LANSO®

说明书
User Manual

DT26
密度变送器

DT26
Density Transmitter

目录
Catalogue

1. 安全提示　Safety tips

在安装、启动和操作此仪表时，必须遵守相应国际安全规范，所有的工作必须在无电压状态进行。如果不按规程程序操作，会造成严重的人身伤害或财产损失。只有经过专业培训的人员可以调装此仪表。

During installation, startup and operation of this instrument, all relevant international safety codes must be obeyed and all the work must be conducted under the voltage-free status. Failure to comply with specific instructions may cause severe injury or property damage. Only professionally trained personnel can debug or install this instrument.

2. 产品特点　Product features

本产品主要用于监视密闭容器中气体的温度、压力、密度等数据，具有实时远传监测功能。产品内部采用智能补偿技术，可以实时跟踪气体压力变化，测量精确，应用广泛。适用于高压系统的监测，可提供新建变电站配套及现有变电站智能化改造等多种解决方案。

This product is mainly used to monitor the temperature, pressure, density and other data of the gas in the closed container, and has the real-time remote monitoring function. Intelligent compensation technology is adopted inside the product, which can track the change of gas pressure in real time, measure accurately, and is widely used. It is applicable to the monitoring of high voltage system and can provide various solutions such as supporting facilities for new substations and intelligent transformation of existing substations.

3. 安装　Installation

A．机械接口
　Mechanical interface

一般仪表常用的技术性规范这里也适用 (如:En837-2)，旋转安装时所用的力不允许直接作用到表壳或接线盒上，而是通过合适的工具作用到扳手面上。

Technical codes (e.g., En837-2) applicable to ordinary instrumentation also apply here. The force applied for rotation installation shall not directly act upon the instrument housing or terminal box but act upon the wrenching face through a suitable tool.

B.电气接口

Electrical interface

接线必须由经过专业培训的人员操作。接线分布和开关功能都在仪表型号牌上给出，并注明了接线柱和接地柱。规定供电电线必须考虑仪表的上限电流需求量并符合 IEC227 或 IEC245 标准。

The wirings shall be performed by professionally trained personnel. Wiring distribution and switching functions are displayed on the instrument type plate with terminal binding posts and ground pole also indicated. The specifications of power line must allow for the upper limit current requirement of the instrument and comply with IEC227 or IEC245.

4. 使用和维护 Use and maintenance

变送器的安装部位应能较真实地反映设备内气体的温度；

The installation position of the transmitter shall be able to reflect the temperature of the gas in the equipment;

用肥皂水浸湿的擦布清洁仪表，要清洁接线盒或插头时要先把电源断开，再接通电源前确保所有部件不潮湿。

Clean the instrument with a cloth soaked in soapy water. When cleaning the junction box or plug, first disconnect the power supply, and then ensure that all parts are not wet before connecting the power supply.

5. 技术参数　Technical parameters

A．一般参数
General parameters

量程范围 Measuring range	依据用户要求定制 Customized
工作电源 Working power supply	DC24V
工作环境 Working environment	-40°C～+60°C 相对湿度（relative humidity）≤95％RH
温度测量范围 Temperature measurement range	-40°C～+80°C
压力测量精度 Pressure measurement accuracy	±1.0%FS
温度测量精度 Temperature measurement accuracy	±1°C
密封性能 Sealing performance	≤1X10^{-9}Pa·m^3/s
电气接口 Electrical interface	霍斯曼连接器 Hosman connector
气路接口 Air circuit interface	依据用户要求定制 Customized
通讯方式 Communication mode	Rs485
通讯协议 Communication protocol	ModBus RTU
防护等级 Protection grade	IP 65

6. 通信协议　Communication protocol

A. 串行通信参数：
Serial communication parameters:

Baud: 9600
Data: 8
Parity: No
Stop: 1

B. 协议
Protocol: ModBus RTU
地址查询 Address query

广播地址 Broadcast address	功能码 Function code	起始寄存器地址 Start register address		查询地址个数 Number of inquiry addresses		CRC 校验 CRC check	
1Byte	1Byte	2Byte		2Byte		2Byte	
00	04	FF	00	00	01	CRCL	CRCH

应答 Answer

地址 address	功能码 Function code	数据长度 Data length	查询到的地址 Address found		CRC 校验 CRC check	
1Byte	1Byte	1Byte	2Byte		2Byte	
ADD	04	02	00	ADD	CRCL	CRCH

E.g.
读取命令 Read command

00	04	FF	00	00	01	00	0F

返回数据（地址为 03） Return data (address 03)

03	04	02	00	03	80	F1

地址修改 Address modification

设备地址 Device address	功能码 Function code	命令码 Command code		修改后地址 Modified address		CRC 校验 CRC check	
1Byte	1Byte	2Byte		2Byte		2Byte	
ADD	06	FF	00	00	ADD	CRCL	CRCH

应答 Answer

修改后地址 Modified address	功能码 Function code	数据长度 Data length	修改后地址 Modified address		CRC 校验 CRC check	
1Byte	1Byte	1Byte	2Byte		2Byte	
ADD	06	02	00	ADD	CRCL	CRCH

E.g.
读取命令 Read command

00	06	FF	00	00	01	79	CF

返回数据（地址为 03） Return data (address 03)

01	06	02	00	01	79	48

数据查询 Data query

设备地址 Device address	功能码 Function code	起始寄存器地址 Start register address		寄存器个数 Number		CRC 校验 CRC check	
1Byte	1Byte	2Byte		2Byte		2Byte	
ADD	04	H	L	H	L	CRCL	CRCH

应答 Response

修改后地址 Modified address	功能码 Function code	数据长度 Data length	数据 Data		CRC 校验 CRC check	
1Byte	1Byte	1Byte	Number*2Byte		2Byte	
ADD	04	Number*2	DATA	DATA	CRCL	CRCH

寄存器地址说明 Register Address Description

地址 Address	指向 Point
00 00	温度 Temperature
00 01	压力 Pressure
00 02	P_{20}
00 03	密度（注：此处密度单位为 kg/m3） Density (note: the density unit here is kg/m3)

E.g.
读取命令 Read command：

01	04	00	00	00	04	F1	C9

返回数据（地址为 03）　Return data (address 03)

01	04	08	0A	0C	03	EE	03	DA	02	5E	21	71

通过返回的数据包，解析如下：

The returned data package is parsed as follows:

温度：Temperature = (Temperature High | Temperature Low) /100 ℃

压力：Pressure = (Pressure High | Pressure Low) /10000MPa (abs.)

P_{20}：　P_{20} = (P_{20} High | P_{20} Low) /10000MPa (abs.)

密度：Density = (Density High | Density Low) /100kg/m^3

7. 注意事项　Precautions

1、 安装接线时，请注意相关线缆安装是否正确；

　　When installing wiring, please pay attention to whether the relevant cables are installed correctly;

2、 变送器与气路连接时，为防止漏气，请注意密封圈是否安装正确；

　　When connecting the transmitter with the gas circuit, to prevent air leakage, please pay attention to whether the sealing ring is installed correctly;

8. 投诉/更换/修理　Complaint/replacement/repair

　　售后服务时请给出生产编号和产品型号，生产编号印在表盘上，产品型号印在标牌上。

　　At customer service, please provide with the production number and product model. The production number is printed on the dial, while the product model is printed on the nameplate.

　　只有厂家可以进行维修，不允许随便打开仪表，否则会使显示和开关点产生误差。

　　No one other than the manufacturer is allowed to disassemble the instrument for fear that any error may occur to the display and switch point.
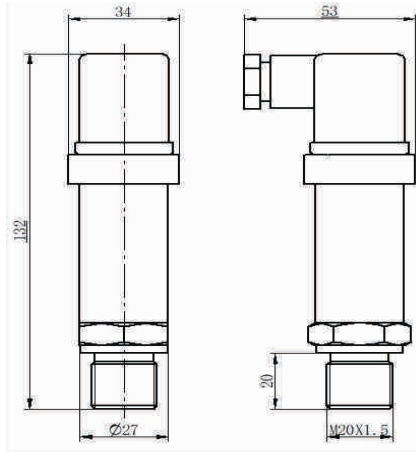
9. 订货说明　Order instructions

型号/数量/量程/接口尺寸/其它特殊事项

Model/quantity/measuring range/interface size/other special issues

注：说明书中为基础配置，其余定制化需求见客户图。

Note: Basic type is included in the manual, and other customized requirements are shown in the customer's drawing.

附图一：外形尺寸 Attached Drawing 1: External Dimensions

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