	EC
LPG	099B	0 - 100% LEL	1% LEL	Pellister
Methane	099E	0 - 100% LEL	1% LEL	NDIR
Methane	099F	0 - 100% V/V	1% V/V	NDIR
Mercaptan	035A	0 - 20 PPM	0.1 PPM	EC
Nitrogen Dioxide	081A	0 - 20 PPM	0.1 PPM	EC
Oxygen	010A	0 - 25% V/V	0.1% V/V	EC
Ozone	015A	0 - 1 PPM	0.01 PPM	EC
PCl ₃ *	071A	0 - 10 PPM	1 PPM	EC
Phosphine	050A	0 - 10 PPM	0.01 PPM	EC
Phosgene*	055A	0 - 1 PPM	0.01 PPM	EC
POCl ₃ *	073A	0 - 20 PPM	1 PPM	EC
Styrene*	023A	0 - 100 PPM	1 PPM	EC
Sulphur Dioxide	040A	0 - 20 PPM	0.1 PPM	EC
Vinyl Chloro Monomer*	022A	0 - 100 PPM	1 PPM	EC
VOC (Isobutylene)	100A	0 - 1000 PPM	1 PPM	PID
VOC (Isobutylene)	100B	0 - 40 PPM	0.1 PPM	PID

EC: Electro Chemical, NDIR: Non Dispersive Infra Red, PID: Photo Ionization Detection

Note : Please contact us for any other special gas requirements other than that specified in the table.

* Please consult factory before ordering

SPECIFICATIONS

Operating voltage: 12 to 28 VDC (Typically: 24 VDC)

Power Consumption: Less than 3 watt

Enclosure: Flameproof - cast aluminium alloy or SS-316

Cable entries: ½" NPT (2 entries)

Size: Approx. 250 mm X 170 mm X 105 mm
(without cable gland & stopper)

Weight: 2.5 kg (Approx.) – cast aluminium alloy
5.5 kg(Approx.) – SS-316

3-wire cable system:

Wire 1: Supply Voltage
Wire 2: signal 4-20 mA
Wire 3: return ground

4-wire cable system:

Wire 1: Supply Voltage
Wire 2: return ground
Wire 3: D+ (RS-485)
Wire 4: D- (RS-485)

Recommended cable specifications: 1.5 Sq mm
3-core copper wire, shielded armored cable R-12
ohm/Km per core and C - 0.15 mFd per Km and
reactance 0.107 ohms/Km

Output signal: Industry standard 4 - 20 mA sourcing
(Cable load driving capacity: 650 ohm maximum)
RS - 485 (MODBUS) on 4 core cable

Sensor: Provision for smart-swappable gas sensor;
which are available for Oxygen, combustible
gases, toxic gases and VOC.

Operating Temperature: -20°C to 60°C

Operating Pressure Range: Ambient +/-10%

Operating Humidity Range: 0-95% RH
(non-condensing)

Standards complied: EN/IS/IEC: 60079-0
EN/IS/IEC: 60079-1
IEC: 61508

Ingress protection: IP66

Relay: Potential free (resistive load)

Toughened glass window provision

Mounting: Suitable for mounting on walls, poles
or similar support

Exd certified cable glands available on request
SS-316 Sensor adaptor

Body Coating: Epoxy coating

ORDERING INFORMATION FOR DIGITAL TRANSMITTER AND SMART SENSOR

DIGITAL TRANSMITTER

Model Name	Relays	Digital or Analog O/P	
DT-500	R	X	S= SIL2
	R=0 (No relay)	A: Analog 4-20 mA O/P	A=Atex
	R=1 (With Relay)	M: MODBUS & 4-20 mA	H=HART

Example	DT 500-RX
Digital Transmitter with 4-20mA O/P & Relay	DT 500-1A
Digital Transmitter with 4-20mA O/P & Relay with SIL2, ATEX& HART	DT 500 - 1ASAH



SMART SENSOR

Model Name	Gas Code
SS-500	XXXX

Example	SS 500-XXXX
Smart Oxygen Sensor	SS 500-010A/M

Note: Put suffix " M" for MODBUS smart sensor.

CERTIFICATIONS

- CCOE & CIMFR certified to Exd IIC, T6, IP 66
- ATEX  certified by SGS BASEEFA Certificate No: Baseefa 14ATEX 0304X
 II 2 G Ex db IIC T6 Gb (T_{amb} = -20°C to +40°C)
Ex db IIC T5 Gb (T_{amb} = -20°C to +55°C)
Ex db IIC T4 Gb (T_{amb} = -20°C to +85°C)
- IECEX Certified Certificate No: IECEX BAS 14.0148X
Ex db IIC T6 Gb (T_{amb} = -20°C to +40°C)
Ex db IIC T5 Gb (T_{amb} = -20°C to +55°C)
Ex db IIC T4 Gb (T_{amb} = -20°C to +85°C)
- SIL-2 Certified Reference Standard IEC 61508:2010 by TUV SUD Italia Certificate No: C-IS-274952-01



Safety & Environmental Monitoring Solutions



Due to continuous development, we reserve the right to change specifications without prior notice.



IND17.5449/U/Q

Email: gasdetection@uniphos-envirotronic.com
Web: www.uniphos-she.com



IND17.5519/U/E

Manufactured By:
Uniphos Envirotronic Pvt. Ltd.
P.O. Nahuli - 396 108
Tal. Umbergaon
Dist: Valsad, Gujarat, India
Tel. : +91-9909 994 042
7574 839 945

Marketing Office:
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167 Dr. Annie Besant Road
Worli, Mumbai - 400 018, India
Tel. : +91(22) 6123 3500
Fax : +91(22) 2497 8119

PRODUCT SPECIFICATION DATA SHEET

PRODUCT MODEL – UNIPHOS 500 DT
PRODUCT CODE – 500 DT – 1M
 DIGITAL GAS TRANSMITTER WITH RELAY,
 ANALOG & MODBUS OUTPUT
UNIPHOS SS 500 – 099A
 SMART SENSOR FOR HC



Key Features

Digital Display of Gas name, Range of gas detection, alarm set-point values and the last calibration date on Power ON.
 Hot Swappable Sensor Technology
 Non-intrusive calibration
 Sensor Life Tracking
 3 user configurable Relay Contacts
 Bump Test Counter

GAS RELATED SPECIFICATIONS

Gas Detected	Hydrocarbon
Range	0-100% LEL
Resolution	1% LEL
Detection Principle	Catalytic Bead Sensor
Response Time:	Less than 30 seconds
Gas Sampling	Natural Diffusion
Accuracy	+/- 2 % FS for 0-50% LEL or better
Repeatability	+/- 2% for 0-50% LEL or better

DISPLAY & INDICATOR SPECIFICATIONS

Display	Backlit 8x2 Alphanumeric OLED Display Single tri-color LED indicates various alarms & system status
Magnetic Function Keys	For transmitter configuration & sensor parameter settings

ELECTRONICS & ELECTRICAL SPECIFICATIONS

Electronics	Microprocessor based instrument
Power Supply	18V-30V DC Supply from controller / DCS
Outputs	4-20 mA & RS-485 (MODBUS-RTU Protocol)
Max. Load Resistance	500 Ω

PHYSICAL SPECIFICATIONS

Operating Temperature Range	-20 to 50 Degree Celsius
Operating Pressure	Ambient +/- 10%
Enclosure	Cast Aluminum Alloy, Explosion Proof Case, Certified to IP66

Weight 2.3 Kgs

Dimensions 250mm X 170mm X 105mm

CERTIFICATION

Electronics enclosed in FLP JB CMRI certified to Ex db IIC T6

Certificate

PESO certified Ex db IIC T4/T5/T6 Gb
ATEX certified by SGS BASEEFA & IECEX Certified
Ex db IIC T6 Gb (Tamb = -20°C to +40°C)
Ex db IIC T5 Gb (Tamb = -20°C to +55°C)
Ex db IIC T4 Gb (Tamb = -20°C to +85°C)

SIL-2 Certified Reference Standard IEC 61508:2010 by TUV
SUD Italia

PRODUCT SPECIFICATION DATA SHEET

PRODUCT MODEL – UNIPHOS 500 DT
PRODUCT CODE – 500 DT – 1M
 DIGITAL GAS TRANSMITTER WITH RELAY,
 ANALOG & MODBUS OUTPUT
UNIPHOS SS 500 – 090C
 SMART SENSOR FOR HYDROGEN



Key Features

Digital Display of Gas name, Range of gas detection, alarm set-point values and the last calibration date on Power ON.
 Hot Swappable Sensor Technology
 Non-intrusive calibration
 Sensor Life Tracking
 3 user configurable Relay Contacts
 Bump Test Counter

GAS RELATED SPECIFICATIONS

Gas Detected	Hydrogen
Range	0-100% LEL
Resolution	1% LEL
Detection Principle	Catalytic Bead
Response Time:	Less than 30 seconds
Gas Sampling	Natural Diffusion
Accuracy	+/- 2% FS for 0-50% LEL or better
Repeatability	+/- 2% for 0-50% LEL or better

DISPLAY & INDICATOR SPECIFICATIONS

Display	Backlit 8x2 Alphanumeric LCD Display Single tri-color LED indicates various alarms & system status
Magnetic Function Keys	For transmitter configuration & sensor parameter settings

ELECTRONICS & ELECTRICAL SPECIFICATIONS

Electronics	Microprocessor based instrument
Power Supply	18V-30V DC Supply from controller / DCS
Outputs	4-20 mA & RS-485 (MODBUS-RTU Protocol)
Max. Load Resistance	500 Ω

PHYSICAL SPECIFICATIONS

Operating Temperature Range	-20 to 50 Degree Celcius
Operating Pressure	Ambient +/- 10%
Enclosure	Cast Aluminum Alloy, Explosion Proof Case, Certified to IP66

Weight 2.3 Kgs

Dimensions 250mm X 170mm X 105mm

CERTIFICATION

Electronics enclosed in FLP JB CMRI certified to Ex d IIC T6

Certificate

PESO certified Ex db IIC T4/T5/T6 Gb
ATEX certified by SGS BASEEFA & IECEX Certified
Ex db IIC T6 Gb (Tamb = -20°C to +40°C)
Ex db IIC T5 Gb (Tamb = -20°C to +55°C)
Ex db IIC T4 Gb (Tamb = -20°C to +85°C)

SIL-2 Certified Reference Standard IEC 61508:2010 by TUV
SUD Italia

PRODUCT SPECIFICATION DATA SHEET

PRODUCT MODEL – UNIPHOS 500 DT

PRODUCT CODE – 500 DT – 1M

**DIGITAL GAS TRANSMITTER WITH RELAY,
ANALOG & MODBUS OUTPUT**

UNIPHOS SS 500 – 030A

SMART SENSOR FOR HYDROGEN SULPHIDE



Key Features

- Digital Display of Gas name, Range of gas detection, alarm set-point values and the last calibration date on Power ON.
- Hot Swappable Sensor Technology
- Non-intrusive calibration
- Sensor Life Tracking
- 3 user configurable Relay Contacts
- Bump Test Counter

GAS RELATED SPECIFICATIONS

Gas Detected	Hydrogen Sulphide
Range	0-100 PPM
Resolution	1 PPM
Detection Principle	Electrochemical Sensor
Response Time:	Less than 30 seconds
Gas Sampling	Natural Diffusion
Accuracy	+/- 3 PPM

DISPLAY & INDICATOR SPECIFICATIONS

Display	Backlit 8x2 Alphanumeric OLED Display Single tri-color LED indicates various alarms & system status
Magnetic Function Keys	For transmitter configuration & sensor parameter settings

ELECTRONICS & ELECTRICAL SPECIFICATIONS

Electronics	Microprocessor based instrument
Power Supply	18V-30V DC Supply from controller / DCS
Outputs	4-20 mA & RS-485 (MODBUS-RTU Protocol)
Max. Load Resistance	500 Ω

PHYSICAL SPECIFICATIONS

Operating Temperature Range	-20 to 50 Degree Celsius
Operating Pressure	Ambient +/- 10%
Enclosure	Cast Aluminum Alloy, Explosion Proof Case, Certified to IP66
Weight	2.3 Kgs

Dimensions

250mm X 170mm X 105mm

CERTIFICATION**Certificate**

Electronics enclosed in FLP JB CMRI certified to Ex db IIC T6

PESO certified Ex db IIC T4/T5/T6 Gb

ATEX certified by SGS BASEEFA & IECEX Certified

Ex db IIC T6 Gb (Tamb = -20°C to +40°C)

Ex db IIC T5 Gb (Tamb = -20°C to +55°C)

Ex db IIC T4 Gb (Tamb = -20°C to +85°C)

SIL-2 Certified Reference Standard IEC 61508:2010 by TUV
SUD Italia

PRODUCT SPECIFICATION DATA SHEET

PRODUCT MODEL – UNIPHOS 500 DT
PRODUCT CODE – 500 DT – 1M
 DIGITAL GAS TRANSMITTER WITH RELAY,
 ANALOG & MODBUS OUTPUT
UNIPHOS SS 500 – 099E
 SMART SENSOR FOR HC



Key Features

Digital Display of Gas name, Range of gas detection, alarm set-point values and the last calibration date on Power ON.
 Hot Swappable Sensor Technology
 Non-intrusive calibration
 Sensor Life Tracking
 3 user configurable Relay Contacts
 Bump Test Counter

GAS RELATED SPECIFICATIONS

Gas Detected	Hydrocarbon
Range	0-100% LEL
Resolution	1% LEL
Detection Principle	IR Sensor
Response Time:	Less than 30 seconds
Gas Sampling	Natural Diffusion
Accuracy	+/- 2 % FS for 0-50% LEL or better
Repeatability	+/- 2% for 0-50% LEL or better

DISPLAY & INDICATOR SPECIFICATIONS

Display	Backlit 8x2 Alphanumeric OLED Display Single tri-color LED indicates various alarms & system status
Magnetic Function Keys	For transmitter configuration & sensor parameter settings

ELECTRONICS & ELECTRICAL SPECIFICATIONS

Electronics	Microprocessor based instrument
Power Supply	18V-30V DC Supply from controller / DCS
Outputs	4-20 mA & RS-485 (MODBUS-RTU Protocol)
Max. Load Resistance	500 Ω

PHYSICAL SPECIFICATIONS

Operating Temperature Range	-20 to 50 Degree Celsius
Operating Pressure	Ambient +/- 10%
Enclosure	Cast Aluminum Alloy, Explosion Proof Case, Certified to IP66

Weight 2.3 Kgs

Dimensions 250mm X 170mm X 105mm

CERTIFICATION

Electronics enclosed in FLP JB CMRI certified to Ex db IIC T6

Certificate

PESO certified Ex db IIC T4/T5/T6 Gb
ATEX certified by SGS BASEEFA & IECEX Certified
Ex db IIC T6 Gb (Tamb = -20°C to +40°C)
Ex db IIC T5 Gb (Tamb = -20°C to +55°C)
Ex db IIC T4 Gb (Tamb = -20°C to +85°C)

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