



UNITED KINGDOM CONFORMITY ASSESSMENT

1 UK TYPE EXAMINATION CERTIFICATE

2 Equipment Intended for use in Potentially Explosive Atmospheres
UKSI 2016:1107 (as amended) – Schedule 3A, Part 1

3 Certificate Number: CSAE 24UKEX1000X Issue: 0
4 Product: JT33 TDLAS Spectrometer, JT33 TDLAS Gas Analyzer (No Sample System), JT33 TDLAS Gas Analyzer System.
5 Manufacturer: Endress+Hauser Optical Analysis Inc.
6 Address: 11027 Arrow Route
Rancho Cucamonga
California 91730
USA

7 This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 CSA Group Testing UK Limited, Approved Body number 0518, in accordance with Regulation 42 of the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended), certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Schedule 1 of the Regulations. The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:




- EN IEC 60079-0:2018 EN 60079-1:2014+AC:2018-09 EN 60079-11:2012
- EN 60079-28:2015 EN ISO 80079-36:2016+AC:2019 IEC TS 60079-40:2015 Edition 1.0

Except in respect of those requirements listed at Section 16 of the schedule to this certificate. The above standards may not appear on the UKAS Scope of Accreditation, but have been added through flexible scope of accreditation, which is available on request.

10 If the sign 'X' is placed after the certificate number, it indicates that the product is subject to Specific Conditions of Use identified in the schedule to this certificate.

11 This UK TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified product. Further requirements of the Regulations apply to the manufacturing process and supply of this product. These are not covered by this certificate.

12 The marking of this product shall be in accordance with Regulation 41 and include the following:

<p>JT33 TDLAS Spectrometer</p> <p>Dual Seal Without Annunciation</p>  <p>II 2(1)G Ex db ia [ia Ga] ib op is IIC T4 Gb Ta = -20°C ≤ Ta ≤ +60°C</p>	<p>JT33 TDLAS Gas Analyzer (No Sample System)</p> <p>Dual Seal Without Annunciation</p>  <p>II 2(1)G Ex db ia [ia Ga] ib op is h IIC T4 Gb Ta = -20°C ≤ Ta ≤ +60°C</p>	<p>JT33 TDLAS Gas Analyzer System</p> <p>Dual Seal Without Annunciation</p>  <p>II 2(1)G Ex db ia [ia Ga] ib op is h IIC T3 Gb Ta = -20°C ≤ Ta ≤ +50°C</p>
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Name: M Halliwell
Title: Director of Operations



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13 DESCRIPTION OF PRODUCT

The JT33 TDLAS Analyzer is a laser-based gas analyzer that measures the concentration of a compound or "analyte" such as H₂S. The technology employed is Tunable Diode Laser Absorption Spectroscopy (TDLAS). The measurement output is a volumetric concentration, or ratio of a specific analyte in a gas mixture such as natural gas. The volumetric ratio can be converted to other units of measure using internal conversion factors and calculations.

The JT33 TDLAS Gas Analyzer System is comprised of a sample cell, intrinsically safe optical head and an electronics assembly platform within a pre-certified flameproof enclosure. The cell is a sealed tube through which the gas mixture flows. The cell has a gas inlet and a gas outlet. On one end of the tube is a window through which a beam of infrared laser light travels, which in turn reflects on internal mirrors. In this arrangement, the gas mixture does not contact the optoelectronics. Pressure, and in some cases temperature sensors, are employed in the cell assembly to compensate for the effects of pressure and temperature changes in the gas.

The optical head is mounted on top of the cell and contains the laser, optical detector, and a thermoelectric cooler to control the laser temperature. The optical head also contains the optical head electronics which are directly connected to the optoelectronics in the optical head. The optical head electronics board also communicates with the electronics assembly and the MAC (Measurement Accessory Controller). The MAC is rated 100-240 VAC, 50/60 Hz; or 24 VDC, 67 W. AC versions of the MAC support a heater, which, when installed, increases the maximum power consumption to 275 W.

The electronics assembly is mounted on top of the optical head, within a flameproof enclosure. The electronics assembly, which can be powered by 100-240 VAC \pm 10% or 24VDC \pm 20% source, contains the sensor electronics which connects to the optical head via the RS232 protocol through a 10-pin ribbon cable assembly.

The sensor electronics and the optical head electronics operate on a 30V DC supply using the same 10-pin ribbon cable. The sensor electronics generate the laser drive signal that is sent through the optical head electronics and to the laser in the optical head. Signals from the detectors are amplified by the optical head electronics and sent to the sensor electronics where they are digitized. The sensor electronics process the digital data and sends the gas concentration measurements the electronics display and I/O modules.

The MAC microcontroller firmware operates digital temperature controls. It receives directions from the optical head electronics to set temperature targets, and report status of the temperature control. There is one heater assigned to the MAC which is switched on and off, and one sensing thermistor the MAC is used to measure the ambient temperature inside the heated enclosure.

The electronics assembly displays the concentration measurement on an LCD display and has a through-the glass 3-button keypad interface for user input. The flameproof enclosure of the electronics assembly also houses the electrical terminals for field wiring connections. The JT33 is offered with various analogue and digital outputs which may be employed in automation or communication systems to deliver its measurements and applicable diagnostic messages and alarms to remote devices. Additionally, the electronics assembly has a Service Port which allows interaction with the JT33 TDLAS SPECTROMETER on a standard web browser using a laptop or tablet. This connection is for use by the manufacturer or trained personnel for test, repair, or overhaul interaction of the equipment under non-hazardous conditions, ie, when no explosive atmosphere is present. Assessment of the performance of this service port and its associated software is outside the scope of this certification.

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The JT33 TDLAS Gas Analyzer is used as an "extractive" measuring device, where the gas sample is extracted from a vessel or pipeline and transported to the analyzer which may be mounted up to 100m from the sample tap point. The JT33 TDLAS Gas Analyzer may be configured without sample conditioning on a panel or heated enclosure as described above. An optional IP66 rated enclosure may be included which surrounds the measurement cell, MAC, and sample conditioning system.

The JT33 TDLAS Gas Analyzer operates at near-atmospheric pressure. The sample return is routed and vented to a safe location in the atmosphere or vented to a flare or other apparatus depending on the application.

The maximum working pressure (MWP) of the equipment is listed as 800-1200 mbara, or 800-1700 mbara (model dependant). This is the pressure range at which the manufacturer has determined the equipment can operate. However, the equipment was assessed to withstand a pressure of 75 lbf/in² (psi) against IEC TS 60079-40:2015 Edition 1.0.

The equipment has been separately assessed against the requirements of IEC 60529 and it meets IP66.

Three main variants of the JT33 TDLAS Spectrometer are available. The JT33 TDLAS Spectrometer; the JT33 TDLAS Gas Analyzer (No Sample System); the JT33 TDLAS Gas Analyzer System.

The JT33 TDLAS Spectrometer

The JT33 TDLAS Spectrometer consists of an Ex d flameproof electronics compartment (top), intrinsically safe optical head (center) and a measurement cell tube (bottom).

JT33 TDLAS Gas Analyzer (No Sample System)

The JT33 TDLAS Gas Analyzer is configured with pre-certified equipment on a panel available for customers who have the need to integrate this panel version into their own sample conditioning system. The panel is assembled with two or three solenoid valves, pressure regulator, scrubber, and MAC. As described above, MAC is linked with the JT33 TDLAS Spectrometer via serial cable to receive commands to energize solenoids valves which divert sample gas to flow through the scrubber prior to entering the measurement cell. A pressure regulator is located upstream of the measurement cell to ensure it does not operate above 69KPa (10 psig).

JT33 TDLAS Gas Analyzer System

JT33 TDLAS GAS ANALYZER ENC. SCS HEATED is a turnkey assembly configured with pre-certified equipment, including the heater, solenoid valves, scrubber, filter, isolation valves, enclosure and sample conditioning system (SCS). The "SCS" allows more precise control of the sample gas before it flows through the spectrometer.

Ratings:

JT33 TDLAS Spectrometer: 100-240 VAC 50/60Hz \pm 10%, Um = 250V; or 24VDC \pm 20%, 10 W, Um = 250V.

I/01: Terminal 26 and 27, Un = 30Vdc, Um = 250Vac

I/02: Terminal 24 and 25, Un = 30Vdc, Um = 250Vac or Un = 30Vdc, In = 100mAdc/500mAac, Um = 250Vac

I/03: Terminal 22 and 23, Un = 30Vdc, Um = 250Vac or Un = 30Vdc, In = 100mAdc/500mAac, Um = 250Vac

J6 Optical Head Enclosure (Flow Switch): Uo/Voc = 5.88V, Io/Isc = 4.53mA, Po = 6.66mW, Co/Ca = 43 μ F, Lo/La = 1.74H (Uo/Voc may be + or - 5.88V with respect to Pin 2 of J6)

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Measurement Accessory Controller (MAC): 100-240 VAC, 50/60 Hz, 275 W; or 24 VDC, 67 W.

J6 SOVS, J11 HEAT SCS, J12 AC IN: $U_m = 250V$

J5 SCS THRM – Pin 1 w.r.t. Pin 2: $U_i = 0$, $C_i = 0$, $L_i = 0$, $U_o = +5.88V$, $-1V$, $I_o = 1.18mA$ (resistively limited), $P_o = 1.78mW$, $C_o = 40\mu F$, $L_o = >1H$

Model Code Structure

Headings without sub-options are not considered critical to the design of the equipment. Where sub options are shown, these are the only options endorsed by CSA. For order codes listed as 'special' from the manufacturer, only the JT33 TDLAS Spectrometer is a CSA certified part.

JT33 –

10 – Approval

BA: ATEX/IECEX/UKEx Zone 1

20 – Analyte

30 – H₂S Measurement Range

40 – H₂O Measurement Range

50 – Additional Measurement Range

60 – O₂ Measurement Range

70 – Stream Composition

80 – Venting to

A: Atmosphere

F: Flare

90 – Special Application

100 – Measurement Wetted Materials

1: 316 Stainless Steel; FKM Seals

110 – Power Controller

A: 100 – 240 VAC \pm 10%

D: 24 VDC \pm 20%

120 – Output:Input 1

130 – Output:Input 2

140 – Output:Input 3

145 – Ambient Temperature

1: -20 to +50°C

2: -10 to +60°C (Not for JT33 TDLAS Gas Analyzer System)

150 – Controller Housing Material

1: Coated Copper-Free Alu

2: 316 Stainless Steel

160 – Controller Mounting

1: Fixed controller mount with integral HMI

2: Panel mount spectrometer; use for feature 170, option N only

170 – Sample Conditioning System and Enclosure

D: 304 Stainless Steel

E: 316 Stainless Steel

N: None

180 – Validation Options

1: Manual validation

2: Auto validation, 1-point

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- 4: Air operated auto-validation, 1-point
- 5: Air operated auto-validation, 2-point
- N: None
- 190 – Filtration
- 200 – Sample System Gas Connection
 - A: Imperial
 - B: Metric
- 210 – Pressure Regulation
 - B: Pressure Regulator plus Pressure Relief Valve
 - D: Pressure Regulator, Premium, plus Pressure Relief Valve
 - N: None
- 220 – Flow Meter
 - F: Glass Tube, Factory Default
 - K: Glass Tube, Premium (KROHNE)
 - L: Armored Flowmeter, Factory Default (King)
 - M: Armored Flowmeter premium (KROHNE)
 - N: None
- 230 – Heated Sample Conditioning System (SCS)
 - 1: Heated, no Heat-Trace Boot, 100 VAC
 - 2: Heated and Heat-Trace Boot, 100 VAC
 - 3: Heated, no Heat-Trace Boot, 120 VAC
 - 4: Heated and Heat-Trace Boot, 120 VAC
 - 5: Heated, no Heat-Trace Boot, 230 VAC
 - 6: Heated and Heat-Trace Boot, 230 VAC
 - 7: Heated, no Heat-Trace Boot, 240 VAC
 - 8: Heated and Heat-Trace Boot, 240 VAC
 - 9/10/11: No heating for system integrators
 - 12: No heating "Spectrometer Only" version
- 240 – Application Specific
- 500 – Operating Language Display
- 530 – Validation Gas
- 580 – Test, Certificate, Declaration
- 590 – Additional Approval
- 895 – Marking
 - Z1: Tag

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Reports and Certificate History

Issue	Date	Report number	Comment
0	05 March 2024	R80187161A R80187161B	The release of the prime certificate.

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- 15 SPECIFIC CONDITIONS OF USE** (denoted by X after the certificate number)
- 15.1 The flameproof joints of this equipment are other than the minimums specified in EN 60079-1 and shall not be repaired by the user.
- 15.2 When supplied, the Measurement Accessory Controller (MAC) shall be used with field wiring and cable entry devices suitable for a temperature of at least 75°C.
- 15.3 When cable entry devices are provided by the end user for the MAC, these shall meet the requirements of IP66 following the tests of enclosures as defined in EN IEC 60079-0.
- 15.4 When J5 of the MAC is considered as a field wiring connection, the installer shall use cable whose inner cores have a minimum radial insulation thickness of ≥ 0.5 mm.
- 15.5 The JT33 TDLAS Spectrometer and JT33 TDLAS Gas Analyzer (No Sample System) shall be installed in an enclosure that is suitable for the environment of use and that provides protection against mechanical impact. The user shall ensure that the surrounding temperature of the optical head does not exceed 60°C and that the surrounding temperature of the MAC does not exceed 70°C.
- 15.6 To ensure the degree of protection is maintained, the user shall ensure that the cover seal of the G3xx enclosure (transmitter) is flat with no bends in the seal surface before securing the cover. Seals that are not flat are to be replaced.
- 15.7 Adhesive labels and the powder coating of models of the equipment with an aluminium enclosure are non-conducting materials and may generate an ignition-capable level of electrostatic discharge under certain extreme conditions. The user should ensure that the Equipment is not installed in a location where it may be subjected to external conditions (such as high-pressure steam) which might cause a build-up of electrostatic charges on these non-conducting surfaces. Additionally, cleaning of the equipment should be done only with a damp cloth.
- 15.8 An optional stainless-steel label tag which may be present on the transmitters of this equipment is not bonded to earth. The maximum average capacitance of the tag determined by measurement is max. 30 pF. This shall be considered by the user to determine suitability of the equipment in a specific application.
- 15.9 This equipment is intended to operate at constant pressure and has not been assessed for the effects of persistent fluctuations of pressure within the operating range. Therefore, the user shall ensure that the pressure fluctuation within the Sample Cell Tube of the equipment does not routinely exceed 5 lbf/in² (psi).
- 15.10 The equipment shall be supplied from an Overvoltage Cat II source only.
- 16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (REGULATIONS SCHEDULE 1)**
- In addition to the Essential Health and Safety Requirements covered by the standards listed in Section 9, all other requirements are demonstrated in the relevant reports.
- 17 PRODUCTION CONTROL**
- 17.1 Holders of this certificate are required to comply with production control requirements defined in Schedule 3A, as applicable, and CSA Group Testing UK Regulations for Certificate Holders
- 17.2 The equipment covered by this certificate incorporates previously certified devices; it is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with

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these devices, and the manufacturer shall inform CSA UK of any modifications of the devices that may impinge upon the explosion safety design of the equipment.

Description	Certificate Number
E+H G305 and G307 Enclosures	IECEX SIR 11.0050U
Intertec CP heater CP Multitherm BPA 200 T3 F, CP Multitherm BPA 160 T3 F	CML 22UKEX1655X
Versa SOV DSM-3301-316-XDDT-D024	Sira 16ATEX1157X
Bifold SOV FP06P-S1-04-32-NU-V-77U-24D-57-K85-H2S	BAS21UKEX0642
E+H MAC	CSAE 23UKEX1097X
CMP Blanking Element Type 747DAT15 (1/2") 747DAT25 (3/4")	CML 21UKEX1238X
Hawke Barrier Gland CBS656NA0.500.50NP & CBS656NA0.750.75NP	CML 21UKEX1164X
CMP Barrier Gland 25PX2K1RA532 & 20S16PXSS2KREX1EX531	CML 21UKEX1214X
Killark Conduit Elbow GUML-2M-EX	CML 16ATEX1325X
Conduit Elbow CMP Type 787DT2T25	CML 21UKEX1243U
HLS Conduit Elbow N. 1/2.1/2.N	SIRA 07ATEX1174U
CMP Conduit Union Type 780DT1T1	CML 21UKEX1240X
CMP Gland 40A2F1RA5	CML 21UKEX1245X
Quintex Line Bushing LBSN21202/0.5END (NICKEL PLATED) LBSN21202/0.5ENDVA (316SS)	EPS 22 UKEX 1 054 X
E+H Proline 300/500 Electronics	IECEX CSA 16.0006U
E+H Display Type DP-PA**	IECEX KEM 08.0048U
KROHNE Messtechnik GmbH Variable Area Flowmeter type DK32 / R1 / .. / L / .. / ...- Ex	KIWA 18ATEX0008X

- 17.3 It is the responsibility of the manufacturer to ensure that the correct cable types are used with the entry devices specified for this equipment.



Certificate Annexe

Certificate Number: CSAE 24UKEX1000X
 Product: JT33 TDLAS Spectrometer, JT33 TDLAS Gas Analyzer (No Sample System), JT33 TDLAS Gas Analyzer System.
 Manufacturer: Endress+Hauser Optical Analysis Inc.

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Drawing	Sheets	Rev.	Date (Stamp)	Title
EX1700000018-BA	1 to 5	A	24 Feb 24	Label, JT33 Rating, ATEX, CERT.
MPI-100025	1 to 1	A	16 Feb 21	Manufacturing Process Instruction Potting Process RT 622, Exd and CLASS-1 DIVISION-1 XP
EX1400000023	1 to 17	C	24 Feb 24	ENCL ASSY,NEMA 4X,IP66,36X24X12
EX0900000012	1 to 2	E	16 Feb 21	Housing, Conn Stem, H328
EX1300000038	1 to 1	B	16 Feb 21	Gasket, H328 Collar / Opt Enclsr
EX1300000039	1 to 1	B	16 Feb 21	Gasket, Enclosure Access
EX2100000002	1 to 2	B	16 Feb 21	Bushing + 28 Contacts
EX2100000010	1 to 2	A	16 Feb 21	Conn, 28-Pin, 90V Isolation
EX8000000062	1 to 3	C	16 Feb 21	Isem Interface Module Assy
EX8000000092	1 to 3	F	09 Feb 22	Analyzer Assy, 0.8M, Unit Sealing
EX0900000017	1 to 1	A	25 Feb 24	ADAPTER, H328, Exd, SS, CERT
EX8700000033	1 to 1	B	25 Feb 24	WIND, Ø25.4MMx1.1MM, CERT
EX8700000031	1 to 1	B	24 Feb 24	T-PLATE ASSY, J33, CERT
EX0900000025	1 to 2	C	16 Feb 21	Enclosure, Optical Head
EX0900000028	1 to 1	B	02 Feb 22	Hot Plate, TLM
EX0900000029	1 to 1	B	02 Feb 22	Cold Plate, TLM
EX2900000010	1 to 4	D	07 Jun 21	PCBA, Optical Head Assembly
EX2900000010-00	1 to 3	E	07 Jun 21	BOM, Optical Head Electronics
EX2900000011	1 to 12	B	07 Jun 21	PCB, Optical Head Fabrication Notes
EX2900000012	1 to 9	C	07 Jun 21	Schem, Optical Head Electronics
EX2900000020	1 to 4	E	07 Jun 21	PCBA, ISEM Analog Board Assembly
EX2900000020-00	1 to 3	E	07 Jun 21	BOM, ISEM Analog
EX2900000021	1 to 14	C	07 Jun 21	PCB, ISEM Analog Board Fabrication Notes
EX2900000022	1 to 9	C	07 Jun 21	Schem, ISEM Analog
EX2900000030	1 to 4	D	07 Jun 21	PCBA, ISEM Digital MCU Assembly Side-A
EX2900000030-00	1 to 2	D	07 Jun 21	BOM, ISEM Digital MCU Board
EX2900000031	1 to 16	B	07 Jun 21	PCB, ISEM Digital MCU Fabrication Notes
EX2900000032	1 to 17	B	07 Jun 21	Schem, ISEM Digital MCU
EX2900000071	1 to 5	C	02 Feb 22	PCB, TLM Flex Fabrication Notes
EX2900000072	1 to 3	B	16 Feb 21	Schem, TLM Flex
EX2900000081	1 to 7	C	16 Feb 21	PCB, ISEM 28 Flex, Analog Fabrication Notes
EX2900000082	1 to 3	A	16 Feb 21	Schem, ISEM 28 Flex, Analog
EX2900000091	1 to 7	C	16 Feb 21	PCB, ISEM 28 Flex, Digital Fabrication Notes
EX2900000092	1 to 3	A	16 Feb 21	Schem, ISEM 28 Flex, Digital
EX2900000141	1 to 3	A	16 Feb 21	PCB Heat Spreader TLM (2x5)
EX2900000161	1 to 4	A	16 Feb 21	PCB Flex, PDMx1
EX2900000162	1 to 3	A	16 Feb 21	Schematic, PCB FLEX, PDMx1



CSA Group Testing UK Ltd., Unit 6 Hawarden Industrial Park, Hawarden, CH5 3US, UK
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QD-1599 Issue 5 (2023-09-11)



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 Product: JT33 TDLAS Spectrometer, JT33 TDLAS Gas Analyzer (No Sample System), JT33 TDLAS Gas Analyzer System.
 Manufacturer: Endress+Hauser Optical Analysis Inc.

Drawing	Sheets	Rev.	Date (Stamp)	Title
EX2900000171	1 to 4	A	16 Feb 21	PCB, ISEM Shield
EX6000000009	1 of 1	A	16 Feb 21	Cable, P3 to ISE MCU Digital Brd
EX6000000012	1 of 1	A	16 Feb 21	Cable Assy, Pressure, Digital
EX8000000055	1 to 1	C	09 Feb 22	Hot Plate – TEC Asst, TLM
EX0900000044	1 to 1	A	01 Mar 24	Cover, Opt Head Enclosure, JT33, Cert.
EX0900000033	1 to 1	A	01 Mar 24	COVER, FRAME, DSCNT BLOCK, J33
EX2900000210	1 to 3	A	01 Mar 24	PCBA, TRANSITION, LASER/DET, J33
EX2900000210-00	1 to 2	A	01 Mar 24	BOM, PCBA ASSY, TRANSITION-LASER/DET, J33
EX2900000211	1 to 10	A	01 Mar 24	PCB, Transition-Laser/Det Fabrication Notes
EX2900000212	1 to 3	A	01 Mar 24	Schem, Transition – Laser/Det, J33
EX8000000120	1 to 5	B	25 Feb 24	Analyzer System Assy, JT33, Unit Sealing
EX8000000117	1 to 1	B	01 Mar 24	COVER ASSY, DSCNT BLOCK, J33
EX8700000027	1 to 2	A	25 Feb 24	OPTICAL HEAD ASSY, JT33, CERT
EX8700000025	1 to 7	A	25 Feb 24	Analyzer Assy, JT33, Cert
EX8000000122	1 to 5	A	01 Mar 24	TLM ASSY, Cert (J22, JT33)
EX8700000028	1 to 12	C	25 Feb 24	ANALYZER SYSTEM ASSY, J33
EX8700000030	1 to 1	A	24 Feb 24	SPECTROMETER, JT33, CERT
EX8000000119	1 to 1	A	01 Mar 24	Det Module, JT33
EX8700000032	1 to 7	A	24 Feb 24	Analyzer Only Panel
EX8700000026	1 to 1	A	01 Mar 24	TLM-PUCK ASSY, JT33
EX0900000045	1 to 1	A	01 Mar 24	PLATE, MOUNTING, JT33
EX6000000016	1 to 1	D	01 Mar 24	HARNESS, MAC OHE RS485 LINE
EX6000000015	1 to 1	D	01 Mar 24	HARNESS, MAC THERMISTOR, J33
0900002292	1 to 1	A	25 Feb 24	COUPLING, H328 – OPT ENCLSR
2800002142	1 to 1	A	24 Feb 24	O-ring 45.69 x 2.62 HNBR 70sh
2800002176	1 to 1	A	24 Feb 24	O-ring, VITON, =036, 2.364 x 0.070
EX5500000004	1 to 2	E	09 Sep 22	PRESSURE SENSOR, DIGITAL

