barriquand
tecnologias térmicas

São Paulo - 20 de Março, 2013.

ATESTADO DE CAPACIDADE TÉCNICA

Para os devidos fins, atestamos que a empresa TRICOMEX LTDA – EPP, inscrita no CNPJ nº 14.027.036/0001-73, com endereço na Av. Maurilio Biagi, 800 – sala 811, Bairro Santa Cruz do Jose Jacques – Ribeirão Preto, SP/Brasil, nos forneceu os itens a seguir:

- 05 pçs. válvulas esfera FF DN500 com posicionadores eletropneumáticos;
- 06 pçs. válvulas guilhotina FF DN500 e 11 pçs. medidores eletromagnéticos de vazão DN500.

Ressaltamos que a TRICOMEX cumpriu satisfatoriamente o prazo de entrega, instalação dos itens e entrega das documentações técnicas.

Atenciosamente,

1º TABELIÃO

GABRIEL GODOY
Gerente Comercial
BARRIQUAND DO BRASIL
12.448.147/0001-28

1º TABELIÃO DE NOTAS - RIBEIRÃO PRETO - SP
SILVIA M. COLAVITE PAPASSIDERO - TABELIÃ
AV. NOVE DE JULHO, 1189 - HIGIENÓPOLIS - CEP 14015-170 - FONE/FAX: (16) 3977-7080

Reconheço por semelhança a(s) firma(s) de: GABRIEL ALVES GODOY(246300), do que dou fé.
Ribeirão Preto - SP, 11/10/2013 Total de(s) Firma(s) R$ 4,25
MARILUCI BIM SEBASTIANI-ESCREVENTE AUTORIZADA
ATENDENTE:MARILUCI BIM SEBASTIANI-ESCREVENTE AUTORIZADA
Segurança: 49[illegible]
SELO: 270794
"VÁLIDO SOMENTE COM O SELO DE AUTENTICIDADE E SEM EMENDAS E/OU RASURAS"

1º Tabelião de Notas
de Ribeirão Preto-SP
Mariluci Bim Sebastiani
Escrevente

FIRMA 1
0860AA270794

BARRIQUAND DO BRASIL
Av. Anhanguera 484, Ribeirão Preto, SP
Fone / Fax: (16) 3421-5145 / 3421-5135
www.barriquand.com.br

1º Tabelião de Notas
de Ribeirão Preto-SP
Caroline Santos Rodrigues
Escrevente

0860AC029292

TABELIÃO DE NOTAS DE RIBEIRÃO PRETO
Silvia M. Colavite Papassidero-Tabeliã
Av. 9 de Julho, 1189 - CEP: 14015-170
FONE/FAX: (16) 3977-7080

Rib. Preto 11 OUT. 2013

VALIDO SOMENTE COM O SELO DE AUTENTICIDADE

AUTENTICAÇÃO
Autentico a presente cópia extraída neste tabelionato do respectivo original, dou fé.
Valor recebido por autenticação R$ 2,50

PAG. 28

TRICOMEX
Instrumentação e Controle

DECLARAÇÃO DE CAPACIDADE FABRIL

A Licitante TRICOMEX LTDA - EPP, CNPJ nº 14.027.036/0001-73, por seu representante legal abaixo assinado, declara, sob as penalidades da lei, que a NMM&CI (Nanjing Metran Measurement & Control Instrument Co. Ltd.), fabricante dos medidores de vazão eletromagnéticos, tem a capacidade fabril para executar a fabricação dos equipamentos do Pregão 69/2013 (Grupo V), de acordo com os detalhes a seguir:

1. **Endereço da empresa**

   Nanjing Metran Measurement & Control Instrument Co. Ltd. localizada em No.12 Rungu road, Guli Industrial Zone, Jiangning district, Nanjing City, PR.China,

2. **Área total da Fábrica incluindo almoxarifado (separado)**

   Área total da fabrica 1500 m2 e de almoxarifado 150 m2.

3. **Área total de Administração**

   200 m2

4. **Maquinários instalados**

   Maquina de dobra para chapas de metal

   Maquina de corte tipo Plasma

   Equipamento de calibração de vazão

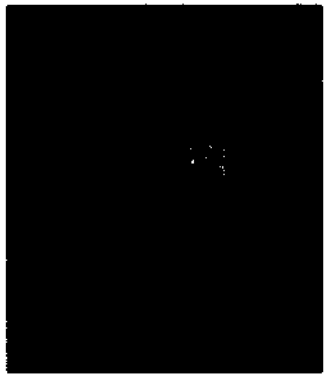
   CLP Controlador Logico Programável

   Maquina de serra para tubos

Ribeirão Preto, 08 de Outubro de 2013.

TRICOMEX Ltda. Ribeirão Preto São Paulo BRAZIL

Maximiliano Ludewig
Diretor - TRICOMEX Ltda.
Cel. +55 16 99105-8599
ml@tricomex.com



Electromagnetic flowmeter

Manual

NANJING METRAN
MEAREMENT & CONTROL INSTRUMENT CO.,LTD

Dear Users:

Thank you for choosing METRAN electromagnetic flow meters. Please read this manual carefully before using, to make sure the product in proper installation and use, and achieve its best performance.

Encountered any problems in the course of usage, please contact us in time.

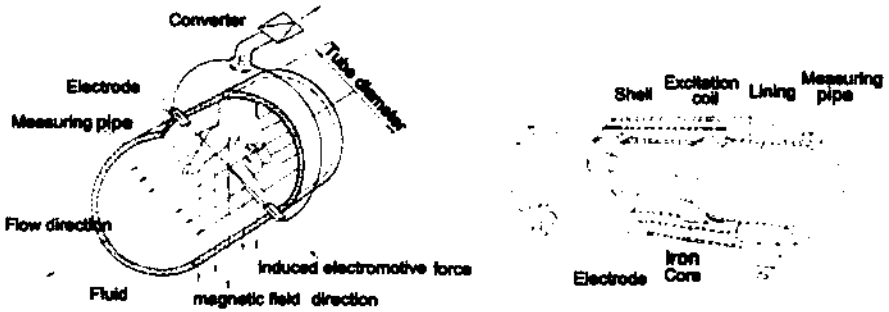
Unauthorized repair or replacement of spare parts resulting in product performance failures and damages, we will not undertake any responsibility.

Contents

I Introduction

1、Measuring principle

The principle of the sensor is based on Faraday's law of electromagnetic induction. Shown in Picture 1



Pitcure 1 Working principle

It is installed a pair of detection electrodes on the pipe wall,where the measurement pipe axis and magnetic field lines are vertical. When the conductive liquid cuts magnetic field lines and produces induced electromagnetic force.Which can be measured by the two electrodes on the meter pipe.The result can be calculated by formula: Induced electromotive force,(flow signal)

E=kBDV

式中：E——Induced electromotive force，V；

k——meter constant；

B——Magnetic flux density，T；

D——Internal diameter of measuring pipe，m；

V——Average velocity of pipe section，m/s。

Assume the volume of liquid as qv(m3/s),qv=πD2V/4),so in the formula E=（4kB/πD）qv=kqv, K is meter constant，K=4kB/πD。

ctually, the electromagnetic flow meter consists of two parts, traitter and sensor, the measuring electrodes inspect the elemotive force, and transmit to the converter, the converter pres excitation current.

is usually called a flow signal, after processing the flow signal byiverter, output 4~20 mA\ pulse(or frequency) signal which is prdional to the flow rate, then the flow rate recording, adjusting ca achieved.

2 lain technical parameters

- ıbient temperature-25℃—65℃
- ıbient humidity≦９５％
- ıdium temperature：-25℃-80℃（Note：The temperature is ferent for each lining material, please advise when place ler.）
- ısing protection level IP65、IP67、IP68
- w range 0.5 --- 15m/s
- asuring diameter：DN10---DN2400
- ctrode material：Standard 316L（other material is optional）
- ınge installation：Comply with GB9119，carbon steel（stainless el is optional）
- essure Grade：PN1.0；PN1.6；PN2.5；PN4.0 optional
- curacy Grade：０.５ Grade、 ０.２ Grade
- asuring Parameters：instant flow 、instant flow rate
- cord parameters：Total flow accumulated, 32 group event cord
- tection and alarm parameters：Pipe empty alarm, Excitation rrent detection alarm

  ttery capacity detection alarm
- w curves: Automatically show flow percentage and curves.
- aled output signal: Unit volume flow pulse

- Wireless communication：None（According to customer requirements）
- Power supply：24V DC

  110V AC、220V AC

II Installation

1、Pipeline design

Pipeline design should consider the following conditions：

(1) Location

The installation location of the flow meter should consider substantial changes in the ambient temperature, away from direct sunlight. If the ambient temperature does not meet the requirements, please consider insulation ventilation processing or thermal treatment.

Avoid strong corrosive atmospheric environment and containing explosive gas location.

(2) Avoid magnetic interference

Do not install the flow meter to the place where is easy caused electromagnetic interference, such as motor, inverter, transformer or other power equipment, power source nearby.

(3) Length of straight pipe

In order to ensure measuring accuracy, please ensure that the flow meter upstream straight pipe length is at least 5 times (5D) than the pipe diameter, downstream straight pipe length is at least 2 times (2D) than the pipe diameter.

(4) Maintenance space

The flow meter installation location, should fully consider to allow sufficient space for maintenance.

(5) Adopt throttle valve and the bypass valve

Adopt throttle valve and the bypass valve for easy maintenance and zero adjustment.

(6)The support of the flow meter

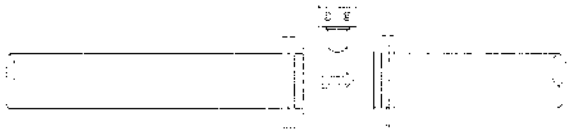
hot install the flow meter alone on the free vibration pipe, sh be equipped with a support base that holds the measuring tut

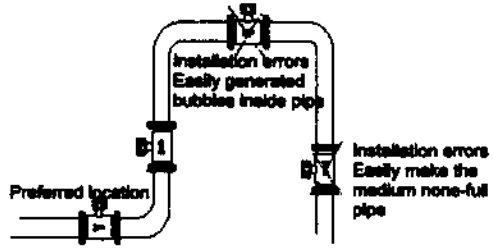
ıen the flow meter is installed underground, inlet and outlet of thoe should be installed supports, the top of the flow meter sh install metal protection plate.

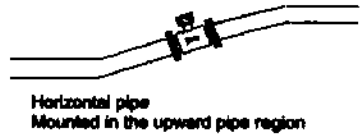
2 ıstallation requirements

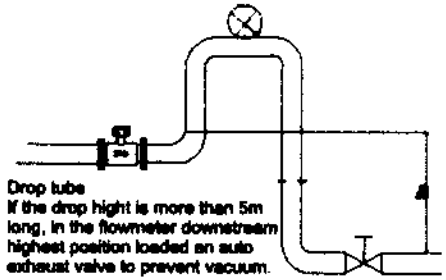
（Sensor installation

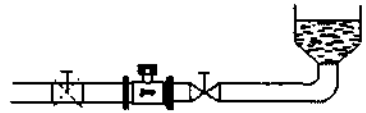
n order to avoid the attached gas caused measuring error, alamage the lining by vacuum, please refer to the following irlation diagram

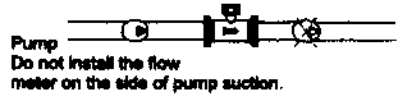












（2）Sensor grounding

In order to make instrument work reliable, to improve measuring accuracy and stability, free from outside interference from parasitic potential, sensors should have a separate grounding wire,if the grounding wire is coated with insulating layer or non-metallic pipes, on both sides of the sensor should also be equipped with grounding rings.

①Grounding ring

A：Common Ground Ring

Material：Optional

Thickness：3mm—12mm

Sensor with PTFE or rubber lining is fixed by a screw on the flange, to protect the lining flanging from damage.

B：Hubbed grounding ring

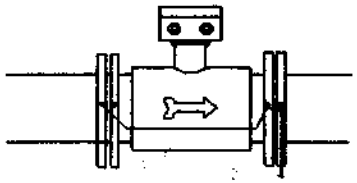
Material：Optional

Thickness：3mm

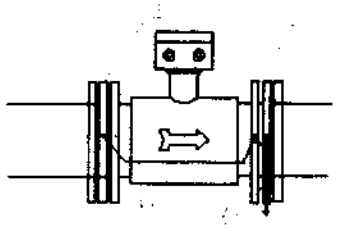
ɔbed grounding ring is usually for the abrasion resistance rɯm, it can protect the lining of the measuring tube end. Extend the of the sensor.

Ⓖounding method

The sensor is installed on the metal pipe: pipe without inting coating.

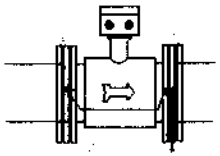


A1 Grounding wire(normal copper wire)
2 Instrument grounding wire



B 1 Grounding wire(Normal copper wire)
2 Instrument grounding wire
3 Grounding flange and grounding ring

B: The sensor should be installed in the plastic pipe or the ɹe which inner wall with insulating coating.



1 Grounding wire(Normal copper wire)
2 Instrument grounding wire
3 Grounding flange or grounding ring must be insulated with pipe flange
4 Connection wire Copper cross sectional area ≥ mm2 to isorate the sensor from cathodic protection potential

3 Jechanical Installation

（1）Pipeline installation

1、Before installing flow meter, please calibrate pipeline, to nsure that the flow meter and pipe have a better concentricity.

2、Before installing the flow meter, please clean the pipeline ɔ avoid the debris (such as: welding slag) damage the flow meter lining, while the debris will affect the accuracy of measurement .

（2）Flow meter installation

1、While installing flow meter, the medium flows direction must be the same with the flow meter label identifies.

2、To connect the flow meter flange with pipe flange via bolts, and check the tightness of the bolts in the day-to-day maintenance, to prevent loosening caused media leaks or other damage.

（3）NOTES

1、Do not open during the transportation, when unpacking, please be careful not to damage the instrument. Large diameter flow meter please using hoisting rings.

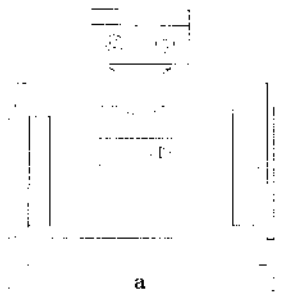
2、After unpacking the instrument, please protect the liner surface, the liner surface can not be placed on the ground or other work sites.

3、After wiring, check the screws are tightened, to ensure the sealability of the junction box.

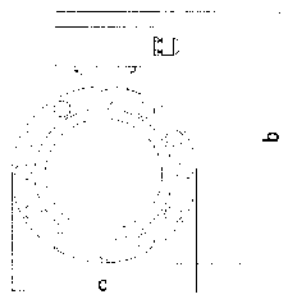
4、If the instrument is not in use for a long time, please close both ends of the sensor, placed in ventilated and dry place, to ensure that moisture and water can not enter the inside of the instrument, and check it regularly .

4、Dimensions

（1）Sensor size



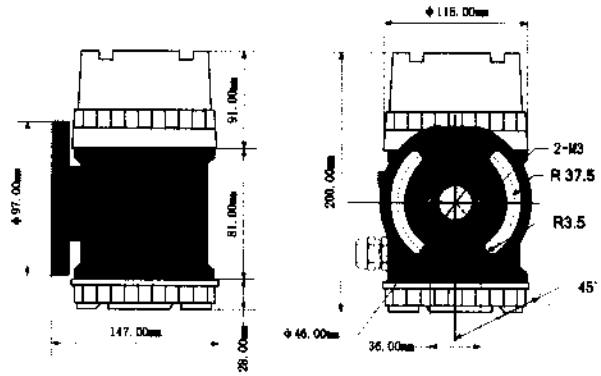
a



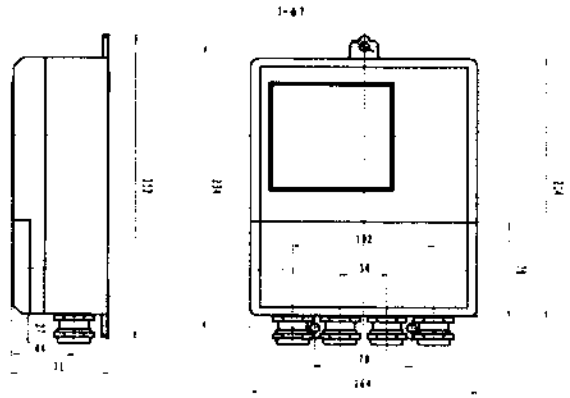
c

iameter (mm)	Rated Pressure (MPa)	Sensor dimensions		
		a	b	c
10	4.0	200	245	90
15	4.0	200	245	95
20	4.0	200	245	105
25	4.0	200	223	115
32	4.0	200	243	140
40	4.0	200	250	150
50	4.0	200	263	165
65	1.6	200	298	185
80	1.6	200	298	200
100	1.6	25	308	220
125	1.6	250	318	250
150	1.6	300	377	285
200	1.0	350	435	340
250	1.0	400	490	395
300	1.0	500	560	445
350	1.0	500	649	505
400	1.0	600	693	565
450	1.0	600	720	615
500	1.0	600	800	670
600	1.0	600	870	780
700	1.0	700	972	895
800	1.0	800	1070	1015
900	1.0	900	1170	1115
1000	1.0	1000	1280	1230
1200	0.6	1200	1460	1405
1400	0.6	1400	1823	1524
ameter over 1400mm is not listed in this table.				

（2）Converter Dimensions

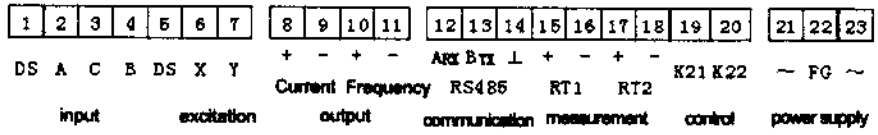


Compact type appearance



Remote type appearance

5、Electrical wiring



Remote type Electrical wiring

Compact type Electrical wiring

☰Parameter settings

1、onverter Panel

on	Name	Function
	Flip	Flip，back display，view setting record
	Right shift	Move the cursor, View statements and power off records.
	Increase	Setup increase, single-screen display instantaneous flow rate.
	Confirm	Set confirm and enter the main screen, zero calibration.

2、anel Description

Press "confirm" to display the main screen, if there are spolor blocks of L, H, T, P, appears at the bottom right corner of "Frate", representing L: the flow rate is lower than the lower limit vaof resection, H: flow rate is higher than upper limit value T: errpipe alarm, P: Poor grounding signal.

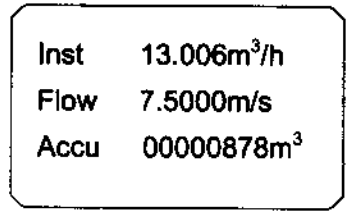
Press "right shift" for 3 seconds, the meter enters the query stacan be selected for the "Daily", "Monthly ","Annual "Report", "pc cut" menu, through "right shift" and "Increase" button，can flipge to view corresponding statements and blackout records, prche "flip" key to exit the menu.

3. Panel Operation

3.1Continuous press Page，can show the following picture：

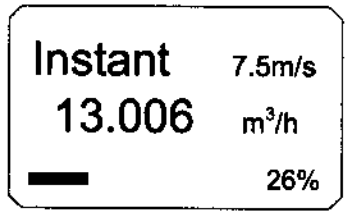
◆Flow

Singal screen can show instant Flow, flow rate, and total flow.
Get back to this screen by pressing ▶ button.



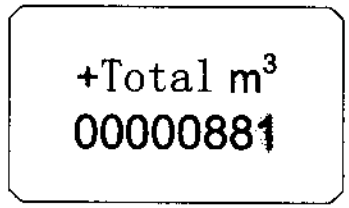
◆Instant flow

Single screen can show instant flow, flow rate and percentage. Can go Back the interface fast by pressing ↵ Button



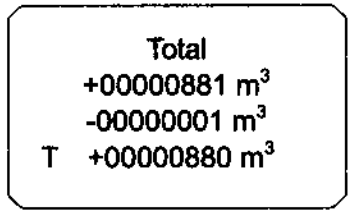
◆Total flow

Single screen display forward total Flow, shadow part is decimal placeCan reach this screen by pressing ↑ button.



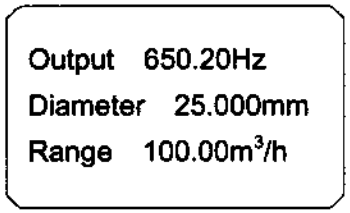
◆T

Sir screen shows forward ,backword and difference total. If flow dirɒn set, negative flow shut off, then this screen shut off.



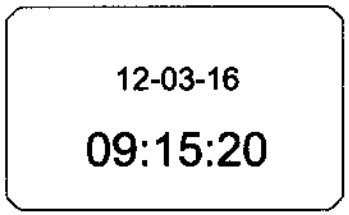
◆Cut

Sir screen shows output signal ,Output current and frequency vaalternatively. Also shows sensor diameter and measure range.



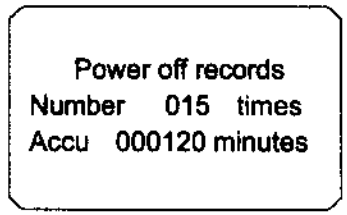
◆T

Sir screen shows current date And time.



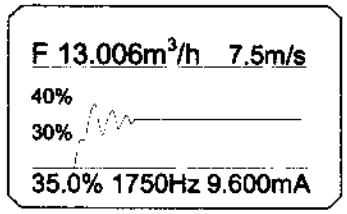
◆Fər off records

Sir screen shows power off times, and total power off time. it cacord 20 times of power off.



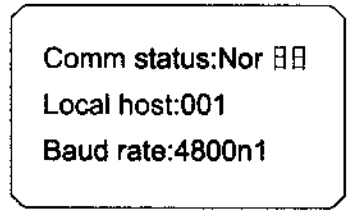
◆Flow curve

Single screen shows instant flow, Flow rate, flow curve, flow percentage, output current and frequency value.



◆Communication

Single screen shows communication Status, IP address, baud rate.



3.2 Inquiry

Pressing the ▶ continuously for 3 second, can enter inquiry menu, you can choose daily report, monthly report, yearly report and power off menu, press to inquiry, press ▼ button to ↵ exit this inquiry menu.

◆D report

By, button and button, Can choose and set the inc of year and month, After confirm, you can check, bn can check in reverse order, press to check in sence order, press button to quit this menu.can check rec for 365 days.

12-04 Daily report
01D 00000000m³
02D 00000000m³
03D 00000000m³

◆hly report

Pr button and button to Select and set the yeafter confirm can check monthly Report. button can chin reverse order, Press to check in sequence order, pr button to quit this menu.can check record for 48nths.

12Y Monthly report
10M 00000000m³
11M 00000000m³
12M 00000000m³

◆ly report

Pr button and button to Select and set the year, aftonfirm can check monthly Report. button can check in reve order, Press to check in sequence order, pr button to quit this menu. can check record for 5 ye

12Y Yearly report
00967295 m³

12Y Monthly report
10M 00000000m³
11M 00000000m³
12M 00000000m³

◆Power off

Press button and button to can check power off record. press button can check in reverse order, Press to check in sequence order, press button to quit this menu. can check record of 18 times.

Power off records
01. 09-08-30 08:03 v
09-08-27 11:15 x
02. 09-08-27 07:37 v
09-08-26 20:24 x
03. 09-08-26 19:14 v
09-08-26 07:43 x

◆Fixed record

Press the button for 3 seconds, Enter setting record menu,This page records the parameter Setting times and the date and time for The last setting record.,

12Y Monthly report
10M 00000000m³
11M 00000000m³
12M 00000000m³

3.3rm

On screen of flow, if under "flow rate"Appears the letter of T、P、X、H, It means : T：empty alarm；P：poor grounding signal；X:itation alarm；L：flow rate lower than cut-off value；H：flow ratgger than up limit.

Setting record
Time：12-12-06 13:36
Number：019 times

Inst 13.006m^3/h
$Flow_x$ 7.5000m/s
Accu 00000878m^3

3.tting

3.ystem setting

Be using the meter, set the system by following the menu. Cuously pressing CONFIRM Button 3 seconds, system inces to enter password, input correct password. Go to setting me please refer to user manual chapter 10 SYSTEM SEING to finish the settings.

Please enter password

Menu setting
Mode Parameter
System Communication
Alarm

3.4.2 Output

As for frequency, pulse output signal which only comes to effect via the confirmation of instrument output system menu. The instrument support two signal simultaneous output, and the frequency and pulse output signal share one frequency output channel.

3.4.3 Initialization

Connect the wiring to sensor and instruments correctly to ensure reliable grounding. Supply power for about 10 minutes until full pipe situation while the measured liquid is still. Then long press the confirm button for 10 seconds till hearing the bleeping of instrument. It means zero calibration and initialization finished automatically.

3.5 heat type (make note while you order)

Heat type magnetic flow meter is, integrated with flow velocity, heat, accumulation and display, used to measure the water flow rate and temperature difference between water supply and drainage by magnetic sensor and temperature sensor so that to measure and display the water absorbed or released heat while flowing through the power-consumption equipments.

3.5.1 Function

Similar to basic flow type.

3.5.2 Wiring

The wiring is similar to basic flow rate type. Heat type magnetic flow meter has added inlet temperature RT1 and outlet temperature RT2 wire on the basis of basic type corresponding to 15~18 terminal blocks. And normally we adopt PT1000 temperature sensor.

Heat type converter totalizer is restricted to the split type.

3.Calibration setting

or the system calibration, it is similar to basic type but heat unow/high temperature limit and low/high heat output limit ad..

:urrent, frequency and pulse instantaneous output are cpponding to instantaneous heat output.

the instantaneous output is necessary while calibrating, ple set the flow unit in MODE menu then set the heat unit to "off" to<e the instantaneous heat output change to instantaneous flate output automatically. When finishing calibration, re-select henit and change instantaneous flow rate output to intaneous heat output.

r the temperature sensor, if there is a failure, you can pre-set thstrument via the menu of Factory setting—Fault menu, and thmperature range of fault inlet and fault outlet is 0-t°Cmoreover the instrument also leaves a inlet temperature imration setting function on this menu with a temperature range of-150°C

3.Heat monitor

Meshows data of flow as well as some relevant value of heat.

◆t

Thage shows density, enthalpy difference, instant heat and toteat.

◆Tperature

Thage shows inlet temperature, outlet temperature, and terrature difference.

◆lint heat

Thage shows instant heat, and percentage of instant heat.

◆I heat

Thage shows total heat, shadow part is the decimal.

◆t Curves

Thage shows instant heat, flow rate, heat curves, percentage of heets value of current and frequency.

3.6 Protocol measurement type (please make note when you order this type)

Protocol measurement electromagnetic flow meter converter is a meter combine flow , integrating and display, it can measure certain flow according to protocol. For some actual flow, lower or higher than the set value, the meter will automatically measure according to protocol, if the actual flow is within the set flow range, it will measure according to actual flow.

3.6.1 Function

Same function as basic type electromagnetic flow meter

3.6.2 Wiring

Same wiring as basic type electromagnetic flow meter

Protocol measurement type converter only available for remote type/ split type

3.6.3 calibration setting

System calibration setting same as basic type.

3.6.4 Protocol measurement

1. Function

◆small flow calculation protocol (lower limit)

When actual flow is lower than the measuring lower limit, although the user is having flow (even very small), but the flow meter no output, in the long run it will occur difference of the measuring data. To solve this problem, our meter has the setting of small flow calculation protocol. After negotiation, we set a agreeable fixed value for the lower limit, if the actual flow is lower than this value, meter will show total according to this value. When the flow stops or flow signal lower than the cut-off value, meter will not counter.

◆Exceeding plan calculation protocol (up limit)

Under certain circumstances, need to control the flow, that is unlimited flow is not allowed, after negotiation, set an agreeable fixed value for up limit, when exceed this set value, the exceeding part mutiply a protocol coefficient then counted into the total flow, to realize the function of exceeding plan calculation.

◆hal calculation protocol (up limit)

\n the actual flow value higher than the protocol lower limit or lowthan the protocol exceeding plan flow, it belongs to normal floieter will show total value according to actual flow.

2. ing

Ermenu setting- mode- trading, protocol measurement, choose " and confirm, go to protocol measurement setting, input the prol coefficient, protocol up limit, protocol lower limit

◆ɔtocol coefficient

lt the coefficient, range: 0-5

◆ɔtocol up limit

lt the up limit, range: 0-9999m^3/h

◆ɔtocol lower limit

lt the lower limit, range: 0-9999m^3/h

3. m

On screen of flow, if under right side the " instant " appears the lebf L H, it means L: flow lower than the agreed low limit; H: flogher than the

agl up limit.

3.'me division measurement type (please note when pl: order)

ɜ division measurement type electromagnetic flow meter coter combines flow, integrating and display, under certain cirstances, meter calculate according to " peak", Valley", "flat" mof the total flow.

3.7unction

ie function as basic type electromagnetic flow meter

3.Wiring

Sawiring as basic type electromagnetic flow meter

ɜ division measurement type converter only available for ren type/ split type

3.Callbration setting

Syn calibration setting same as basic type.

3.7.4Time division measurement

1. Function

Generally energy flow has the period of peak, valley and normal, peak period the energy is not sufficient, and valley period is in surplus, under such circumstance, adopts peak valley and normal measurement mode. Peak: shows the total flow within the peak value during certain period; valley: shows the total flow within the valley value in the certain period; normal: total flow other than the peak and valley value. Peak, valley and normal flow are calculated individually, and can set the charging criteria according to different total flow value.

2. Setting

Enter the setting menu- mode- trading, choose time division " on" and confirm, go to time division measure setting, " peak" and "valley" each has 2 period available to set.

3. Display

3.8Quantitative control type (please note when place order)

Quantitative control type electromagnetic flow meter converter combines flow, integrating and display, with the function of quantitative control. This meter is convenient for set the Quantitative flow value, remaining flow alarming value, also available to open or shut-off the valve under emergency, realize the function of quantitative control and monitor.

3.8.1 Function

Same function as basic type electromagnetic flow meter

3.8.2 Wiring

Same wiring as basic type electromagnetic flow meter, only add the wiring of quantitative control ON/OFF output of K11,K12, corresponding to terminal 21、22

Quantitative control type converter only available for remote type/ split type

3.8.3 calibration setting

System calibration setting is same as basic type.

3.8.4 Quantitative control

1. Function and alarm setting

Ir set menu- mode- trading, select quantitative control " on" anonfirm Go to quantitative control and set the alarm value, this vacan't be bigger than Quantitative value, when quantitative col remaining value lower than this value, meter will send out nountil quantitative control remaining value reach zero.

2. ıntitative control charging

:the quantitative alarm value and confirm, enter quantitative se', set the quantitative control value. This value can be set in theration control menu instead of entering setting menu.

3. ıntitative control

ıs right shift button enter menu of quantitative control, press righift button for 3 seconds and adding button , can modify the val and press ↵ button to confirm this value, press bu, ↵ shut off the relay, related valve open, then quative control starts. When the remaining values lower than the value, the alarm is on, until the relay disconnect, the related vaıhut, the quantitative control end.

hg this period, if need the relay disconnect, shut off the valve , caə realized by pressing button, when the emergency cld, restore the control, re-press the ↵ button

4. d capacity

ly load capacity Max 220Vac/5A, 30VDC/3A

3.?re-paid quantitative control type (please note wl place order)

paid quantitative control type electromagnetic flow meter coter combines flow, integrating and display, with the function of prid quantitative control. This meter is convenient for manual quative charging, manually set the flow unit price, quantitative alaalso available to open or shut-off the valve under emergency, reathe function of quantitative control and monitor.

3.Function

ı (heat) detection function same as basic type (heat type)

electromagnetic flow meter

3.8.2 Wiring

Same wiring as basic type (heat type)electromagnetic flow meter, only add the wiring of pre-paid quantitative control ON/OFF output of K11,K12, corresponding to terminal 21、22

Quantitative control type converter only available for remote type/ split type

3.8.3 Calibration setting

System calibration setting is same as basic type.

3.8.4 Pre-paid quantitative control

1. Function and alarm setting

Enter set menu- mode- trading, select quantitative control " on" and confirm Go to quantitative control and setting, set the unit price(flow, heat unit price), quantitative alarm value and quantitative charging.

Make sure the value correct and confirm, pressure↵ button for 3 seconds, hear the sound of "DI", press ▼ button to check the quantitative charge value turn Zero, it shows charging succeed.

Quit the setting, enter pre-paid quantitative control main menu, can check the flow (heat) remaining value and the balance.

2. Quantitative control

During the normal process, the switch control output is disconnected, when the balance is lower than the set the quantitative alarm value, the meter sends out BUZZ noise until the balance turn zero, switch output disconnect, related valve shut off.

3.load capacity

Relay load capacity Max 220Vac/5A, 30VDC/3A

4、Password Settings

1、Press ↵ continuously for 3 seconds to input the password, level I password is for the users, factory default is "0000"; level II password is for the manufacturer , the factory default is "2222"

2、To set a new password, please see "Parameter Settings" related content.

Leveeve l 1 l 2	Le ve l 3	level 4	The parameter selection and range	Password classificati on	Applicable model
fedi um	/	Measure Medium	water/liquid	Password I	Universal
		Density compensatio n	Temperature compensation/D ensity setup		
Jnit etup	/	Flow Unit	m^3/L/t/Kg	Password I	Universal
		Heat Unit	KG/MJ/GJ/Kwh OFF		Heat type
		Instantaneou s decimal	0 to 3	Password II	Universal
		Cumulative decimal:	0 to 3		
Modeirec ion etup	/	/	Flow direction: Forward / reverse	Password I	Universal
			Negative flow: ON/OFF		
ilter etup	/	Flow rate fiction	0.001~0.999m/s	Password II	Universal
		Suppression time	0~5000mS		
		Filter constant	1~30		
rad e	/	Protocol control	ON/OFF	Password II	Trade type
			ON/OFF		
		Quantative control	ON/OFF		

Leve l 1	Leve l 2	Le ve l 3	level 4	The parameter selection and range	Password classificati on	Applicable model
Para mete r	Diame ter	/	/	3~3000mm	Password I	Universal
	Range upper limit	/	/	0~99999	Password I	Universal
	Range lower limit	/	/	0 ~99999	Password I	Universal
	Outp ut up limit	/	/	0 ~99999	Password I	Universal
	Outp ut low limit	/	/	0 ~99999	Password I	Universal
	Flow rate cut	/	/	0-1m/s	Password I	Universal
	Tempe rature upper limit			0~200℃	Password I	Heat type
	Tempe rature lower limit	/	/	0~200℃	Password I	Heat type
	Flow coeffic ient	/	/	0.0000~6.0000	Password II	Universal

Leveeve l 1 l 2	Le ve l 3	level 4	The parameter selection and range	Password classificati on	Applicable model
low ate l~5	/	/	0~1.0000m/s	Password Ⅲ	Universal
Para atio mete l~5 r			0.0000-2.0000	Password Ⅲ	Universal
ero rim	/	/	0 ~±0.0300 v	Password Ⅲ	Universal
ass ord	Pa ss wo rd1	/	0000~9999	Password Ⅰ	Universal
	Pa ss wo rd2	/	0000~9999	Password Ⅱ	Universal
Syste m ime etup	/	/	Year-Month-Day Hour-Minute-Second	Password Ⅰ	Universal
uto how	/	/	Flow / instantaneous / accumulated /total/output/ heat / temperature / stop	Password Ⅰ	Universal

Leve l 1	Leve l 2	Le ve l 3	level 4	The parameter selection and range	Password classificati on	Applicable model
Syste m	Outp ut setup	/	Output signal	Frequency(0~50 000Hz)/ Pulse(pulse constant and width)	Password Ⅰ	Universal
	Zero clear	/	/	Acumulative values clear / power off record clear / report clear	Password Ⅱ	Universal
	Backl ight setup	/	Backlight Control	Always on / off	Password Ⅰ	Universal
	Reco rd setup	/	Record interval	00 min	Password Ⅰ	Universal
	Lang uage	lan gu ag e	/	Chinese/English	Password Ⅱ	Universal
		Edi t	Forward total	0~99999999m^3	Password Ⅱ	Heat type
			Reverse total	0~99999999m^3		
		Fa ult set tin g	Fault inlet temperature	0~150℃		

Leveeve l 1 l 2	Le ve l 3	level 4	The parameter selection and range	Password classificati on	Applicable model
ang age		Fault outlet temperature	0~150℃	Password Ⅱ	Heat type
		Inlet tem move	0~150℃		
		outlet temperature Fault	0~1000℃		
	Ed it Se tti ng s	/	Forward accumulated ：0~99999999m^3 Reverse Cumulative ：0~99999999m^3	Password Ⅱ	Universal
Comm unicati / on	/	/	Native IP address：0~999 Baud Rate ：1200n1~9600e1	Password Ⅰ	Universal
acto Otherry s ettin gs	/	/	Serial number0~99999999	Password Ⅱ	Universal
Save /	/	/	Do you need save? Yes/No	Password Ⅰ	Universal

Ⅳ Instrument detection and maintenance

Electromagnetic flow converter has self-diagnosis function. In addition to the power and hardware circuit fault, The system also give alarm to other faults in general usage. These information are given accordingly prompts in the lower right of the screen.

1、Maintenance and repair

a) Sensor installation site should be consistent with the section four requirements, Please keep the housing clean and tidy;

b)Transmitter should be placed in a clean, ventilated, dry place;

c)Need to inspect every two years, for high precision users, instrument need to be submitted to censorship.

2、Transportation, storage

a)The instrument must be packed before transportation, be carefully handled when loading and unloading.

b)Storage site must be dry, ventilated, avoid corrosive gas erosion, the ambient temperature is not too low or too high;

c)Storage time better not exceed three years.

3、Unpacking and checking

a) The packing can't be opened with heavy hammer, and should be careful not to damage the instrument

b) Check the content carefully according to the packing list.

4 Trble shooting

Fai	Fault diagnosis	Solution
Co:er no display	1. lack of power supply	Check the power supply or if the
	2. converter fault	Change converter
Exon alarm	1. excitation terminal X and Y open	Check the excitation cable
	2. sensor excitation wire resistance too big	Change matching of the converter excitation current and sensor
Emipe alarm	1. excitation current reverse	Change converter excitation terminal
	2. wrong signal cable connection	Check and correct signal cable connection
	3. measuring fluid does not contact the electrode	Change the installation of sensor, make fluid fully filled in the pipe
	4. actual flow direction reverse with indicated	Change the installation of sensor
	5. electrode signal short circuit	Signal cable insulation damaged
	6. no excitation current	Excitation cable damaged
	7. electrode covered by insulant material	Use multi-meter measure the voltage between A and B, it should be lower than 1V, if not , clean the electrode, remove the covering material
	8. low conductivity of the measuring fluid	Try to make converter signal terminal A,B,C short circuit
Inæte meing data	1. wrong signal cable connection	Check and correct the signal cable connection

Fault	Fault diagnosis	Solution
Inaccurate measuring data	2. wrong transmitter setting	Re-set the parameter according to default setting
	3. the fluid is not fully filled in the pipe	Change the sensor installation, make the fluid fully filled in pipe
	4. the measuring fluid contains bubbles or oil	Eliminate bubbles or oil
	5. sensor grounding fault	Operate grounding properly
	6. electrode covered by insulant material	Clear up the electrode
	7. unsteady power supply, strong interference	Change power supply or provide anti-interference power
	8. strong interference nearby	Change installation site, avoid interference
	9. share same grounding cable with other facility	Use individual grounding cable for sensor
	10. sensor grounding connected with converter casing	Cut off the connection, make the sensor grounding individual
	11. sensor grounding cable too long or too slim, cause to large grounding resistance	Make grounding point nearby , make the grounding resistance lower than 10 Ω
Converter display exceed the full scale(above 100%)	1. actual flow exceed the maximum flow range	Select the suitable flow meter according to actual flow range
	2.fluid half filled in pipe or even empty pipe	Change pipe or sensor's installation, to make sure fluid full pipe

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ılt	Fault diagnosis	Solution
Co:er display exc the full scabove 100%)	3. electrode covered with insulant material, such as oil, bubble etc.	Clean the electrode
	4. signal cable short circuit	Change the signal cable or make some screening or insulation.

Flow value table in [m^3/h]						
DN	V = 0,3 m/s	V = 1 m/s	V = 3 m/s	V = 5 m/s	V = 8 m/s	V = 10 m/s
10	0,085	0,283	0,848	1,414	[illegible]	[illegible]
20	0,339	1,131	3,393	5,655	[illegible]	[illegible]
25	0,530	1,767	5,301	8,836	[illegible]	[illegible]
32	0,869	2,895	8,686	14,476	[illegible]	[illegible]
40	1,357	4,524	13,572	22,619	[illegible]	[illegible]
50	2,121	7,069	21,206	35,343	[illegible]	[illegible]
65	3,584	11,946	35,838	59,729	[illegible]	[illegible]
80	5,429	18,096	54,287	90,478	[illegible]	[illegible]
100	8,482	28,274	84,823	141,37	[illegible]	[illegible]
125	13,254	44,179	132,54	220,89	[illegible]	441,787
150	19,085	63,617	190,85	318,087	[illegible]	[illegible]
200	33,929	113,10	339,30	565,49	[illegible]	[illegible]
250	53,014	176,71	530,14	883,57	[illegible]	1767,1
300	76,341	254,47	763,41	1272,3	[illegible]	[illegible]
350	103,90	346,36	1039,1	1731,8	[illegible]	[illegible]
400	135,72	452,39	1357,2	2261,9	[illegible]	[illegible]
500	212,06	706,86	2120,6	3534,3	[illegible]	[illegible]
600	305,36	1017,9	3053,6	5089,4	[illegible]	10178,7
800	542,87	1809,6	5428,7	9047,8	[illegible]	[illegible]
1000	848,23	2827,4	8482,3	14137,1	[illegible]	[illegible]

Optimal flow 1 – to 5m/s

Warning

To ensure the products are capable of long-term use in the field, to bring you accurate measurements, you are forbidden to dismantle the product during the custody, installation and processing!

Thank you for your cooperation!

Nanjing Metran Measurement & Control Co., Ltd