

DFT20 Smart DP Flow Transmitter



- apply to all of differential pressure flow sensor
- battery powered on-site shows no external power supply
- the output of super anti-interference design isolation, shielding all distractions
- the output pulse, current (4-20mA), 485(modbus-rtu) signals need external power supply
- with temperature and pressure sensor
- Gas, steam automatic temperature and pressure compensation
- range rate is 1:100 (special requirement can be 1:200)
- accuracy of 0.1 level
- gas display the parametric such as temperature, pressure, and working conditions flow, standard condition flow, etc.
- steam display the parametric such as temperature, pressure, and density, mass flow, etc.



Function

Flow integrating instrument especially adopts micropower singlechip (power $\leq 400\mu\text{A}$), using industry lithium battery DC3.6V supply power, can use 2-3 years.

Flow integrating instrument using large screen liquid crystal display, it can show 6 transient flow, correct to 2 decimal places ($0\sim 9999.99\text{m}^3/\text{h}$) or 1 decimal places($0\sim 99999.9\text{m}^3/\text{h}$),cumulative flow can show 9 cumulative flow, correct to 4 decimal places($0\sim 99999.9999\text{m}^3$)or ($0\sim 9999.99999\text{m}^3$)

Connection

Flow integrating instrument display both transient flow and cumulative flow at the same time, and provide the output mode as followings:

- > Three-wire system pulse far transmit output; (standard features)
- > Two-wire, three-wire current output; (optional)
- > 485output; (optional)

Push button operation

Push Button Function:

□ Is setting button, press down this button and auxiliary key should process parameter setting and modifying.

▲ Is add button, press down this button can make the present coefficient rise one(0-9), if press down both ▲ and ◆, can make the coefficient rise quickly.

▼ Is reduce button, press down this button can make the present coefficient reduce on, if press down both ▼ and ◆, can make the coefficient reduce quickly.

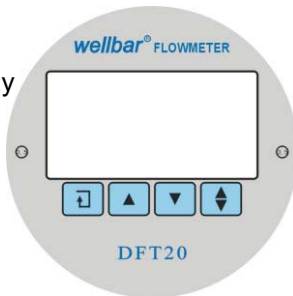
DFT20 Smart DP Flow Transmitter



◆ Is auxiliary key.

Make use of push button:

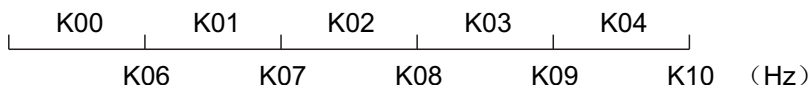
Firstly, press down both \square and \blacklozenge , the screen display K26, input passport 1234, then press down button \square confirm, continue to press down both \square and \blacklozenge , display K00, continue to press \square display K01, K02, K03, K04, K05, K06, K07, K08, K09, K10, K11, K12. Among the parameters can be modified, till the screen display K26, then press down button \square , then can save the present setting parameter.



Parameter specification:

K00, K01, K02, K03, K04, K05: Linear correction coefficient

K06, K07, K08, K09, K10: In the section point voltage units



Current flow voltage $F \leq K06$, $K=K00$

$K06 < F \leq K07$, $K=K01$

$K07 < F \leq K08$, $K=K02$

$K08 < F \leq K09$, $K=K03$

$K09 < F \leq K10$, $K=K04$

$F \geq K10$, $K=K05$

the parameter need be modified:

$K0x = (\text{normal date/instrument display}) \times K0x$

K11: modified display and input coefficient (0-60000)

K12: the optional of extract a root or not (0-4)

0: not extract a root

1: not extract a root $\times 10$

2: extract a root

3: extract a root $\times 10$

4: extract a root $\times 100$ (default setting)

K13: select the accumulate decimal point (0-2)

0: \times display

1: $\times 0$ display

2: $\times 00$ display

K14: select the accumulate decimal point (0-3)

0: none

1: one

2: two



3: three

K15: small flow removal (0-5000)

K16: address selection (1-255)

K17: Baud rate selection (0-2)

0:2400

1:4800

2:9600

K18: current output full range setting (0-60000)

K19: the setting of continuous sampling and interval sampling

0: standard condition display, time sharing work

1: standard condition display, time sharing zero work

2: standard condition display, real time work

3: standard condition display, real time work

4: standard condition display, time sharing work

K20: density setting (0-99.99)

K21: pressure full range setting (0-9999)

K22: temperature correction factor (default 10000)

K23: pressure correction factor (default 10000)

K24: the selection of current output 0:standard condition 1:working condition

K25: current output full degree adjustment

K26: command setting (0-9999)

Note:

K26 setting as 3000, display the current flow in accordance with the voltage value.

K26 setting as 1000, then press down both ▲ and ▼, cleared to accumulate

K26 setting as 2000, then using magnetic pen doesn't open the lid on cleared to accumulate.

Technical Parameter

Current Output

> Output two-wire 4-20mA

> Load resistance: 0~600 Ω

> Response time: < 1s

> Intrinsic error: $\pm 0.5\%$ ($20^{\circ}\text{C} \pm 5^{\circ}\text{C}$)

> Environmental conditions: temperature: $-40\sim 85^{\circ}\text{C}$
humidity: < 85%

> Power supply: $\pm 24\text{VDC} \pm 15\%$

> Power supply: < 60mA



Pulse

- > working voltage: 12VDC~+24VDC
- > working current <50mA
- > pulse output amplitude $V_h=24V$, $V_L<1V$.
- > frequency output: 0~1000Hz.
- > pulse equivalent: To build the basic unit of the flow that for output, such as: accumulate display as 5decimal 0.00000, the pulse equivalent is 0.00001 M3/P, be 0.01L/P; accumulate display as 4decimal 0.0000, the pulse equivalent is 0.0001M3/P, be 0.1L/P; accumulate display as 3decimal 0.000, the pulse equivalent is 0.001M3/P, be 1L/P.

485 Output

Agreement: modbus rtu

Message format: Instrument use 04 package transmit 3 floating point variable 12 continuous bytes;

In proper order is transient flow 6(0-999999, 4 bytes), accumulate flow low 6(0-999999, 4bytes), accumulate flow high 6 (0-999999, 4types);

accumulate flow low 6: address 30001, (0-999999);

accumulate flow high 6: address 30003, (0-999999);

transient flow 6: address 30005, (0-999999);

Decimal point refer to the display of flow instrument, the flow instrument will not transit the decimal point information.

Protection and Hazardous Rating

Protection grade: Ip65

Hazardous rating: Ex II dCT4(not including acetylene)

Connection

Sensor Connection

Open the instrument rear cover, then refer to the drawing as following to make the instrument remote transit signal connection.

P+: differential pressure sensor +

PIN+: differential pressure sensor input +

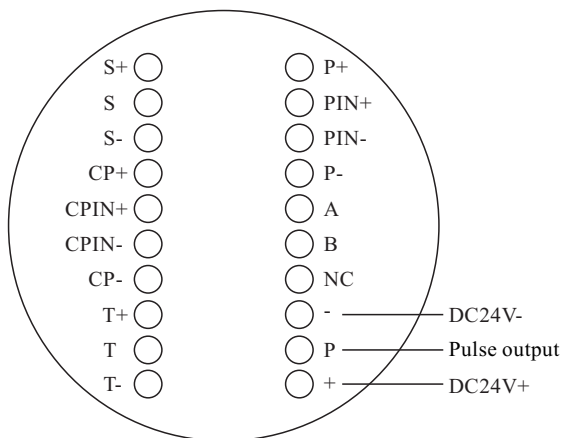
PIN-: differential pressure sensor input -

PGNG: differential pressure sensor -

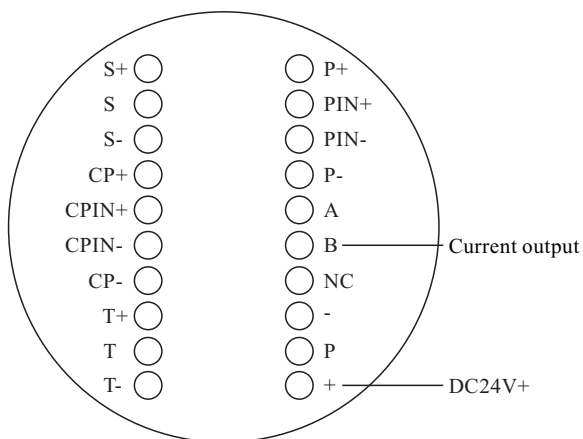


Remote Transit Connection

Three-wire pulse output

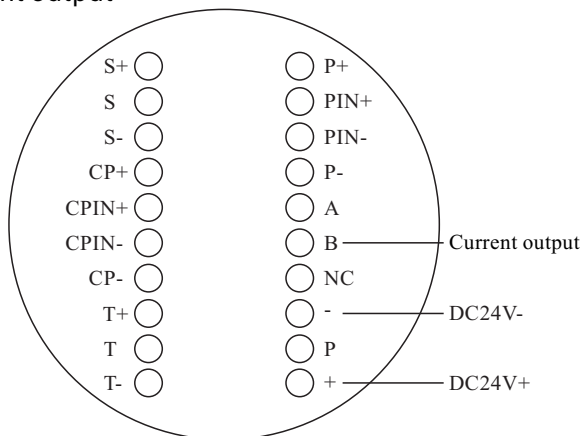


Two-wire current output

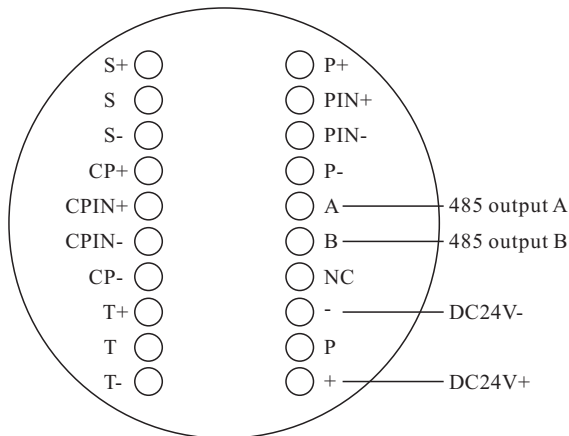




Three-wire current output



485 output



Error Correction

Setting K26 as 1212, press down \square confirm, enter into error correction condition. If instrument overproof, in the current flow through the condition, press down both \square and \blacktriangle at the same time, then display the current flow corresponding current fragments coefficient, using the formula as following: the parameter need to correct $K0x = (\text{standard date} / \text{instrument display}) \times K0x$. Then press down \square exit contingently, then continue to mark next flow point, repeat the operation as above, when all of the flow point are finished, in the condition of display fragments coefficient (notice that don't display the flow condition), press down both \square and \blacklozenge exit the demarcate condition.



Australian Electric Control Engineering Pty Ltd

Add: Unit 2002, 568 Collins Street Melbourne VIC3000

Tel: (03) 5275-7068

Fax: (03) 5275-2083

Web: <http://www.aece.com.au>

<http://www.aece.net.au>

E-mail: sales@aece.com.au