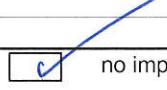


 ALSA	ABU DHABI COMPANY FOR ONSHORE PETROLEUM OPERATIONS LIMITED (ADCO)			CTA/15606.02/EC10870/AE-241/8945																																																																																			
				Previous Transmittal No.CTA-8509																																																																																			
TRANSMITTAL LETTER (TL)																																																																																							
CONTRACT TITLE: EPC FOR BAB FAR NORTH CO2 INJECTION PILOT PROJECT			Cont. No : 15606.02/EC10870																																																																																				
T O	Name	Function	Signature	Date																																																																																			
	Mr. Jassim Mohammed Alyas	Project Manager		8-Aug-15																																																																																			
Remarks :																																																																																							
<i>SS 8/8/15</i> <i>Encl(pmc) For your review and comments.</i>																																																																																							
ADCO response before																																																																																							
List of Attachments																																																																																							
Doc. Ref. No.	Rev	Cop	Description	Act	Sts	Cop																																																																																	
11.99.40.2619	1	1	Instrument Data sheet for H2S Gas Detector (TYCO)	A	1																																																																																		
<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5">EM (EP-BAB) INTER DISCIPLINE CHECK</th> </tr> <tr> <th>Discipline</th> <th>Initials</th> <th>Info</th> <th>Action</th> <th>Discuss</th> </tr> </thead> <tbody> <tr><td>Process</td><td></td><td></td><td></td><td></td></tr> <tr><td>Mechanical</td><td></td><td></td><td></td><td></td></tr> <tr><td>Instrument</td><td>SS</td><td></td><td>✓</td><td></td></tr> <tr><td>Civil</td><td></td><td></td><td></td><td></td></tr> <tr><td>Electrical</td><td></td><td></td><td></td><td></td></tr> <tr><td>HSE</td><td></td><td></td><td></td><td></td></tr> <tr><td>QA/QC</td><td></td><td></td><td></td><td></td></tr> <tr><td>Corrosion</td><td></td><td></td><td></td><td></td></tr> <tr><td>Telecom</td><td></td><td></td><td></td><td></td></tr> <tr><td>Planning</td><td></td><td></td><td></td><td></td></tr> <tr><td>Construction</td><td></td><td></td><td></td><td></td></tr> <tr><td>B&B Operation</td><td></td><td></td><td></td><td></td></tr> <tr><td>Drafting</td><td></td><td></td><td></td><td></td></tr> <tr><td>Others</td><td></td><td></td><td></td><td></td></tr> </tbody> </table>					EM (EP-BAB) INTER DISCIPLINE CHECK					Discipline	Initials	Info	Action	Discuss	Process					Mechanical					Instrument	SS		✓		Civil					Electrical					HSE					QA/QC					Corrosion					Telecom					Planning					Construction					B&B Operation					Drafting					Others							
EM (EP-BAB) INTER DISCIPLINE CHECK																																																																																							
Discipline	Initials	Info	Action	Discuss																																																																																			
Process																																																																																							
Mechanical																																																																																							
Instrument	SS		✓																																																																																				
Civil																																																																																							
Electrical																																																																																							
HSE																																																																																							
QA/QC																																																																																							
Corrosion																																																																																							
Telecom																																																																																							
Planning																																																																																							
Construction																																																																																							
B&B Operation																																																																																							
Drafting																																																																																							
Others																																																																																							
																																																																																							
<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>ADCO</td><td>APPROVED FOR CONSTRUCTION</td></tr> <tr><td colspan="2">Signatory : <i>[Signature]</i></td></tr> <tr><td colspan="2">Date : 10/08/2015</td></tr> <tr><td colspan="2">Approved For Construction</td></tr> <tr><td colspan="2">ADCO Trans. No. CTA/15606.02/EC10870/AE-241 8945</td></tr> <tr><td colspan="2">Date: 10/08/2015</td></tr> </table>					ADCO	APPROVED FOR CONSTRUCTION	Signatory : <i>[Signature]</i>		Date : 10/08/2015		Approved For Construction		ADCO Trans. No. CTA/15606.02/EC10870/AE-241 8945		Date: 10/08/2015		<p>Received by: <i>[Signature]</i> Date: 10/08/2015 Mobile No: <i>[Redacted]</i></p>																																																																						
ADCO	APPROVED FOR CONSTRUCTION																																																																																						
Signatory : <i>[Signature]</i>																																																																																							
Date : 10/08/2015																																																																																							
Approved For Construction																																																																																							
ADCO Trans. No. CTA/15606.02/EC10870/AE-241 8945																																																																																							
Date: 10/08/2015																																																																																							
F R O M	Name	Function	Signature	Date																																																																																			
	V. Sivaprasad	Project Manager	<i>[Signature]</i>	8/8/2015																																																																																			

Legend Action: R - For review, Comments; A- For Approval; I - For Information. Legend Status: A - No Comments; Work to proceed & resubmit for final Approval after review by all disciplines; B - Reviewed with Comments; Work may proceed & comments to be incorporated in the next revision; C - Rejected; Work not to proceed and Comments to be incorporated; 1 - Final Approved and No Need More Revisions; I - For Information Only

 Abu Dhabi Company for Onshore Oil Operations	ABU DHABI COMPANY FOR ONSHORE OIL OPERATIONS (ADCO)	CTA/15606.02/EC10870/AE-241/8945										
		Page No: 2/3										
REVIEW SHEET (RS)												
CONTRACT TITLE: EPC FOR BAB FAR NORTH CO2 INJECTION PILOT PROJECT				Cont. No : 15606.02/EC10870								
'R - Review 'I - Information		SERIAL (SEQUENTIAL NUMBERS) OR PARALLEL ROUTING										
R	1	PM	A	Target	Date	Sign.		A	Target	Date	Sign.	
E	2	EM (Bab)					13	CM (Bab)				
I	4	SPrE					14	TL (HSE)				
E	5	SCiE					16	SPC (Bab)				
W	6	SME					17					
P	7	SEE					21					
A	8	SCE					22					
N	9	SPIE					23					
E	11	TL -C (EMP)					24					
E	12	SDD					25					
L	Action Parties (A) to return transmittal/comments to Review Coordinator before											
	Review Coordinator to return consolidated response to Project Manager before											
	Review Coordinator Name:		Desg.:		Tel :		Fax :					
Interdisciplinary Remarks:												
<i>No Comments.</i>  <i>10/08</i>												
A C T I N												
C	Remarks - Review comments with:		<input type="checkbox"/> impact on project		<input checked="" type="checkbox"/> no impact on project							
H	Signature:  Date:											
E	Remarks: Agree with the above comments Signature :  Date :											

 <p>ALSA ALSA CONTRACTING & CONSTRUCTION CO LLC</p>	<p align="center">ABU DHABI COMPANY FOR ONSHORE OIL OPERATIONS</p> <p align="center">(ADCO)</p>	<p>CTA/15606.02/EC10870/AE-241/8945</p> <p>Page No. : 3/3</p>		
ACTION LETTER (AL)				
CONTRACT TITLE: EPC FOR BAB FAR NORTH CO2 INJECTION PILOT PROJECT		Cont. No : 15606.02/EC10870		
To	Name	Function	Signature	Date
	Mr. Jassim Mohammed Alyas	Project Manager		
List of Additional Attachments				
Doc. Ref. No.		Rev	Title	
11.99.40.2619		1	Instrument Data sheet for H2S Gas Detector (TYCO)	
Project Engineer's Instructions:				
Consultant to <input checked="" type="checkbox"/> incorporate comments & proceed <input type="checkbox"/> 'review comments & advise impact before proceeding				
To	Name	Function	Signature	Date
	Mr. Bakr Abou Harb	Team Leader		
	Team Leader			
Project Manager Statement:				
Comments accepted and incorporated			Comments with impact. ADCO advised.	
Impact agreed, ADCO comments incorporated.			Impact not agreed. Comments not incor'ed	
To	Name	Function	Signature	Date
	Mr. Bakr Abou Harb	Team Leader		10/08
Legend Action: R - For review, Comments; A - For Approval; I - For Information. Legend Status: A - No Comments; Work to proceed & resubmit for final Approval after review by all disciplines; B - Reviewed with Comments; Work may proceed & comments to be incorporated in the next revision; C - Rejected; Work not to proceed and Comments to be incorporated; 1 - Final Approved and No Need More Revisions; I - For Information Only				



ADCO	APPROVED FOR CONSTRUCTION
	Signatory: <i>[Signature]</i>
	Date : 10/06/2015

Approved For Construction

ADCO Trans. No. CTA/15606.02/EC10870/AE-241/ 8945

شركة أبوظبي للعمليات البترولية البرية (أدنوك)
Abu Dhabi Company for Onshore Oil Operations (ADCO)

PROJECT NO : P11569

EPC FOR BAB FAR NORTH CO2 INJECTION PILOT PROJECT

DOCUMENT NO. 11.99.40.2619

INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR

REV.	DATE	ORIGINATOR	REVIEWED	APPROVED	DESCRIPTION
1	06-08-2015	MA <i>[Signature]</i>	RT <i>[Signature]</i>	BM <i>[Signature]</i>	Issued for Construction
C	14-07-2015	MA	HN	BM	Re-issued for Approval
B	05-05-2015	MA	HN	BM	Issued for Approval
A	11-03-2015	MA	RT	BM	Issued for Review
THIS DOCUMENT IS INTENDED FOR USE BY ADCO AND ITS NOMINATED CONSULTANTS, CONTRACTORS, MANUFACTURERS AND SUPPLIERS.					

ORIGINATOR tyco Fire & Security UAE LLC	TYCO PROJ No.: CA150270	ALSA JOB No. AE 241	
TYCO DOC. No.: TFS-D- CA150270-007_REV.3	Contract No: 15606.02/EC10870		
ADCO DOC No.: 11.99.40.2619	PROJ. No : P11569		Page 1 of 13



BAB FAR NORTH CO2 INJECTION PILOT PROJECT

ADCO PROJECT TO NO.: P11569 CONTRACT NO.: 15606.02/EC10870		Comments Resolution Sheet	
Document Title : INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR Doc/ Dwg. No. : 11.99.40.2619 ADCO Ref. No. :		Rev No.: C Date : 6/8/2015	Prepared By MA Checked By RT Approved By BM Remarks
SI No.	Company Comments	ALSA/Vendor Reply	Action Taken
	NO COMMENTS		

ALSA **tyco**
Fire & Security, Inc. LLC

ALSA Project No.: AE-241

DATE : 6/8/2015

Document Title : INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR
Doc/ Dwg. No. : 11.99.40.2619
ADCO Ref. No. :

Comments Resolution Sheet

Rev No.: C
Date : 6/8/2015Prepared By MA
Checked By RT
Approved By BM
Remarks

SI No.

Company Comments

ALSA/Vendor Reply

Action Taken

NO COMMENTS

TABLE OF CONTENTS

1 INTRODUCTION.....	3
1.1 PURPOSE	3
1.2 SCOPE OF THE DOCUMENT.....	3
2 DEFINITIONS AND ABBREVIATIONS	3
2.1 DEFINITIONS	3
2.2 ABBREVIATIONS.....	3
2.3 REFERENCE DOCUMENTS.....	4
3 DATASHEET	5
3.1 H2S GAS DETECTOR.....	5

	DOCUMENT TITLE:	Project No.: P11569	
		ADCO DOC. NO. 11.99.40.2619	
	INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR	REV. 1	Date: 06-08-2015
	tyco <small>Fire & Security UAE LLC</small>	TYCO DOC. NO.: TFS-D- CA150270-007_REV.3	Page 2 of 13

1 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to provide the detailed data sheet for the H2S Gas Detector that TYCO Fire & Security UAE LLC is supplying for EPC for Bab Far North CO2 Injection Pilot Project.

1.2 SCOPE OF THE DOCUMENT

This Instrument Data Sheet Document applies to the supply of 53 H2S Gas Detector for EPC for Bab Far North CO2 Injection Project.

2 DEFINITIONS AND ABBREVIATIONS

2.1 DEFINITIONS

Company	M/s. Abu Dhabi Company for Onshore Oil Operations (ADCO).
Contractor	M/s. ALSA Engineering & Construction Co L.L.C
Vendor	M/s. Tyco Fire & Security UAE L.L.C

2.2 ABBREVIATIONS

AC	Alternating Current
DC	Direct Current
I/O	Input/ Output
PSU	Power Supply Unit
H2S	Hydrogen Sulfide
SS	Stainless Steel

	DOCUMENT TITLE:	Project No.: P11569	
		ADCO DOC. NO. 11.99.40.2619	
	INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR	REV. 1	Date: 06-08-2015
	tyco <small>Fire & Security UAE LLC</small>	TYCO DOC. NO.: TFS-D- CA150270-007_REV.3	Page 3 of 13

2.3 REFERENCE DOCUMENTS

S.No.	Document number	Description
1	11.99.52.1620	MATERIAL REQUISITION FOR FIRE & GAS DEVICES
2	11.99.40.1611 (REV 2)	DATASHEET FOR FIRE & GAS DEVICES



DOCUMENT TITLE:

INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR

Project No.: P11569

ADCO DOC. NO. 11.99.40.2619

REV. 1

Date: 06-08-2015

tyco

Fire & Security UAE LLC

TYCO DOC. NO.: TFS-D- CA150270-007_REV.3

Page 4 of 13

3 DATASHEET

3.1 H2S GAS DETECTOR

Product description and specifications of the H2S Gas Detector is given below:

GENERAL	1	TAG No.	SEE LIST BELOW
	2	EQUIPMENT	H2S GAS DETECTOR
	3	QUANTITY	53 Nos.
	4	HAZARDOUS AREA CLASSIFICATION	Ex d IIB+H2, T5 Gb
	5	AMBIENT CONDITION	-40°C to 75°C
DETECTOR DATA	6	TYPE	METAL OXIDE SEMICONDUCTOR (MOS)
	7	DETECTOR METHOD	ADSORPTION
	8	OUTPUT	4-20mA (HART)
	9	INSTRUMENT RANGE	0-50 ppm
	11	REPEATABILITY	±2 PPM OR 10% OF THE APPLIED GAS, WHICHEVER IS GREATER
	12	RESPONSE TIME	T50 < 30 sec
	13	ACCURACY	± 10 %
	14	SELF TEST DIAGNOSTICS	AVAILABLE
	15	FALSE ALARM IMMUNITY	AVAILABLE
	16	SENSOR LIFE	3 to 5 YEARS TYPICAL
	17	SIL CERTIFICATION	SIL 2

	DOCUMENT TITLE:	Project No.: P11569	
		ADCO DOC. NO. 11.99.40.2619	
	INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR	REV. 1	Date: 06-08-2015
	tyco Fire & Security UAE LLC	TYCO DOC. NO.: TFS-D- CA150270-007_REV.3	Page 5 of 13

ELECTRICAL REQUIREMENT	18	CALIBRATION GAS	AVAILABLE
	19	CALIBRATION FREQUENCY	EVERY 3 MONTHS
	20	LOCAL DISPLAY	THREE-DIGIT LED DISPLAY
	21	OPERATING VOLTAGE	20-36 VDC
	22	SUPPLY VOLTAGE	24VDC
	23	POWER CONSUMPTION	2.88 Watts; 120mA
	24	PEAK INRUSH CURRENT/ STEADY STATE CURRENT	PEAK INRUSH CURRENT IS 880mA @ 24 VDC STEADY STATE CURRENT 120mA @ 24VDC
	25	CABLE ENTRY	3 x M20 VIA NPT $\frac{3}{4}$ " TO M20 DUAL CERTIFIED NICKEL PLATED BRASS REDUCER
	26	ELECTRICAL CERTIFICATION	ATEX, CENELEC, CSA, FM, IECEx, CE MARK, HART REGISTERED, SIL 2 AND 3 SUITABLE, FM CERTIFIED TO IEC 61508
	27	WIRING CONFIGURATION	3 WIRE
ENVIRONMENTAL REQUIREMENT	28	INGRESS PROTECTION	IP 66
	29	HUMIDITY (MAX)	10% TO 95% RH, NON-CONDENSING
	30	OPERATING TEMPERATURE RANGE	-40°C to 75°C
	31	STORAGE TEMPERATURE RANGE	-50°C to 85°C
	32	RFI/ EMI IMMUNITY	COMPLIES WITH EN50270, EN61000-6-4
ENCLOSURE	33	MATERIAL	316 STAINLESS STEEL
	DOCUMENT TITLE: INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR		Project No.: P11569
			ADCO DOC. NO. 11.99.40.2619
	REV. 1		Date: 06-08-2015
	tyco Fire & Security UAE LLC		
	TYCO DOC. NO.: TFS-D- CA150270-007_REV.3		

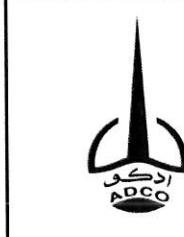
	34	DIMENSIONS	161mm X 104mm X 86mm
	35	WEIGHT	6.4Kg
	36	MOUNTING ACCESSORIES	SS 316 2" PIPE MOUNT KIT- 1No/unit
SPECIAL REQUIREMENT	37	ACCESSORIES	SS BLANKING PLUG- 2 Nos/unit
			NPT 3/4" TO M20 DUAL CERTIFIED NICKEL PLATED BRASS REDUCER- 3Nos/unit
			SPLASH GUARD-1No/unit
	38	TEST & CALIBRATION KIT	AVAILABLE
	39	NAME PLATE/ TAG PLATE	NOTE 1
PURCHASE	40	MANUFACTURER	GENERAL MONITORS
	41	DETECTOR MODEL NUMBER	S4000TH-5-0-12-6
NOTES: 1) SS316 TAG PLATE SHALL BE PROVIDED LOOSELY & MANUFACTURER'S NAME PLATE IS AVAILABLE BY DEFAULT ALONG WITH PRODUCT.			

TAG LIST:

S.No.	TAG No.	SERVICE
1	11-76-XTGD-5401-01	TOXIC GAS DETECTOR- BLOCK VALVE STATION-1 MAIN VALVE
2	11-76-XTGD-5401-02	TOXIC GAS DETECTOR- BLOCK VALVE STATION-1 BYPASS LINE
3	11-76-XTGD-5401-05	TOXIC GAS DETECTOR- BLOCK VALVE STATION-1 MAIN VALVE
4	11-76-XTGD-5402-01	TOXIC GAS DETECTOR- BLOCK VALVE STATION-2 MAIN VALVE
5	11-76-XTGD-5402-02	TOXIC GAS DETECTOR- BLOCK VALVE STATION-2 BYPASS LINE
6	11-76-XTGD-5402-05	TOXIC GAS DETECTOR- BLOCK VALVE STATION-2 MAIN VALVE
7	11-71-XTGD-1055W-10	TOXIC GAS DETECTOR- EAST FLANK 1055 ELECTRIC HEATER

	DOCUMENT TITLE:	Project No.: P11569	
		ADCO DOC. NO. 11.99.40.2619	
	INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR	REV. 1	Date: 06-08-2015
	tyco <small>Fire & Security UAE LLC</small>	TYCO DOC. NO.: TFS-D- CA150270-007_REV.3	Page 7 of 13

8	11-71-XTGD-1055W-11	TOXIC GAS DETECTOR- EAST FLANK 1055 ELECTRIC HEATER
9	11-71-XTGD-1055W-12	TOXIC GAS DETECTOR- EAST FLANK 1055 ELECTRIC HEATER
10	11-71-XTGD-1055W-03	TOXIC GAS DETECTOR- EAST FLANK 1055 WELL HEAD AREA
11	11-71-XTGD-1055W-04	TOXIC GAS DETECTOR- EAST FLANK 1055 WELL HEAD AREA
12	11-71-XTGD-1055W-13	TOXIC GAS DETECTOR- EAST FLANK 1055 WELL HEAD AREA
13	11-71-XTGD-1055W-14	TOXIC GAS DETECTOR- EAST FLANK 1055 WELL HEAD AREA
14	11-71-XTGD-1054W-01	TOXIC GAS DETECTOR- EAST FLANK 1054 INJECTION WELL HEAD AREA
15	11-71-XTGD-1054W-02	TOXIC GAS DETECTOR- EAST FLANK 1054 INJECTION WELL HEAD AREA
16	11-71-XTGD-1054W-07	TOXIC GAS DETECTOR- EAST FLANK 1054 INJECTION WELL HEAD AREA
17	11-71-XTGD-1054W-08	TOXIC GAS DETECTOR- EAST FLANK 1054 INJECTION WELL HEAD AREA
18	11-71-XTGD-1052P-01	TOXIC GAS DETECTOR- EAST FLANK WELL HEAD 1052
19	11-71-XTGD-1052P-02	TOXIC GAS DETECTOR- EAST FLANK WELL HEAD 1052
20	11-71-XTGD-1052P-03	TOXIC GAS DETECTOR- EAST FLANK WELL HEAD 1052
21	11-71-XTGD-1051P-01	TOXIC GAS DETECTOR- NORTH FLANK 1051 WELLHEAD
22	11-71-XTGD-1051P-02	TOXIC GAS DETECTOR- NORTH FLANK 1051 WELLHEAD
23	11-71-XTGD-1046W-03	TOXIC GAS DETECTOR- NORTH FLANK 1046 PIG HANDLING AREA
24	11-71-XTGD-1046W-04	TOXIC GAS DETECTOR- NORTH FLANK 1046 PIG HANDLING AREA
25	11-71-XTGD-1051P-03	TOXIC GAS DETECTOR NORTH FLANK 1051 WELL HEAD
26	11-71-XTGD-1046W-14	TOXIC GAS DETECTOR- NORTH FLANK HEAT EXCHANGER E-1046J-01
27	11-71-XTGD-1046W-15	TOXIC GAS DETECTOR- NORTH FLANK HEAT EXCHANGER E-1046J-01/ 02
28	11-71-XTGD-1046W-16	TOXIC GAS DETECTOR- NORTH FLANK HEAT EXCHANGER E-1046J-02
29	11-71-XTGD-1046W-17	TOXIC GAS DETECTOR- NORTH FLANK 1046 PIG HANDLING



DOCUMENT TITLE:

INSTRUMENT DATA SHEET FOR H2S
GAS DETECTOR

Project No.: P11569

ADCO DOC. NO. 11.99.40.2619

REV. 1

Date: 06-08-2015

tyco

Fire & Security LLC

TYCO DOC. NO.: TFS-D- CA150270-007_REV.3

Page 8 of 13

30	11-71-XTGD-1046W-18	TOXIC GAS DETECTOR- NORTH 1046 PIG HANDLING
31	11-71-XTGD-1046W-19	TOXIC GAS DETECTOR- NORTH 1046 PIG HANDLING
32	11-71-XTGD-1046W-20	TOXIC GAS DETECTOR- NORTH 1046 PIG HANDLING
33	11-71-XTGD-1046W-21	TOXIC GAS DETECTOR- NORTH FLANK 1046 WELL HEAD
34	11-71-XTGD-1046W-22	TOXIC GAS DETECTOR- NORTH FLANK 1046 WELL HEAD
35	11-71-XTGD-1046W-05	TOXIC GAS DETECTOR- NORTH FLANK 1046 WELL HEAD
36	11-71-XTGD-1046W-06	TOXIC GAS DETECTOR- NORTH FLANK 1046 WELL HEAD
37	11-71-XTGD-1053W-01	TOXIC GAS DETECTOR- NORTH FLANK 1053 WELL HEAD
38	11-71-XTGD-1053W-02	TOXIC GAS DETECTOR- NORTH FLANK 1053 WELL HEAD
39	11-71-XTGD-1053W-07	TOXIC GAS DETECTOR- NORTH FLANK 1053 WELL HEAD
40	11-71-XTGD-1053W-08	TOXIC GAS DETECTOR- NORTH FLANK 1053 WELL HEAD
41	11-18-XTGD-5403-14	TOXIC GAS DETECTOR- NEAR MULTIPHASE FLOW METER U-0606
42	11-18-XTGD-5403-15	TOXIC GAS DETECTOR- NEAR MULTIPHASE FLOW METER U-0606
43	11-18-XTGD-5403-16	TOXIC GAS DETECTOR- NEAR MANIFOLD M-0101
44	11-18-XTGD-5403-17	TOXIC GAS DETECTOR- NEAR MANIFOLD M-0101
45	11-18-XTGD-5403-18	TOXIC GAS DETECTOR- NEAR CO2 ANALYSER AL-0100-01
46	11-18-XTGD-5403-19	TOXIC GAS DETECTOR- NEAR CO2 ANALYSER AL-0100-02
47	11-18-XTGD-5403-20	TOXIC GAS DETECTOR-ISOLATION VALVE
48	44-76-XTGD-5401-01	TOXIC GAS DETECTOR- RUMAITHA TIE IN PIG LAUNCHER AREA
49	44-76-XTGD-5401-02	TOXIC GAS DETECTOR- RUMAITHA TIE IN PIG LAUNCHER AREA
50	44-76-XTGD-5401-05	TOXIC GAS DETECTOR- RUMAITHA TIE IN ELECTRIC HEATER AREA
51	44-76-XTGD-5401-06	TOXIC GAS DETECTOR- RUMAITHA TIE IN ELECTRIC HEATER AREA



DOCUMENT TITLE:

INSTRUMENT DATA SHEET FOR H2S
GAS DETECTOR

Project No.: P11569

ADCO DOC. NO. 11.99.40.2619

REV. 1

Date: 06-08-2015

tyco

Fire & Security UAE LLC

TYCO DOC. NO.: TFS-D- CA150270-007_REV.3

Page 9 of 13

52	44-76-XTGD-5401-07	TOXIC GAS DETECTOR- RUMAITHA TIE IN ELECTRIC HEATER AREA
53	44-76-XTGD-5401-08	TOXIC GAS DETECTOR- RUMAITHA TIE IN PIG LAUNCHER AREA

The datasheet for the above is given below.



	DOCUMENT TITLE:	Project No.: P11569	
		ADCO DOC. NO. 11.99.40.2619	
	INSTRUMENT DATA SHEET FOR H2S GAS DETECTOR	REV. 1	Date: 06-08-2015
tyco <small>Fire & Security UAE LLC</small>		TYCO DOC. NO.: TFS-D- CA150270-007_REV.3	
		Page 10 of 13	



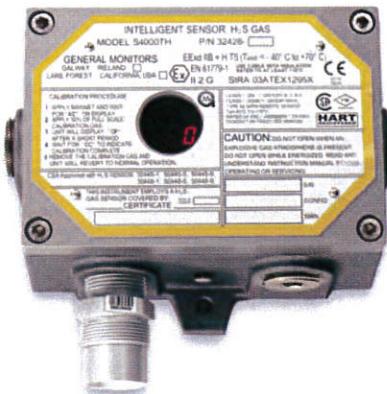
H₂S

GENERAL MONITORS

Protection for life.

MODEL S4000TH

Intelligent Sensor for H₂S Gas Detection



Features

- Event logging
- 4-20mA output
- HART and Modbus communication
- Detection Ranges (0-20 ppm, 0-50 ppm, 0-100 ppm)
- Warning, Alarm & Fault Relays
- Calibration, Calibration Check, Set-up Mode
- Remaining Sensor Life Indication
- Wireless capability

Benefits

- Stores fault, gas check, calibration, and alarm event history
- Industry standard output for remote alarm and fault indication
- Provides complete status and control capability in the control room
- Wider range of applications
- Provides local alarm capability
- Simplifies operation and maintenance
- Reduces downtime by providing an estimate of remaining sensor life
- Compatible with ELPRO Technologies wireless devices

Description

The Model S4000TH Intelligent Sensor is a microprocessor-based transmitter designed for use with General Monitors' Metal Oxide Semiconductor (MOS) sensor. This unit features one person calibration and can virtually self-calibrate by simply activating a magnetic switch and applying gas. It is designed to detect hydrogen sulfide in parts per million (ppm) levels and provide status indication and alarm outputs.

All of the S4000TH electronics are contained within an explosion-proof housing so that sensor information can be processed at the sensor site. It provides a 4-20 mA signal which is proportional to 0 to 100% of the detection range at the sensor. In addition, the S4000TH includes warning, alarm and fault relay contacts that can be used to indicate an alarm or fault condition, and dual redundant Modbus or HART communications. Configurations with relays, Modbus and HART are available to meet many needs.

The S4000TH includes a three (3) digit LED display. This local digital display continuously indicates gas concentrations during normal operation and in the calibration check mode, calibration prompts during calibration mode, display codes during the setup mode and eight fault codes.

The S4000TH has four different operating modes. First, the normal operating mode in which alarms are active and the display and 4-20 mA readings are proportional to the gas concentration at the sensor. Second, the gas check mode that allows the user to apply a gas and check the sensor response while alarm outputs are inhibited. Third, a calibration mode in which gas is applied to the sensor to calibrate the unit. Finally, a set-up mode which allows the user to review or change setup options such as relay settings, sensor range, and Modbus parameters.

Selecting Setup Mode on the S4000TH is accomplished by using the magnetic switch, HART or Modbus command.

Options

- Sensor Range (0-20 ppm, 0-50 ppm, 0-100 ppm)
- Energized/de-energized relays
- Latching/non-latching relays
- Alarm setpoints for relays
- Baud rate, data format, and address for each Modbus channel



MODEL S4000TH

System Specifications

Sensor Type:	Continuous diffusion, adsorption type Metal Oxide Semiconductor (MOS)
Sensor Life:	3 to 5 years typical
Repeatability:	±2 ppm or 10% of the applied gas, whichever is greater
Response Time:	T ₅₀ < 14 seconds (screen) T ₅₀ < 30 seconds (sintered) with full scale gas applied according to ISA 92.0.01
Measuring Ranges:	0-20 ppm, 0-50 ppm, 0-100 ppm
Modes:	Calibration, calibration check, setup
Classification: CSA/FM	Class I, Division 1, Groups B, C & D; Class I, Zone 1 IIB+H ₂ , T6, Type 4X (Tamb = -40°C to +75°C)-CSA (Tamb = -40°C to +60°C)-FM
ATEX/IECEx	Ex d IIB+H ₂ , T5 Gb IP66 (Tamb = -40°C to +70°C)
Warranty:	Two years
Approvals:	ATEX, CSA, FM, IECEx, CE Mark, HART registered, SIL 2 and 3 suitable*, FM certified to IEC 61508

Environmental Specifications

Operating Temperature	
Range: Electronics	-40°F to 167°F (-40°C to 75°C)
Storage Temperature	
Range:	-58°F to 185°F (-50°C to 85°C)
Operating Humidity	
Range:	10% to 95% RH, non-condensing

Mechanical Specifications

Length:	6.4 inches (161mm)
Height:	3.4 inches (86mm)
Width:	4.1 inches (104mm)
Weight:	5.5 lbs. (2.5 kg)-AL 14.0 lbs. (6.4 kg)-SS
Mounting Holes:	5.0 inches (127mm) (center to center)
Housing:	Aluminum 6061-T6 alloy (cover), A356-T6 alloy (base) or 316 Stainless Steel

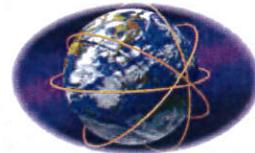
Electrical Specifications

Input Power:	24 VDC nominal, 20 to 36 VDC 350 mA max.
Relay Ratings: (optional)	8A @ 250 VAC / 8A @ 30 VDC res. max. (3x) SPDT - Warning, Alarm & Fault
Analog Signal:	0-20 mA (650 Ohms max. load) Malfunction 0 mA** Gas Check / Cal 1.5 mA*** Setup mode 1.5 mA*** Zero reading 4 mA+0.2 mA 0-100% scale 4-20 mA Over-range 20-22 mA
EMC Protection:	Complies with EN50270, EN61000-6-4
Status Indicators:	Three-digit LED display with gas concentration, Warn and Alarm LED's, calibration prompts, fault codes, and setup options
RS-485 Output: (optional)	Modbus RTU, suitable for linking up to 128 units or up to 247 units with repeaters
Baud Rate:	2400, 4800, 9600, or 19200 BPS
HART: (optional)	HART 6, HART Device Description Language available. AMSAware
Wireless Communication:	Available with ELPRO Technologies wireless devices
Faults Monitored:	Calibration error, sensor heater error, low DC supply, EEPROM, EPROM, setup error, gas check time exceeded, switch input error, internal errors
Cable Requirements:	3 wire shielded cable. Max. distance between S4000TH and power source or remote sensor @ 24 VDC nominal (20 Ohm loop): 14 AWG - 2240 ft. (824 m)
	Max. distance for analog output (600 Ohms max): 14 AWG - 8000 ft. (2400 m)
Standard Configuration:	S4000TH-1-0-01-1 (4-20 mA, P/N 50445-1, 0-100 ppm aluminum sensor, aluminum housing, push terminals)

Specifications subject to change without notice.

Represented by:

General Monitors Worldwide



www.generalmonitors.com

Lake Forest, CA

26776 Simpatica Circle
Lake Forest, California 92630
Tel: +1-949-581-4464
Fax: +1-949-581-1151
Email: info@generalmonitors.com

Houston, TX

9776 Whithorn Drive
Houston, Texas 77095
Tel: +1-281-855-6000
Fax: +1-281-855-3290
Email: gmhou@generalmonitors.com

Ireland

Ballybrit Business Park
Galway
Republic of Ireland
Tel: +353-91-751175
Fax: +353-91-751317
Email: info@gmil.ie

Singapore

No. 2 Kallang Pudding Road
#09-16 Mactech Building
Singapore 349307
Tel: +65-6748-3488
Fax: +65-6748-1911
Email: genmon@gmpacifica.com.sg

United Arab Emirates

P.O. Box 61209
Jebel Ali
Dubai
United Arab Emirates
Tel: +971-4-8143814
Fax: +971-4-8857587
Email: gmme@generalmonitors.ae

United Kingdom

Heather Close
Lyme Green Business Park
Macclesfield, Cheshire
United Kingdom, SK11 0LR
Tel: +44-1625-619583
Fax: +44-1625-619098
Email: info@generalmonitors.co.uk

* Use in typical environments has a lower safety rating than in clean environments

** Under HART, current values can be either 3.5 mA or 1.25 mA, depending on user selection

*** Under HART, current value can be either 3.5 mA or 1.5 mA, depending on user selection

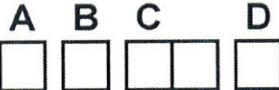


26776 Simpatica Circle
Lake Forest, CA 92630
Telephone: +1-949-581-4464
Facsimile: +1-949-581-1151
Website: www.generalmonitors.com
Email: sales@generalmonitors.com

MODEL S4000TH

HYDROGEN SULFIDE INTELLIGENT
SENSOR

Effective 07 Mar 2011



S4000TH - 1 - 0 - 0 1 - 1

HYDROGEN SULFIDE INTELLIGENT SENSOR

■ (Std) S4000TH HYDROGEN SULFIDE INTELLIGENT SENSOR

A. RELAYS1-NC:

- 1- (Std) 4-20MA OUTPUT, WITHOUT RELAYS, WITHOUT MODBUS
- 2- 4-20MA OUTPUT, WITH RELAYS, WITH DUAL MODBUS
- 3- 4-20MA OUTPUT, WITHOUT RELAYS, WITHOUT MODBUS, HAZWATCH CAL
- 4- 4-20MA OUTPUT, WITH RELAYS, WITH DUAL MODBUS, HAZWATCH CAL
- 5- 4-20MA OUTPUT, WITHOUT RELAYS, HART 1.25MA
- 6- 4-20MA OUTPUT, WITH RELAYS, HART 1.25MA
- 7- 4-20MA OUTPUT, WITHOUT RELAYS, HART 3.5MA
- 8- 4-20MA OUTPUT, WITH RELAYS, HART 3.5MA
- 9- 4-20MA OUTPUT, WITH RELAYS, WITH DUAL MODBUS with S4000T Modbus unit type

B. RELAY-STATE-NC:

- 0- (Std) NO RELAYS
- 1- LATCH ALARM/NON-LATCH WARN DE-ENERGIZED
- 2- LATCH ALARM/NON-LATCH WARN ENERGIZED
- 3- LATCH ALARM/LATCH WARN DE-ENERGIZED
- 4- LATCH ALARM/LATCH WARN ENERGIZED
- 5- NON-LATCH ALARM/NON-LATCH WARN DE-ENERGIZED
- 6- NON-LATCH ALARM/NON-LATCH WARN ENERGIZED
- 7- NON-LATCH ALARM/LATCH WARN DE-ENERGIZED
- 8- NON-LATCH ALARM/LATCH WARN ENERGIZED

C. H2S-SENSOR:

- 00- NONE
- 01- (Std) 50445-1 SENSOR AL 0 TO 100 PPM H2S
- 02- 50445-5 SENSOR AL 0 TO 50 PPM H2S
- 03- 50445-9 SENSOR AL 0 TO 20 PPM H2S
- 04- 50448-1 SENSOR SS 0 TO 100 PPM H2S
- 05- 50448-5 SENSOR SS 0 TO 50 PPM H2S
- 06- 50448-9 SENSOR SS 0 TO 20 PPM H2S
- 11- 51457-1L SENSOR SS ATEX H2S 0-100 (W/LUGS)
- 12- 51457-5L SENSOR SS ATEX H2S 0-50 (W/LUGS)
- 13- 51457-9L SENSOR SS ATEX H2S 0-20 (W/LUGS)
- 14- NO SENSOR - 0-50 PPM RANGE
- 15- NO SENSOR - 0-20 PPM RANGE

D. Approvals/Language/TERMINAL TYPE:

- 1- (Std) ATEX/CSA-English
- 3- ATEX/CSA-ENGLISH-SCREW TERMINAL
- 5- GMI-GMIL/SST HOUSING
- 6- GMI-GMIL/SST HOUSING SCREW TERMINALS

Terms: Net 30 Days
F.O.B.: Lake Forest, California
Prices subject to change without notice.

CONFIDENTIAL
International Price List

All change orders are subject
to a minimum cancellation charge of
\$100.00 or 10%, whichever is greater.