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Karandikar Laboratories



F 08 CE Rev. 02

1) Ex EQUIPMENT TYPE EXAMINATION REPORT

2) TE Report Number: KLPL/Ex/26-044X Issue no.00 Dated: 27.04.2026

3) **Ex Equipment:** Sentro 1 Sensor/Transmitters
Model: TX635x.01i.xx.35(.xx) & TX9081.01i.xx.35

4) **Manufacturer:** Trolex Limited
Newby Rd, Hazel Grove, Stockport
SK7 5DY, United Kingdom.

5) This equipment and any acceptable variation thereto are specified in the schedule to this report and the documents therein referred to

6) Karandikar Laboratories Pvt. Ltd. reports that this equipment has been found to comply with requirements of the following standards relating to the design and construction of equipment for explosive gas/dust atmospheres as applicable.

7) This TE Report was issued as verification that a sample, was assessed, tested and found to comply with the IS / IEC standards listed below.
IS/IEC 60079-0:2017 & IS/IEC 60079-11:2023

8) The Examination and Test results are recorded in KLPL's confidential
Report No.: KLPL/Ex/TL-26/003 Dated: 27.04.2026

9) The sign X if placed after the TE report number; it indicates that the equipment is subject to specific conditions of use specified in the schedule to this TE Report.

10) This Report does not indicate compliance with electrical safety and performance requirements other than those expressly included in the above listed standards.

11) The marking of the Equipment shall include the following:

Ex Code:

Ex ia I Ma (-20°C ≤ Ta ≤ +40°C)

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A. V. Karandikar
Ajit Karandikar
CEO

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12) Details of Type Examination Reports Issued: -

TE Report No.	Issue No.	Report No.	Date	Reason for Issue
KLPL/Ex/26-044X	00	KLPL/Ex/TL-26/003	27.04.2026	Original issue

13) Description of equipment

The Sentro 1 Sensor/Transmitters TX635x.01i.xx.35(.xx) and TX9081. 01i.xx.35(.xx) monitor an input from sensor modules. The sensor module is fully integrated into the base unit to give direct monitoring of oxygen, toxic or flammable gas concentrations (versions with eModules), or alternatively the monitoring channel may be connected to a remote sensor to measure airflow, pressure, vibration, etc. (versions with rModules). The equipment may be fitted with various gas sensing modules (eModules) and various terminal modules (rModules) for remote connection of external sensors. The unit comprises a Control PCB, Display PCB and an Output PCB housed in a non-metallic enclosure with polycarbonate LCD window which provides a degree of protection of at least IP 54. External circuit connections are made through the two gland entries at the bottom of the housing, and via terminals on the front of the unit (rModules). The Output PCB may be fitted in one of the following variants:

- Relay Output PCB -Analogue/Comms Output PCB
- 0.4V -2V Output -Analogue/Comms Output PCB
- 4mA -20mA Output -Analogue/Comms Output PCB
- RS485 Output
- 4-20mA Loop Powered Output PCB

14) Model Designation:

Model No.	Product	Rating
TX6351.01i.11.35(.xx)	Sentro 1 Sensor/Transmitters	Refer Point 17
TX6351.01i.12.35(.xx)		
TX6351.01i.15.35(.xx)		
TX6351.01i.14.35(.xx)		
TX6351.01i.17.35(.xx)		
TX6352.01i.12.35(.xx)		
TX9081.01i.11.35(.xx)		
TX9081.01i.12.35(.xx)		
TX9081.01i.15.35(.xx)		
TX9081.01i.14.35(.xx)		
TX9081.01i.17.35(.xx)		

15) Drawings & Documents:

Document Number	No. of Pages	Rev.	Date	Drawing Title
P5536.100.ATEX.IECEx	1 of 2	A	25.06.2020	General Arrangement
P5536.100.ATEX.IECEx	2 of 2	A	25.06.2020	General Arrangement with AV module for P9000.260
P5536-103	1	A	02.05.2008	Relay Certification details
P5536.289.ATEX.IECEx	1 of 2	A	11.03.2021	Group I Certification Schematic 5-15Hz/Relay Output PCB
P5536.289.ATEX.IECEx	2 of 2	A	11.03.2021	P5536.289 BOM
P5536.290.01.ATEX.IECEx	5	A	25.06.2020	5-15Hz/Relay Output PCB Layout
P5536.292.01.ATEX.IECEx	1 of 2	A	11.03.2021	Group I Certification Schematic Analogue/Comms Output PCB 0.4V - 2V Output
P5536.292.01.ATEX.IECEx	2 of 2	A	11.03.2021	ATEX_IECEx Certification BOM
P5536.292.02.ATEX.IECEx	1 of 2	A	11.03.2021	Group I Certification Schematic Analogue/Comms Output PCB 4mA - 20mA Output
P5536.292.02.ATEX.IECEx	2 of 2	A	11.03.2021	ATEX_IECEx Certification BOM
P5536.292.03.ATEX.IECEx	1 of 2	A	25.06.2020	Group I Certification Schematic Analogue/Comms Output PCB RS485 Output
P5536.292.03.ATEX.IECEx	2 of 2	A	25.06.2020	ATEX_IECEx Certification BOM



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P5536.294.ATEX.IECEx	4	A	25.06.2020	Analogue & Comms Output PCB Group I
P5536.202.ATEX.IECEx	1 of 2	A	11.03.2021	Group I Control PCB ATEX/IECEx Certification Schematic
P5536.202.ATEX.IECEx	2 of 2	A	11.03.2021	Circuit Control PCB
P5536.203	1	B	14.10.2009	PCB Control
P5536.204.ATEX.IECEx	2	A	25.02.2021	Display PCB ATEX/IECEx Certification Schematic
P5536.205	1	C	01.05.2012	PCB, Display
P5536.286.ATEX.IECEx	1 of 2	A	13.01.2020	Sentro 1 Revised Display ATEX/IECEx Certification Schematic
P5536.286.ATEX.IECEx	2 of 2	A	13.01.2020	Sentro 1 Revised Display ATEX/IECEx Certification BOM
P5536.287.ATEX.IECEx	2	A	13.01.2020	Sentro 1 Revised Display ATEX/IECEx Certification Layout
P5536.212	1	B	14.10.2009	PCB, Connector
P5536.225.ATEX.IECEx	2	A	11.03.2021	Grp I Circuit 4-20mA Loop Powered Output PCB ATEX/IECEx Certification Schematic
P5536.226.ATEX.IECEx	1	A	28.04.2021	PCB, Loop Powered 4-20mA / 2-Wire
P5536.1801	1	A	27.04.2026	Indian Certification Marking – TX6351.01i(.xx...) Sentro 1
P5536.1802	1	A	27.04.2026	Indian Certification Marking – TX6352.01i(.xx...) Sentro 1
P5536.1803	1	A	27.04.2026	Indian Certification Marking – TX9081.01i(.xx...) Sentro 1
P5553.11	2	A	02.11.2010	Circuit Diagram Infrared CPU Board
P5553.12	1	A	03.11.2010	Circuit Diagram Infrared CPU Board
P5553.187.ATEX.IECEx	2	B	11.03.2021	Infrared Baseboard ATEX/IECEx Certification Schematic
P5553.188.ATEX.IECEx	4	B	27.04.2021	PCB Infrared Baseboard
P5553.21	1	B	14.06.2010	PCB, Connector Board
P5553.21.01.ATEX.IECEx	1	A	04.07.2018	PCB, Connector Board
P5553.113.ATEX.IECEx	1	A	07.08.2018	General Arrangement Infrared eModule
P5553.118	2	A	04.01.2011	Circuit Diagram Infrared CPU OSC Board
P5553.119	1	A	05.01.2011	PCB, Infrared CPU OSC
P5553.1800	1	A	27.04.2026	Indian Certification Marking – TX6350(.xx...) Sentro eModule
P5553.01	2	A2	24.04.2007	Circuit Diagram Sensing Module-CPU Board
P5553.02	1	B	21.06.2010	PCB, Sensing Module-CPU Board
P5553.184.ATEX.IECEx	2	A	14.05.2018	Circuit Diagram Toxic Baseboard
P5553.185.ATEX.IECEx	4	B	27.04.2021	PCB, Toxic Baseboard
P5553.05.ATEX.IECEx	2	A	25.02.2021	Sensing Module Oxygen Baseboard ATEX/IECEx Certification Schematic
P5553.06	1	B	21.06.2010	PCB, Base, 02
P5553.24.ATEX.IECEx	1	A	25.06.2020	General Arrangement Toxic & Oxygen eModule
P5553.40	2	C	16.03.2010	Circuit Diagram Sensing Module 4 Series Flammable Baseboard
P5553.41	1	C	14.06.2010	PCB, Base, Flammable, 4 series
P5553.95.ATEX.IECEx	1	A	25.06.2020	General Arrangement 4 Series Flammable eModule
P5476.12	1	B	01.05.2012	General Arrangement
P5553.26.ATEX.IECEx	1	A	25.06.2020	General Arrangement Analogue/PT100
P5553.27	1	D	29.07.2010	PCB, 0.4V-2V/4-20mA I/P Module Baseboard
P5553.28.ATEX.IECEx	2	A	11.03.2021	Grp I 0.4-2V/4-20mA rModule Baseboard ATEX/IECEx Certification Schematic
P5553.29.ATEX.IECEx	2	A	11.03.2021	Group I Signal Conditioning CPU Board ATEX/IECEx Certification Schematic
P5553.30	1	B	10.02.2010	PCB, Signal Conditioning CPU Board
P5553.42	2	E	17.08.2010	Circuit Diagram PT100 Input Module Baseboard (Group I)
P5553.43	1	E	18.08.2010	PCB, PT100 Baseboard
P5553.45	2	C	29.01.2010	Circuit Diagram Single Namur/Monitored Switch Baseboard (Group I)
P5553.46	1	D	29.07.2010	PCB, Single Namur/Monitored Switch
P5553.1801	1	A	27.04.2026	Indian Certification Marking – TX9160.01i(.xx...) Sentro rModule
P5536.295.ATEX.IECEx	1 of 2	A	11.07.2022	Group I Certification Schematic 5-15Hz/Relay Output PCB Alternative Build
P5536.295.ATEX.IECEx	2 of 2	A	11.07.2022	ATEX_IECEx Certification BOM
P5536.297.ATEX.IECEx	5	A	12.07.2022	5-15Hz/Relay Output PCB Layout Alternative Build
P5536.298.01.ATEX.IECEx	1 of 2	A	11.07.2022	Group I Certification Schematic Analogue/Comms Output PCB 0.4-2V Output Alternative Build
P5536.298.01.ATEX.IECEx	2 of 2	A	11.07.2022	ATEX_IECEx Certification BOM
P5536.298.02.ATEX.IECEx	1 of 2	A	11.07.2022	Group I Certification Schematic Analogue/Comms Output PCB 4-20mA Output Alternative Build
P5536.298.02.ATEX.IECEx	2 of 2	A	11.07.2022	ATEX_IECEx Certification BOM
P5536.298.03.ATEX.IECEx	1 of 2	A	11.07.2022	Group I Certification Schematic Analogue/Comms Output PCB RS485 Output Alternative Build
P5536.298.03.ATEX.IECEx	2 of 2	A	11.07.2022	ATEX_IECEx Certification BOM
P5536.300.ATEX.IECEx	4	A	07.07.2022	Analogue/Comms Output PCB Group I Alternative Build

Drawings listed above are finally accepted as accurately representing the product for which this evaluation report has been prepared. These drawings provide necessary information as required by the above referred standards.

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16) Temperature Class:

Considering the ambient temperature range of -20°C to +40 °C, the requested maximum surface temperature of "150°C" and "450°C" is acceptable.

17) Electrical Rating:

Intrinsic safety is achieved by limiting energy storage and discharge, and by connecting to the non-hazardous area via intrinsically safe interface devices. The equipment has the following safety description:

Model No.:	Power Input	Output type	Output
TX6351.01i.11.35(.xx) TX9081.01i.11.35(.xx)	Terminal 5 w.r.t. 6 Ui = 14.4 V, Ci = 0, Li = 0	0.4 V – 2 V	Terminal 1 w.r.t. 2 or 3: Ui = 14.4 V, Uo = 14.4 V, Io = 40 mA, Po = 0.135 W, Ci = 0, Li = 0
TX6351.01i.12.35(.xx) TX9081.01i.12.35(.xx)		4 mA – 20 mA	Terminal 1 w.r.t. 2 or 3: Ui = 14.4 V, Uo = 14.4 V, Io = 0.477 A, Po = 1.72 W, Ci = 0, Li = 0
TX6351.01i.15.35(.xx) TX9081.01i.15.35(.xx)		RS485	Terminal 1 w.r.t.3 (RS485 A) Terminal 2 w.r.t.3 (RS485 B) Parameters for each output: Ui = 6.88 V, Uo = 5.88 V, Io = 66 mA, Po = 97 mW, Ci = 0, Li = 0
TX6351.01i.14.35(.xx) TX9081.01i.14.35(.xx)		Relays NC	Terminal 1w.r.t. 2 (Relay 1) Terminal 3 w.r.t. 4 (Relay 2): Ui = 30 V, Ci = 0, Li = 0, Uo = 0, Io = 0, Po = 0
TX6351.01i.17.35(.xx) TX9081.01i.17.35(.xx)		Relays NO	Terminal 1w.r.t. 2 (Relay 1) Terminal 3 w.r.t. 4 (Relay 2): Ui = 30 V, Ci = 0, Li = 0, Uo = 0, Io = 0, Po = 0
TX6352.01i.12.35(.xx)	Terminal 1 w.r.t. 2 Ui = 14.4 V, Ci = 0, Li = 0	Loop powered	N/A

rModules have the following output parameters:

Model No.	Output type	Output terminals
TX9160.01i.301.35(.XX..)	4-20 mA input	Terminal 1 m w.r.t 3 m: Output parameters same as external supply Terminal 2 m w.r.t 3 m: Uo = 14.4 V, Io = 3.5 mA, Po = 12 mW, Ci = 0, Li = 0
TX9160.01i.303.35(.XX..)	0.4 V – 2 V input	Terminal 1 m w.r.t 3 m: Output parameters same as external supply Terminal 2 m w.r.t 3 m: Uo = 14.4 V, Io = 3.5 mA, Po = 12 mW, Ci = 0, Li = 0
TX9160.01i.306.35(.XX..)	PT100 input	Terminals 1 m and 2 m (combined) w.r.t. 3 m: Uo = 14.4 V, Io = 55 mA, Po = 0.2 W, Ci = 0, Li = 0
TX9160.01i.501.35(.XX..)	NAMUR input	Terminal 1 m w.r.t. terminal 2 m: Uo = 14.4 V, Io = 46 mA, Po = 0.16 W, Ci = 7.08 µF, Li = 0
TX9160.01i.502.35(.XX..)	Switch input	Terminal 1 m w.r.t. terminal 2 m: Uo = 14.4 V, Io = 46 mA, Po = 0.16 W, Ci = 7.08 µF, Li = 0

18) Specific conditions of use:

- Where an external sensor is used with either rModule type TX9160.01i.301.35 (4-20 mA) or TX9160.01i.303.35 (0.4-2 V) and it is powered from an external supply, the following shall apply
 - No connection shall be made to the power terminal 1 m
 - The 0 V of the external sensor supply shall be connected to the 0 V of the Sentro Supply
- rModule types TX9160.01i.306.35 (PT100), TX9160.01i.501.35 (NAMUR), and TX9160.01i.502.35 (switch) shall not be used with externally powered sensors.
- The cable entries to the supply and output terminals shall be made via cable glands which provide a minimum degree of protection of IP54.
- Under certain extreme circumstances, unearthed metal parts of the enclosure may store an ignition-capable level of electrostatic charge. The equipment shall either be earthed via the integral earthing terminal or the user/installer shall implement precautions to prevent the build-up of electrostatic charge. When not earthed, the capacitance of the metallic label to earth is >10 pF.

19) Routine test: Nil

END OF DOCUMENT

