

AJ FLOW TOTALIZER

Features

- Suitable for flow (Heat) displaying, calculating and controlling of all kinds of liquids, single or mixed gases and vapor.
- Input multiple flow sensor signals (Such as VSF, Turbine, Electromagnetic, Roots, Elliptical gear, Duplex rotor, Orifice plate, V-cone, Annubar, and Thermal flowmeter, etc.).
- Flow input channel: Receive frequency and multiple current signals.
- Pressure and temperature input channel: Receive multiple current signals.
- Provide 24VDC and 12VDC power supply with short circuit protection, simplify the system and save investment.
- Fault-tolerance: When the compensation measurement signals of temperature, pressure or density are abnormal, compensate with the manual setting of the corresponding operation.
- Circular display: Provide convenience to monitor multiple process variables.
- The update cycle of output current signal is 1 second, which can meet the requirements of the automatic control.
- Configure with Instrument clock, automatic meter reading and print function, provide convenience for metering management.
- Self-test and self diagnosis makes the instrument easier to use and maintain.
- 3 -level password to prevent unauthorized personnel to modify parameters.
- There are no potentiometer, code switch and other adjustable devices, that can improve the vibration resistance, stability and reliability of the instrument;
- Communication
 - RS485
 - RS232
 - GPRS/CDMA (English Version is not available)
 - Ethernet (English Version is not available)
- Configure with temperature, pressure, and density compensations, and it also has compressibility coefficient compensation for general gas and flow nonlinear compensation.
- Perfect function of vapor's density compensation, automatic recognition of saturated vapor and superheated vapor and moisture content calculation of wet vapor.
- Special function for trade settlement.
 - Power down record
 - Timing meter reading
 - Query function on some illegal operations.
 - Printing
- Display unit can be modified according to different requirements.
- Large storage function.
 - Day record can be stored in 5 years



- Month record can be stored in 5 years
- Year record can be stored in 16 years

Specifications

Description	Specifications			
Input Signal	Analog Input		Pulse Input	
	Thermocouple: K, E, B, J, N, T, S		Waveform: Rectangular, Sine and Triangle wave	
	Pt100		Amplitude: more than 4V	
	Current: 0-10mA, 4~20mA Input impedance \leq 250 Ω		Frequency: 0~10KHz Special requirements please contact us	
Output Signal	Analog Output	Communication Output	Switch Output	Feed Output
	DC 0~10mA(load resistance \leq 750 Ω)	RS232, RS485, Ethernet	Relay with hysteresis	DC24V (load current \leq 100mA)
	DC 4~20mA (load resistance \leq 500 Ω)	Baud rate: 600, 1200, 2400, 4800, 9600bps, 8 data bits, 1 stop bit, and 1 start bit	AC220V/3A; DC24V/6A(Resistive load)	DC12V (load current \leq 200mA)
Accuracy	0.2%FS \pm 1d or 0.5%FS \pm 1d Accuracy for frequency conversion: \pm 1 pulse (LMS), better than 0.2%			
Measuring Range	-999999~999999 for flow rate and compensation value 0~99999999.9999 for totalizer			
Display	Backlit 128*64 lattice LCD Display flow totalizer, flow rate, energy, power, medium temperature, medium pressure, medium density, medium heat enthalpy, differential pressure, current, frequency, date, time, Alarm status			
Control/ Alarm	Optional relay upper limit and lower limit control (Alarm) output, LCD and LED output indication; Control (Alarm) with hysteresis (The number of alarm relay is up to 2) Alarm type: flow upper and lower limit, temperature upper and lower limit, pressure upper and lower limit;			
Print	Through RS232 interface to Serial thermal printer Real-time print or timing print, Up to 8 times timing print in one day.			
Protection	Totalizer will be remained for more than 20 years after power off Reset automatically when Power supply is low Reset automatically when abnormal working (Watch Dog) Self-healing fuse Short circuit protection			
	Password protection for important data			
Operating environment	Ambient temperature : -20~60 $^{\circ}$ C; Relative humidity: \leq 85%RH, Far from strong corrosive gas			
Power supply	Normal Type: AC 220V % (50Hz \pm 2Hz) Special Type: AC 80~265V (Switch power) DC 24V \pm 1V (Switch power) (AC 36V 50Hz \pm 2Hz) Back-up power: +12V, 20AH, it will last 72 hours			
Power consumption	\leq 10W			

Display Screen

Flow rate 1. Prompt information 2. Flow rate 3. Flow totalizer 4. Medium temperature 5. Medium pressure		[OK] <input type="radio"/> Gr <input checked="" type="radio"/> Gr FLOW: 0.442 t/h 00000039.6470 t 199.8°C 0.39MPa	Temperature bar chart 1. Prompt information 2. Medium temperature 3. Current date and time 4. Temperature bar chart 5. Temperature percentage		[OK] <input type="radio"/> Gr <input checked="" type="radio"/> Gr TEMP: 199.82 °C 00000039.6470 t 2013-05-13 10:56:21 49.90%
Power 1. Prompt information 2. Power 3. Energy 4. Medium temperature 5. Medium pressure		[OK] <input type="radio"/> Gr <input checked="" type="radio"/> Gr HEAT: 1177.42 MJ/h 00000039.3261 GJ 199.8°C 0.39MPa	pressure bar chart 1. Prompt information 2. Medium pressure 3. Current date and time 4. Pressure bar chart 5. Pressure percentage		[OK] <input type="radio"/> Gr <input checked="" type="radio"/> Gr PRES: 0.395 MPa 00000039.6470 t 2013-05-13 10:56:21 24.68%
Flow rate bar chart 1. Prompt information 2. Flow rate 3. Current date and time 4. Flow rate bar chart 5. Flow rate percentage		[OK] <input type="radio"/> Gr <input checked="" type="radio"/> Gr FLOW: 0.442 t/h 00000039.6470 t 2013-05-13 10:56:21 42.21%	Power down and illegal operation 1. Prompt information 2. Power down count 3. Illegal operation count 4. Current date and time		[OK] <input type="radio"/> Gr <input checked="" type="radio"/> Gr Power down: 0018 Illegal: 0001 2013-05-13 10:03:52

Debug Screen					
Q: Flow rate	Q: 0.421	AP 00818	p: Medium density (Kg/m ³)		
P: Medium pressure (MPa)	P: 0.394	p: 2.343	T: Medium temperature (°C)		
H: Heat flow rate (MJ/h)	H: 1177.28	T: 199.66	h: Enthalpy (KJ/kg)		
QI: Flow current (mA)	QI: 0.000	h: 2790.81	Tt: Temperature current (mA)		
PI: Pressure current (mA)	PI: 7.947	TI: 0.000	QF: Frequency (Hz)		
V1: Battery Voltage (V)	V1: 12.917	QF: 50.000	ΔP: Differential pressure (KPa)		
		V2: 21.513	V2: External power (V)		

Example Configuration

Sample 1

DN50 Vortex flow sensor, measure vapor; average flow coefficient is 9.4132/l; temperature and pressure compensation; temperature sensor Pt100; pressure transmitter 0-1.6MPa; 4-20mA output; No alarm; low frequency cut-off is 60Hz; temperature range +150~200°C (If temperature is out of the range, use 180°C setting temperature); pressure range 0.7~1.0MPa (If pressure is out of the range, use 0.8MPa setting pressure).

Parameter Configuration

Main Menu 3. self-test 4. Calibrate 5. Setup	Meter: Veloc./PD Options: 01/04 Signal type: Pulse	Meter: Veloc./PD Options: 02/04 Cut-off freq.: 0060Hz	Meter: Veloc./PD Options: 03/04 Coef. linearize: OFF	Meter: Veloc./PD Options: 04/04 Flow coefficient: 00003.600 1/L
Medium: Vapor (Auto) Option: Pres. priority	T Sensor: Pt100 Const.: +180.00	P Sensor: 4-20mA G Const.: +00.800 L scale: +00.000 H scale: +01.600	T lower: +150.0 T upper: +200.0 P lower: -00.70 P upper: +01.00	
Alarm 1: Options: 1/1 Alarm variable: None	Alarm 2: Options: 1/1 Alarm variables: None			

Sample 2

V-cone flowmeter, measure vapor mass; Rosemount 3051 differential pressure transmitter, Pt100 and pressure transmitter; differential pressure transmitter range 0 ~ +300Pa; output 4-20mA No ; flow range 20t/h; design density 3.3342kg/m³; pressure transmitter range 0 ~ 1.6MPa; temperature range +170~+260°C; common temperature: +200°C; pressure range 0.6~1.0MPa; common pressure: +0.7MPa; low current cut-off 4.005mA.

Parameter Configuration

Main Menu 3. self-test 4. Calibrate 5. Setup	Meter: DP Scale Options: 01/08 Signal type: 4-20mA No $\sqrt{\quad}$	Meter: DP Scale Options: 02/08 Scaled flow unit: t/h	Meter: DP Scale Options: 03/08 Scaled range: 0000020.000t/h	Meter: DP Scale Options: 04/08 Design density: 0003.3342kg/m ³
Meter: DP Scale Options: 05/08 DP unit: Pa	Meter: DP Scale Options: 07/08 DP high scale +300.000Pa	Meter: DP Scale Options: 08/08 Cut-off current: 4.005mA	Medium: S vapor TP	T Sensor: Pt100 Const.: +200.00
P Sensor: 4-20mA G Const.: +00.700 L scale: +00.000 H scale: +01.600	T lower: +170.0 T upper: +260.0 P lower: -00.60 P upper: +01.00			

Sample 3

Magnetic flowmeter, measure liquid; output 4-20mA; range 0-60m³/h.

Parameter Configuration

Meter: Veloc./PD Options: 01/04 Signal type: 4-20mA	Meter: Veloc./PD Options: 02/04 Flow F.S. unit: m ³ /h	Meter: Veloc./PD Options: 03/04 Flow F.S.: 00060.000 m ³ /h	Meter: Veloc./PD Options: 04/04 Cut-off current: 4.000mA	Medium: Liquid (Volume) Density (20°C): 1000.0000kg/m ³
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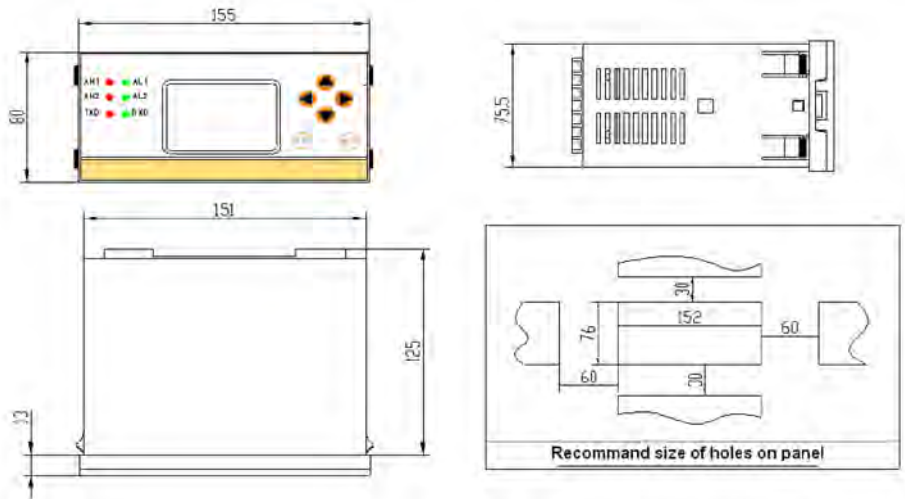
Model Selection

Item	Code	Description
General	AJ	AJ series Flow Totalizer
Dimension	8	160×80mm (horizontal)
Communication	00	No communication function
	01	RS-485 communication
	02	RS-232 communication
	03	Ethernet (English is unavailable)
Alarm 1	1NO	Switching signal of relay output
	2NC	
Alarm 2	1NO	
	2NC	
Output	1	Current Output
	2	Pulse output
Input	1	Thermocouple
	2	Pt100
	3	Pt1000
	4	Current: 0-10mA

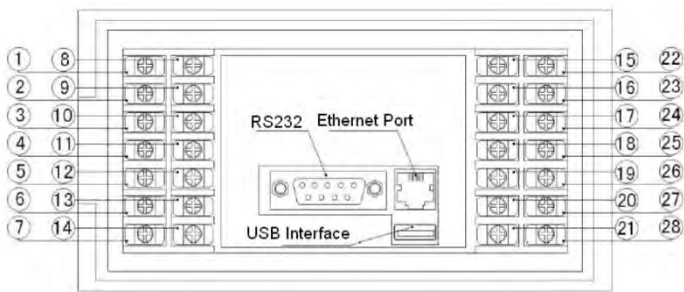
	5	Current: 4-20mA
Feed Output	1	DC +5V
	2	DC +12V
	3	DC +24V
Power Supply	1	AC 220V
	2	AC 36V
	3	DC 24V
Extended Function	1	USB interface, using to download the data in meter
	2	Current: 4-20mA
	3	16 Bit A/D convertor module
	4	Wireless remote control function.*1

*1 Mainly used in dangerous occasion and condition of no opening the meter.

Dimensions



Wiring Terminals



Warning! The left figure only be used as an example, All wirings of instrument should be refer to the marks on instrument.

No.	Definition	No.	Definition	No.	Definition	No.	Definition
1	Flow current input	8	Pressure current input	15	Temp. current input	22	Current output +
2	Blank	9	Blank	16	Blank	23	Current output -
3	RS-485 (A)	10	24V (+) output	17	Battery +	24	Pulse output +
4	RS 485 (B)	11	Public GND	18	Battery -	25	Pulse output -
5	Pt100, A	12	12V (+) Output	19	GND	26	Alarm 1 normally-closed contact
6	Pt100, B	13	Flow pulse input	20	220V N	27	Alarm 1 normally-open contact
7	Pt100, B	14	Public GND	21	220V L	28	Alarm 1 common contact