

LWQ Type Gas Turbine Flow Meter



1. Product Introduction

LWQ gas turbine flowmeter is a kind of velocity flow meter that accurately measures gas flow. It has the advantages of simple and light structure, high measurement accuracy, good repeatability, wide measurement range, convenient installation and maintenance, etc. It is widely used in the measurement of various gases such as natural gas, city gas, propane, butane, air, nitrogen and other gases in petroleum, chemical industry, metallurgy, aviation, scientific research and other departments and industrial fields. Due to its high precision and good repeatability, the instrument is suitable for trade measurement and industrial process detection.

When the gas turbine flowmeter is measured online, its medium density changes with the change of temperature and pressure. In order to measure accurately, the temperature and pressure of the medium must be tracked and detected at the same time, and the volume flow under different working conditions must be converted into the volume flow under the standard state or the agreed state.

Since the flowmeter integrates temperature, pressure and flow sensors, tracks and detects the medium temperature and pressure on line, and performs automatic compensation and compression factor correction operation, it has excellent low-pressure and high-pressure metering performance, and is especially suitable for the measurement of various single-phase gases, such as natural gas and other gases. According to different requirements of users, the company provides turbine flow meters with different precision grades.

2. Main Features

- 1) High precision, good repeatability, small pressure loss and good seismic performance;
- 2) Use high-quality bearings, with small friction resistance, good sealing performance and hand name;
- (3) Integrating a microprocessor, a flow sensor, a high-precision temperature sensor and a pressure sensor, directly measuring the flow rate, the temperature and the pressure of the measured gas, and automatically performing flow tracking compensation and compression factor correction operation;
- 4) The instrument has pulse signal and analog signal output, and can directly realize centralized collection and real-time management of computer data through RS485 communication interface or GPRS system.
- 5) Low power consumption, internal battery power supply or external power supply;
- 6) It has a real-time data storage function, which can prevent data loss during battery replacement or sudden power failure. In the power failure state, internal data can be stored permanently.
- 7) It can be used with IC card prepayment system to facilitate trade settlement.

3. Technical Specification Table

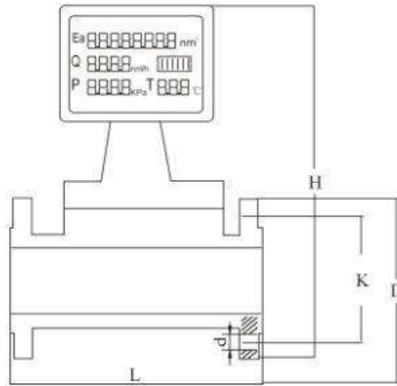
LWQ gas turbine flow meter				
	Stainless steel		Aluminum alloy	
Accuracy	1.5%			
Measuring range	2.5-6000 m ³ /h			
Diameter (MM)	DN20-DN300			
Range ratio	1:10 , 1:20			
Output	4-20mA / Pulse , RS485 (option)			
Press	1.6Mpa, Option (2.5MPa, 4.0MPa, 6.4Mpa)			
Power	24VDC or 3.6V Lithium battery			
Connection	Flange (DN20-DN300), Thread (DN20-DN40)			
Conditions of use	A. ambient temperature:-25 ~+80 °C B. medium temperature:-20 ~+60 °C C. relative humidity: 5-95% D. atmospheric pressure: 86 kpa-106 kpa			
Protection level	IP65			

4. Technology Parameter

Model	Diameter DN(mm)	Flow Range(m ³ /h)	Max pressure loss (kPa)	Initial flow (m ³ /h)	Connection type
LWQ-20	20	2.5-25		1	Flange (thread)
LWQ-25	25	2.5-25		1	
LWQ-25		4-40		2	
LWQ-40	40	5-50		1.8	Flange
LWQ-50	50	6-65	0.7	2.5	
LWQ-50		10-100	0.7	2.5	
LWQ-80	80	13-250	0.3	6	
LWQ-80		20-400	0.8	6	
LWQ-100	100	20-400	0.2	8	
LWQ-100		36-650	0.5	8	
LWQ-125	125	35-700	0.5	12	
LWQ-150	150	32-650	0.4	15	
LWQ-150		50-1000	1.7	15	
LWQ-200	200	80-1600	0.2	35	

LWQ-200		130-2500	0.9	35	
LWQ-250	250	130-2500	0.2	40	
LWQ-250		200-4000	0.5	50	
LWQ-300	300	300-6000	1.5	50	

5. Dimensions of Meter and Connection



Model	Nominal diameter (mm)	L	D	K	n	d	Bolt specification	Press rating (MPa)
LWQ-25	25	200	115	85	4	φ 14	M12×50	4.0
LWQ-40	40	200	150	110	4	φ 18	M16×55	
LWQ-50	50	200	165	125	4	φ 18	M16×60	
LWQ-65	65	200	185	145	4	φ 18	M16×65	
LWQ-80	80	240	200	160	8	φ 18	M16×70	1.6
LWQ-100	100	300	220	180	8	φ 18	M16×80	
LWQ-125	125	300	250	210	8	φ 18	M16×80	
LWQ-150	150	450	285	240	8	φ 22	M20×80	
LWQ-200	200	450	340	295	12	φ 22	M20×90	
LWQ-250	250	450	403	355	12	φ 26	M24×90	
LWQ-300	300	450	460	410	12	φ 26	M24×100	

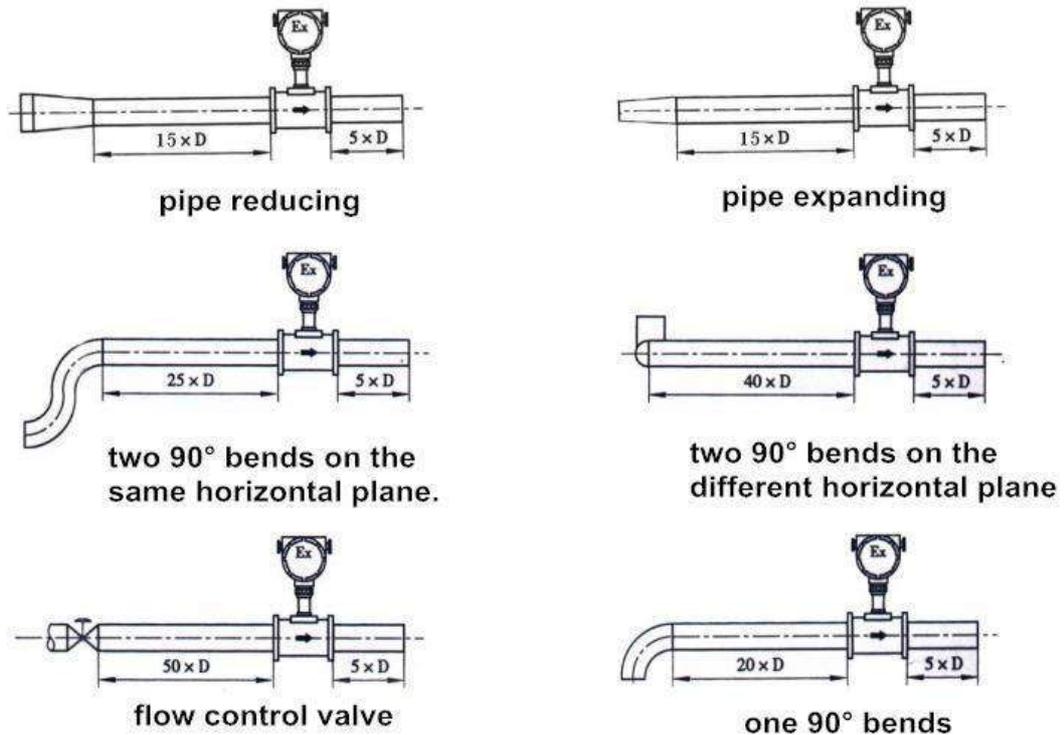
6. Installation

In order to ensure accurate measurement, there must be a long enough straight pipe section upstream of the flowmeter, and the upstream flow distribution should not be disturbed as much as possible. If there are control and throttling devices, it is better to install them downstream. The length of the straight pipe section is expressed by multiple of the inner diameter d of the pipe, and the requirements

for the smallest straight pipe section upstream and downstream are as follows:

- Upstream: 10D (10 diameter)
- Downstream: 5D (5 diameter)

If there are elbow, diameter reduction, diameter expansion, valve and other conditions upstream of the flowmeter, a longer straight pipe section is required. The specific conditions are as follows (as shown in fig. 2).



(Figure 2) Form and Size Requirements of Upstream and Downstream Pipelines

- Requirements for piping The inner diameter of upstream and downstream piping at the installation point of flowmeter shall be the same as that of flowmeter, which shall meet the requirements of the following formula:

$$0.98D \leq DN \leq 1.05D$$

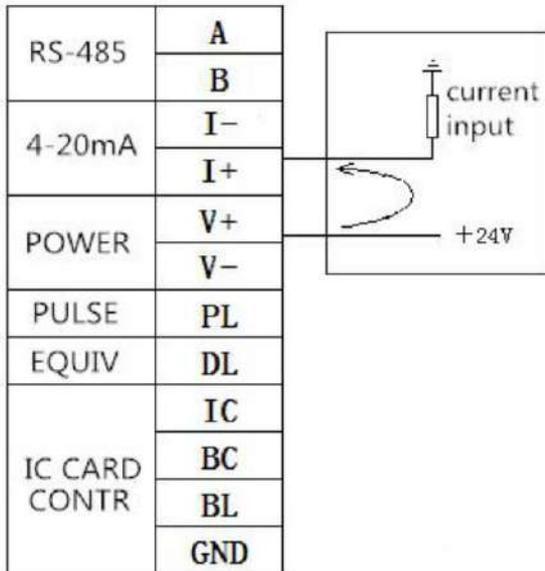
Type: D is the inner diameter of flowmeter
DN is pipe inner diameter

Piping shall be concentric with flowmeter with coaxial deviation not more than 0.05DN

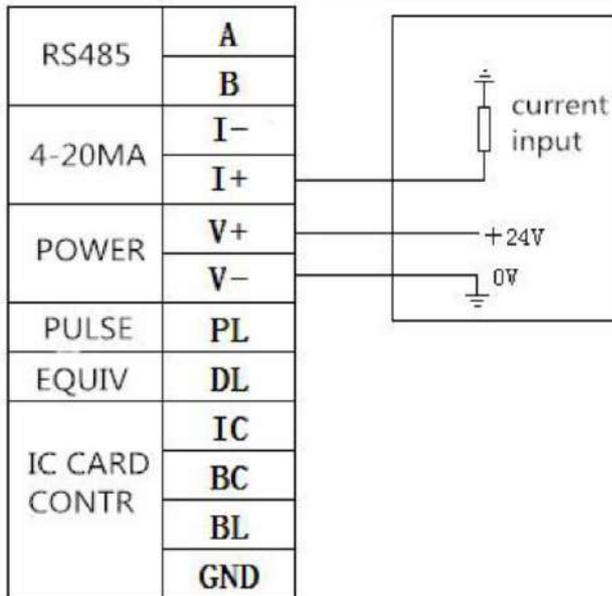
- Treatment of pipeline vibration The flowmeter shall be prevented from being installed on the pipeline with mechanical vibration. If it is necessary to install the flowmeter, vibration reduction measures must be taken. Hose transition can be added, or pipeline fixing support points and shock-proof pads can be added at 2D upstream and downstream of the flowmeter.

7. Output connection

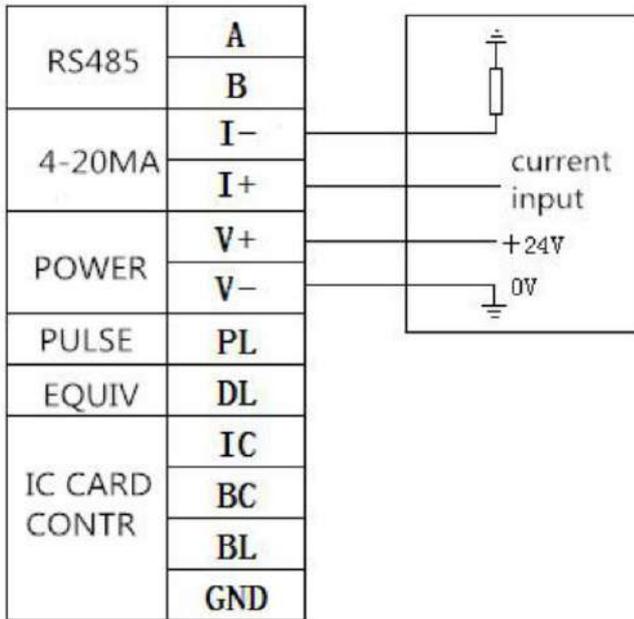
A. two-wire current connection:



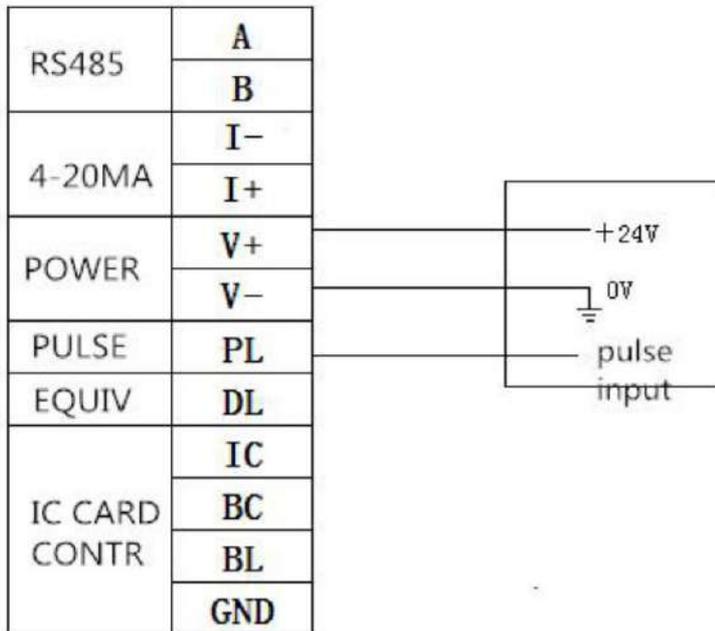
B. three-wire system current connection:



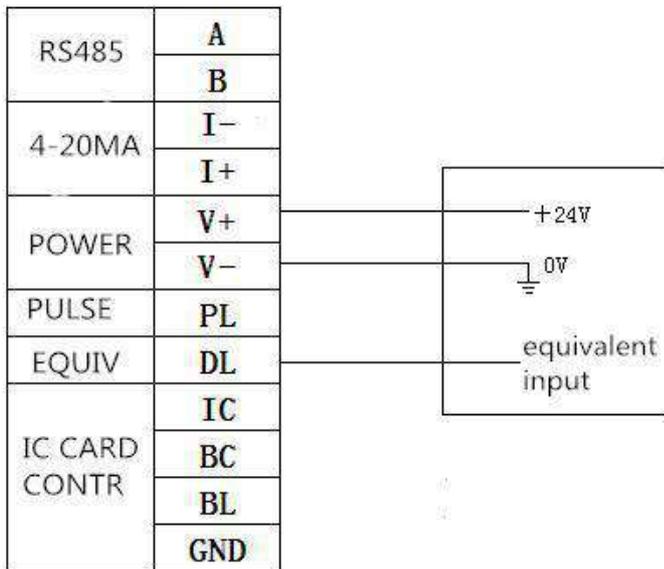
C. four-wire current output:



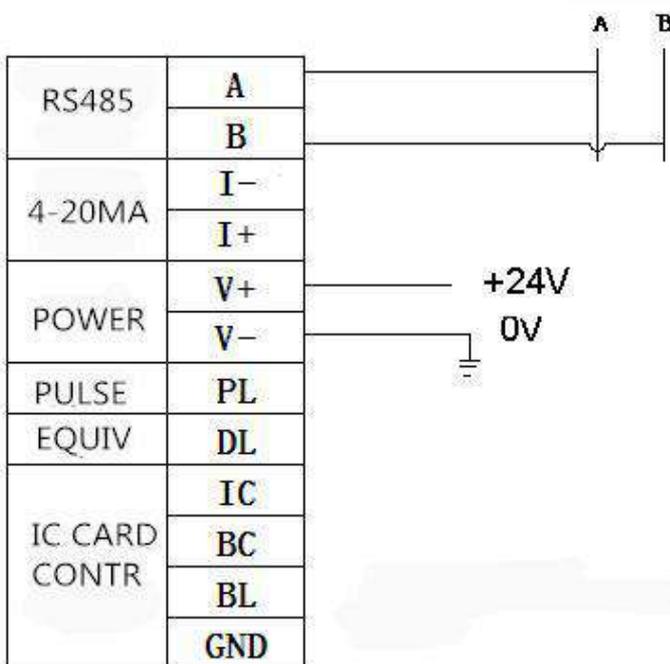
D. three-wire pulse connection:



E.three-wire equivalent connection:



F. RS485 communication connection:



8. Selection codes of flow meter

Selection codes of Flow meter			
LWQ			Description
Meter Style	A		24VDC power, Temp. And press compensation
	B		Dual power (24VDC and 3.6V lithium battery Temp. and press compensation
Meter diameter	-XXX		DN25.40.50.80.100.125.150.200.250.300.
Material	S		Stainless steel
	L		Aluminum alloy
Single output	0		Pulse output
	1		4-20mA
	2		RS485
	3		Pulse, 4-20mA, RS485
Nominal Pressure	-016		1.6MPa
	-025		2.5MPa
	-040		4.0MPa
	-063		6.3MPa
Flange rating and style	D()		DIN(GB): PN16,PN25,PN40,PN63
	A()		ANSI:150LB,300LB
	J()		JIS:10K,20K,30K
	C()		To be customized