NEW-FLOW
ISO 9001
REGISTERED

NEW-FLOW

MANUFACTURE OF METAL TUBE FLOW METER

BR250S SERIES

AND CONTROL INSTRUMENTS

金屬管流量計操作說明書

Instruction Manual

Approvals:

ABS TYPE APPROVED PRODUCT

EAC Ex II2GD CE 2503

c UL us Switches with UL & CSA Recognized and File No. E41515.

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工電(2015)第00151號
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Patent No.

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China: 1187801

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Instruction No.: 20160606-2-br250s

1.0 INSTRODUCTION & DESCRIPTION

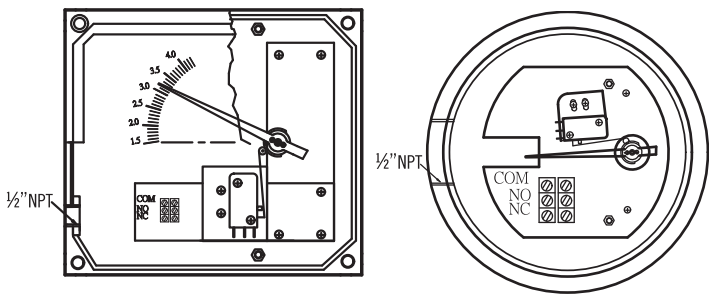
Instructions Manul 用法說明

BF250S flow meter consist of fixed taper tube, float and indicator as well as spring. Float and indicator provide one set of magnetic coupling in each side. Spring component offers damping function. Fluid turn thought float affects another magnet in mechanical indicator to indicating flow rate on dial scale.

BF250S流量計是由固定錐形管、浮球、指針及彈簧所組成。浮球和指針在每邊各提供一組偶合的磁鐵機構。彈簧配件提供阻尼damping的功能。當流體通過浮球時會牽動另一個機械式指針裡的磁鐵，同時指針就會在刻度盤上顯示流量。

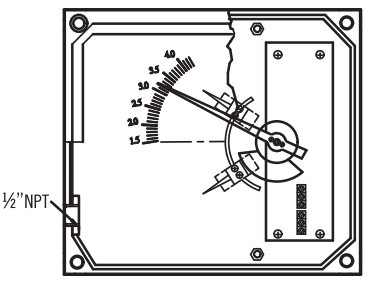
Alarm/Analog Output 接點/類比輸出

BR-250S/GS-M (Micro Switch)



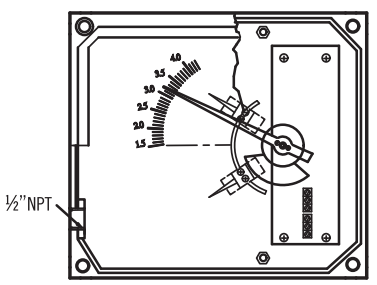
Adjustable Micro Switch, Series BR250S/GS-M
1 adjustable alarm contact
Load: 5A/205VAC/125VAC/30VDC
Temperature: -25°C~+100°C (AMB)
Hysteresis: ±10% of full scale

BR-250S/GS-R (Reed Switch)



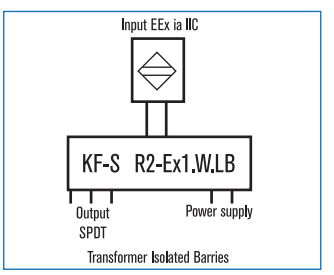
Alarm Switch: One or Two setting point, form A bistable type (N.O type)
Hysteresis: ±10% F.S (Dead Band)
Switch Rating: AC 125V 0.5A / DC 100V 10W / Max. DC250V<1mA
1 adjustable alarm
Contact setting point should be within 10% to 100% of F.S
2 adjustable alarm
The second setting point should be a gap 40% from first setting point

BR-250S/GS-C (Inductive Switch)



Adjustable inductive alarm switch
Hysteresis: ±1% F.S (Dead Band)
Inductive sensors slotted type: 3.5mm slot switch
DC. Voltage 2 wires's to DIN19234 (NAMUR) for use in hazardous areas.
– Power supply: 8 VDC (Ri. approx. 1kΩ)
– Current consumption: Active face uncoved 3mA; Active face coved 1mA
– Ambient temp.: -25°C ~ +100°C

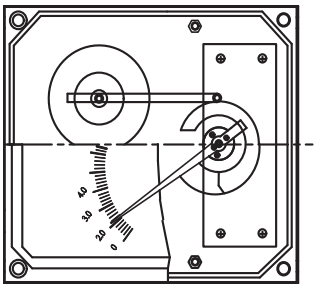
Isolated barriers output relay for inductive sensor:
– Rail mounting
– Control circuit EEx ia IIC
– EMC acc to NAMUR NE21
– Contact loading 250 VAC 2A SPDT 40 VDC 2A



1 adjustable alarm
Contact setting point should be within 10% to 100% of F.S
For 24VDC: KFD2-SR2-Ex1.W
115VAC: KFA5-SR2-Ex1.W
230VAC: KFA6-SR2-Ex1.W

2 adjustable alarm
The second setting point should be a gap 65% from first setting point.
For 24VDC: KFD2-SR2-Ex2.W
115VAC: KFA5-SR2-Ex2.W
230VAC: KFA6-SR2-Ex2.W

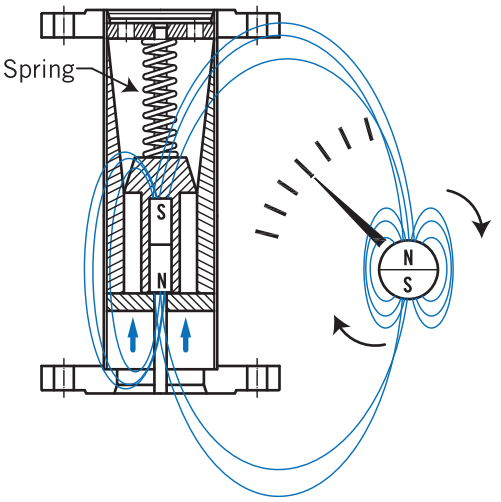
BR-250S/GT (Analog Output)



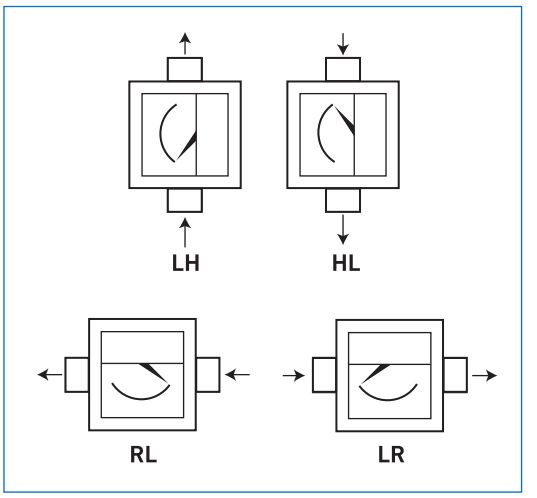
Electric Transmitter BR-250S/GT
Analog output available: 4~20mA (2-wire)
No Alarm Switch Available
Power Supplier: 24VDC
Temperature: +25°C ~ +100°C (AMB)

2.0 INSTALLATOIN MANUAL OF BR250S.GS.M

Principle 原理

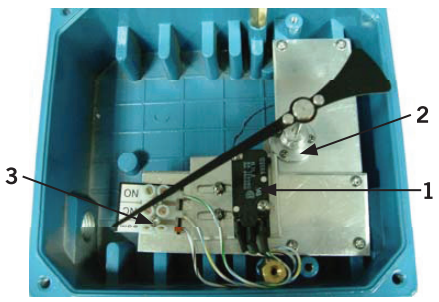


Flow Direction Type 流向



BR250S Main Parts List 配件圖示

(A) Inner Photo 內部圖

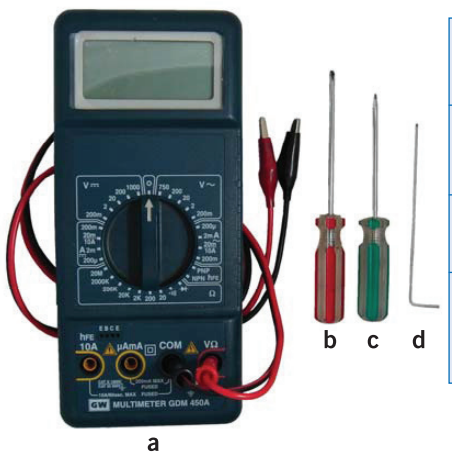


1	Micro Switch 微動開關
2	Revolvable Cam 凸輪
3	Terminal Block 端子座

(B) Scale Photo 表面圖

4	Scale Plate 刻度板
5	Flow Pointer 流量指針
6	Zero Adjustable Screw 零點調整螺絲
7	Alarm Pointer 指針

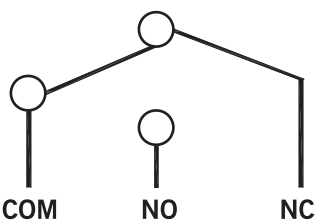
(C) Necessary Tools 所需工具



a	Multimeter 三用電錶
b	"+" Driver 十字螺絲板手
c	"–" Driver 一字螺絲板手
d	1.5mm Hexagon Key Wrench Set 1.5mm六角板手

Acting Principle 作動原理

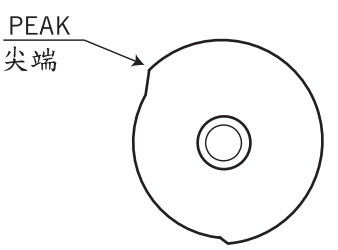
1. The micro switch provides SPDT function and offer NO.NC.COM contact for usage.
   此開關為micro switch提供，NO.NC.COM接點使用。



2. The revolving cam activates the micro switch to control the flow rate.
   由旋轉中的凸輪帶動micro switch來做流率(flow rate)控制。

3. Micro Switch Rating: 5A 110VAC 3A 250VAC
   此Micro Switch規格為: 5A 110VAC 3A 250VAC

Revolvable Cam 凸輪



2.1 SETTING STEPS

The Setting Step 設定步驟

1. If the flow range needs to be reset, please open an upper cover at first and release the revolvable cam(2) with the hexangular key wrench(d). (as diagram B)
   若需重新設定流量範圍時，請先打開上蓋，用六角板手(d)放鬆凸輪(2)。(如圖B)

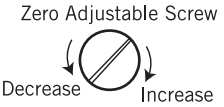
2. Turn the flow pointer(5) to the requested alarm set point with hand at the position (as diagram C). Let the revolvable cam touch the micro switch (1) to cause NO, COM short-circuited. When the multimeter displays zero (as diagram D), lock the cam tightly in place.
   將流量指針(5)手動旋轉至所需alarm設定點(此時用手固定暫不放開，如圖C)，並讓凸輪尖端碰觸micro switch(1)，使NO, COM短路，即三用電錶顯示於零時(圖D)，再將凸輪(2)鎖緊固定。

3. Revolve the flow pointer(5) by hand and confirm the alarm setting whether it is correct by multimeter(a) once again.
   再次手動旋轉流量指針(5)，並使用三用電錶(a)再次確認alarm設定是否正確。

4. If the alarm set point still incorrect, please repeat 1,2,3 steps until reach the alarm set point that you need.
   若alarm設定點依舊不正確，請再重複1,2,3步驟，直到達成您所需之alarm設定點為止。

5. Finally, move the alarm pointer to the alarm of new setting point and lock tightly by "+"driver with hand.
   最後將alarm指針移至所設定的新alarm刻度點上用十字螺絲板手鎖緊。

6. If the pointer didn't return zero (as diagram E), when there are not fluid through inside this flow meter. First, we have to keep the flow pointer(5) in zero and adjust the flow pointer in zero with "–" driver to revolve zero adjustable screw. (as diagram F, Zero Adjustable Screw)



   若指針未歸零時(圖E)，先用手固定流量計指針(5)於零點處，再利用一字螺絲板手(c)調整流量指針螺絲(6)，直到歸零為止(圖F)。

Notice 注意事項

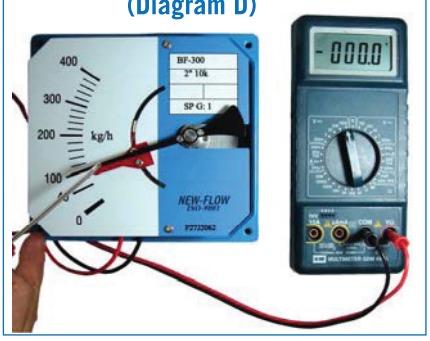
1. Please watch for the flow direction when you install.
2. After setting completion, please indeed lock the upper cover tightly, and have to a cable gland in entrance fixed cable to make sure water proof and leak proof.
3. If the fluid is dirty water or waste water, please installing filter at inlet to avoid fluid jam.

1. 安裝時，請注意流向。
2. 設定完成後，請將上蓋確實鎖緊，並於出線口處做好防水防漏措施。
3. 如果流體為污水或廢水時，請在入口處安裝過濾器，避免造成阻塞。

(Diagram B)

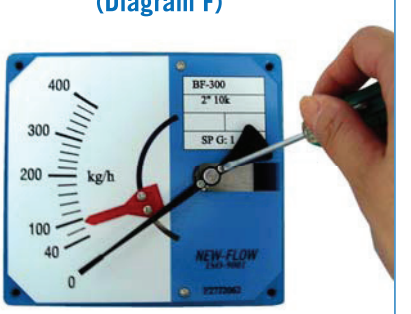
(Diagram C)

(Diagram D)



(Diagram E)

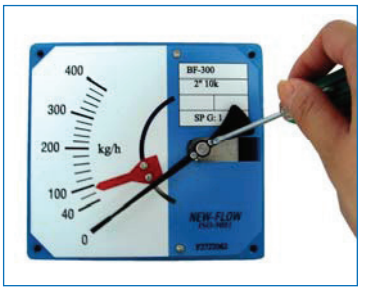
(Diagram F)



3.0 INSTALLATOIN MANUAL OF BR250S.GS.C

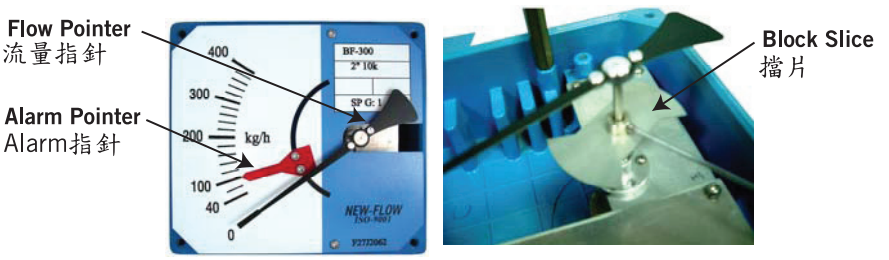
Zero Setting And Adjustment 零調設定

Open the upper cover, please take usage of screwdriver to adjust the flow pointer until it stop at zero point. (as photo at right side)
打開上蓋，利用一字螺絲起子調整流量指針螺絲，直到指針停留在零點位置。



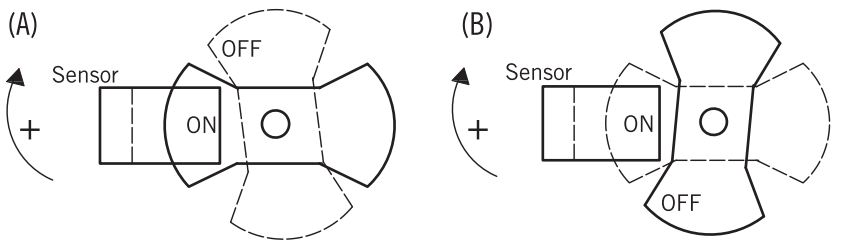
Main Parts List 主要零件

The setting step:
Adjust the alarm pointer to request setting point, then let the pointer to match alarm pointer by hand, after that use hexangular wrench to adjust the block slice position by hand to cover inductive sensor making relay out LED lighting on the signal transducer meanwhile to lock block slice on correct position.
設定步驟:
上蓋打開後先把alarm指針調到設定點，利用六角板手調整擋片位置，最後用手轉動流量指針配合訊號轉換器relay out指示燈來判定設定位置是否正確。



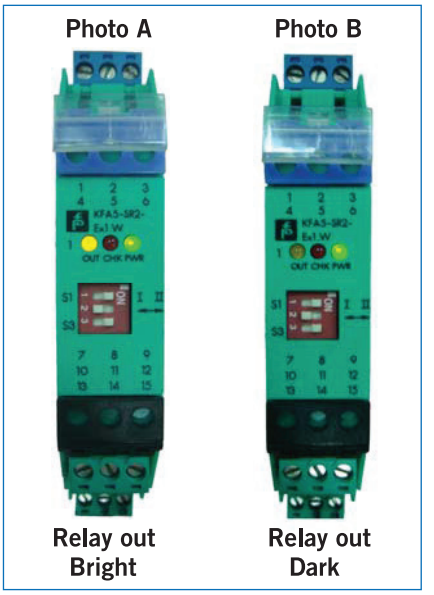
The Setting Principle 設定原理

1. Two methods of setting which divides according to percentage of full flow rate. (設定方式分兩種，以全流速之百分比區分。)
2. It has to match signal transducer to use (as diagram A,B). (須搭配訊號轉換器，如圖A,B使用)



(A) 0%~60% of full flow rate:
Beginning no flow rate through this meter, the signal transducer light turns off (as photo B presented). When the flow rate increased reach to the alarm point, the signal transducer light turns on (as photo A presented). But increased flow rate pass over the alarm point meanwhile block slice leave the position of alarm point and signal transducer sensor turns off (as photo B presented).
全流速之**0%~60%**：
先讓擋片遮sensor(此時訊號轉換器燈亮如圖)，當流速越大，到達設定點的同時，擋片離開sensor位置則sensor off(如右圖所示)。

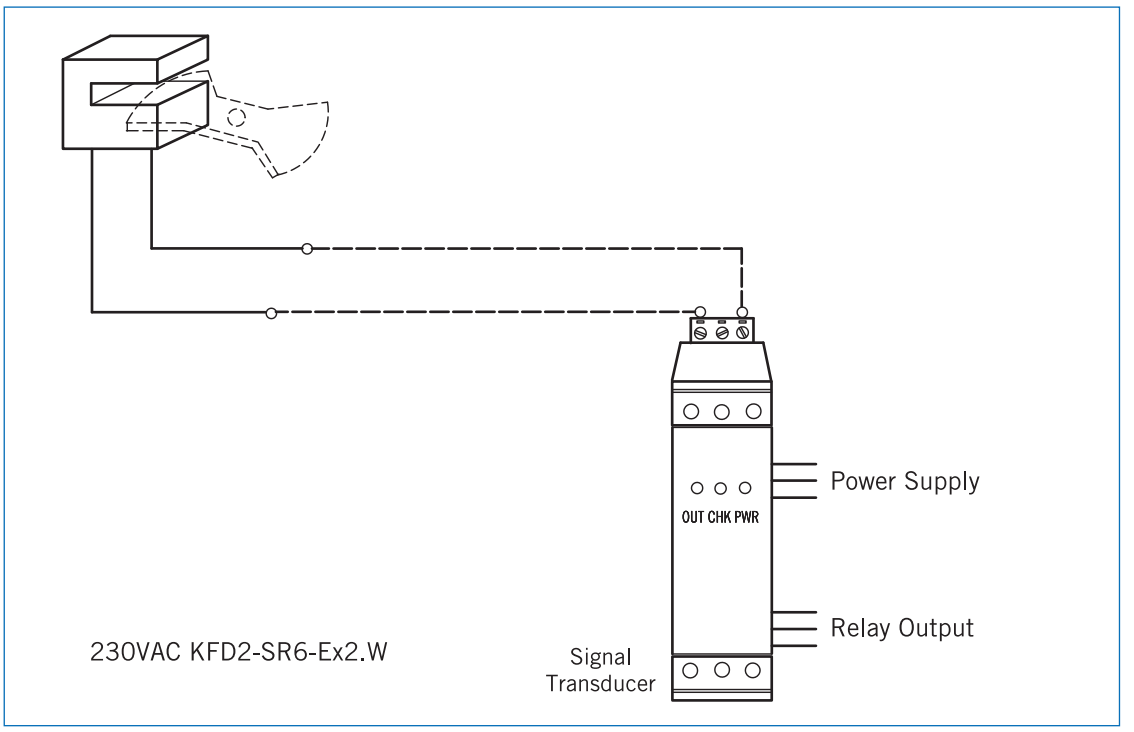
(B) 60%~100% of full flow rate:
The sensor turns off (no open) at the beginning. (signal transducer light turns off as photo B presented), while the flow rate increased reach to the alarm point, block slice cover the positoin where sensor is and sensor turns on. (as diagram at the right side).
全流速之**60%~100%**:
一開始sensor off(此時訊號轉換器燈滅如圖)，當流速越大，到達設定點的同時，擋片離開sensor位置則sensor on(如右圖所示)。



3.0 INSTALLATOIN MANUAL OF BR250S.GS.C

3. The specification of signal transducer. (信號轉號器規格如下。)
   1 SPDT: 24VDC KFD2-SR2-Ex1.W
   115VAC KFD-SR5-Ex1.W
   230VAC KFD2-SR6-Ex1.W
   2 SPDT: 24VDC KFD2-SR2-Ex2.W
   115VAC KFD2-SR5-Ex2.W
   230VAC KFD2-SR6-Ex2.W

Inductive Sensor Uni

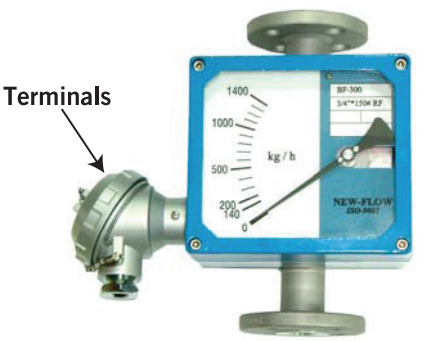


4.0 INSTALLATOIN MANUAL OF BR250S.GT

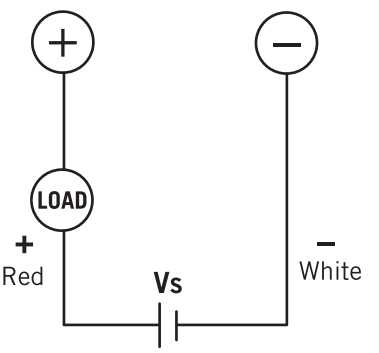
Main Parts List

Output: 4~20mA, 2 wire system
Please keep flow pointer in zero match to 4mA.
BF300-GT doesn't need to calibration in user side at moment.

Photo of Terminals



Connection Diagram



Notice

After setting completion, please indeed lock the upper cover tightly, and have to a cable gland in entrance fixed cable to make sure water tightly.

4.1 PROGRAM STEPS METHOD (For Non-HART Type)

Main Parts List 主要零件

Power Supply: 24 VDC
Output: Linear 4~20mA (2 wires system)
Accuracy: ±2% F.S
Tool: Multimeter, Program Communicator (GTP01), Power Supply (24VDC), "–" Driver
(三用電錶，規劃器GTP01，直流電源供應器24VDC，一字螺絲起子)
Communication Functions: Model GTP01 (additional charge)(規劃器GTP01需另購)

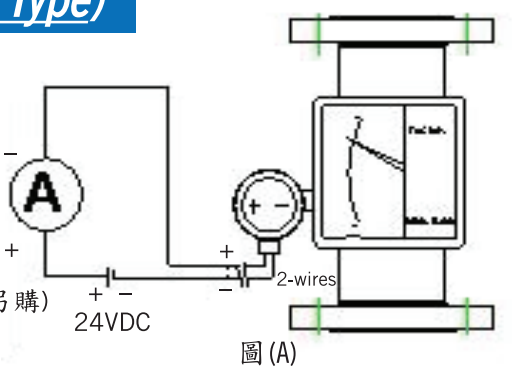
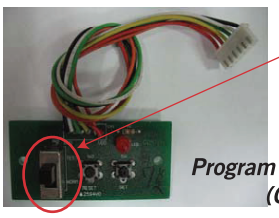


圖 (A)



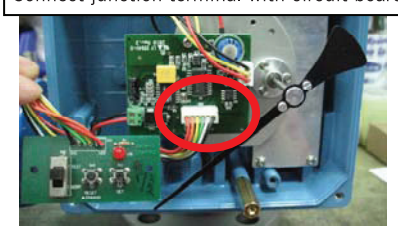
此開關往下，方可設定。
Put this switch down before the program.

Program Communicator (GTP01)

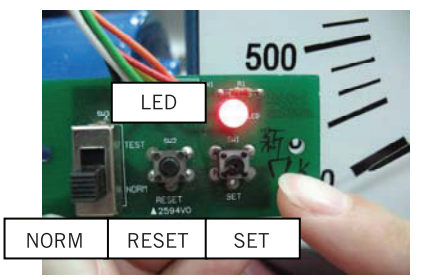
Program Steps Method 規劃步驟

Step 1. The junction terminal of program communicator with the circuit board as Fig. A. Then proceed to under steps.
(將規劃器插入基板中，且接線完成後，如圖A，將面板鎖上並且做流量指針歸零動作。)

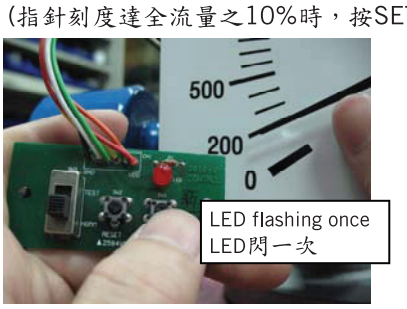
排線插入基板中
Connect junction terminal with circuit board.



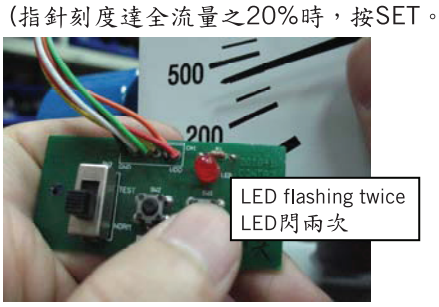
Step 2. Press and hold down the RESET button for 5 seconds, the LED lamp will light. Then release press and to keep indicating pointer on "0" point of scale. Then press SET button to start proceed another step. LED lamp will become dark.
(按住RESET鈕5秒鐘後，LED會亮。表示可開始規劃。指針在零點位置0%時，按SET。LED滅掉。)



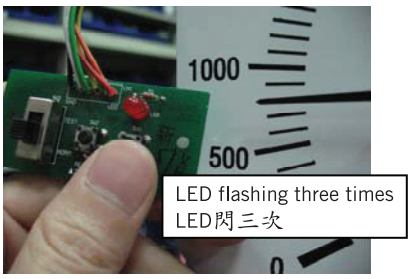
Step 3. To move indicating pointer to 10% of full scale, LED will flashing once on intermittence. Then, press SET button and start another steps.
(指針刻度達全流量之10%時，按SET。)



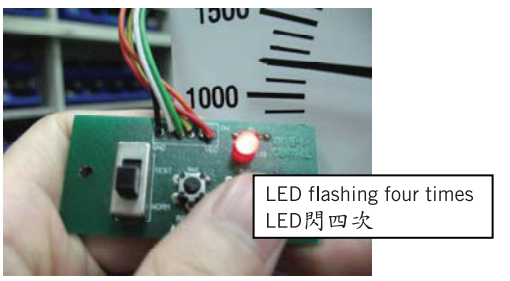
Step 4. To move indicating pointer to 20% of full scale, LED will flashing twice on intermittence. Then, press SET button and start another steps.
(指針刻度達全流量之20%時，按SET。)



Step 5. To move indicating pointer to 40% of full scale, LED will flashing three times on intermittence. Then, press SET button and start another steps.
(指針刻度達全流量之40%時，按SET。)



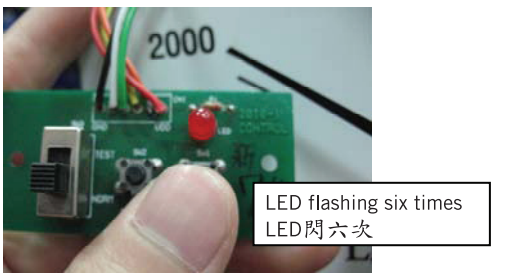
Step 6. To move indicating pointer to 60% of full scale, LED will flashing four times on intermittence. Then, press SET button and start another steps.
(指針刻度達全流量之60%時，按SET。)



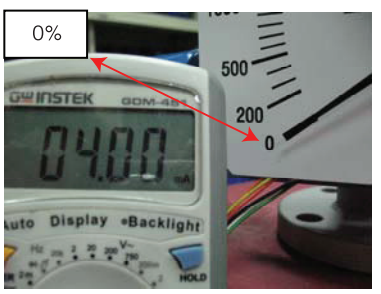
4.2 NOTICE

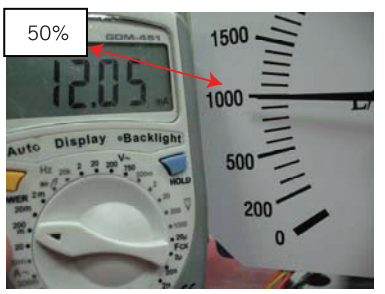
Step 7. To move indicating pointer to 80% of full scale, LED will flashing five times on intermittence. Then, press SET button and start another steps.
(指針刻度達全流量之80%時，按SET。)

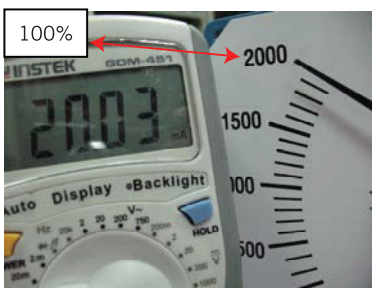
Step 8. To move indicating pointer to 100% of full scale, LED will flashing six times on intermittence. Then, press SET button, LED will become dark. At the meantime, the procedure of program sets are finished.
(指針刻度達全流量之100%時，按SET此時LED滅即表示規劃完成。)



Step 9. After completion the above-mentioned steps, please check of the flow rate 0~100% compare with the output signal 4~20mA or not. If output signal can't match to the flow indicator as under flow table of step 10, it should be re-set again according to Program Steps Method.
(規劃完成後，請檢查流量0~100%是否配合4~20mA之輸出訊號。如輸出訊號有誤或誤差太大，請重新規劃。)







Step 10. Flow table and output signal (example: flow range 0~2000 LPH) (以上規劃範例流量為 0~2000 LPH)

mA	%	LPH	LED 狀態
4	0	0	Off 滅
5.6	10	200	Flash once 閃一次
7.2	20	400	Flash twice 閃兩次
10.4	40	800	Flash three times 閃三次
13.6	60	1200	Flash four times 閃四次
16.8	80	1600	Flash five times 閃五次
20	100	2000	Flash six times 閃六次

OK.LED off

Notice 注意事項

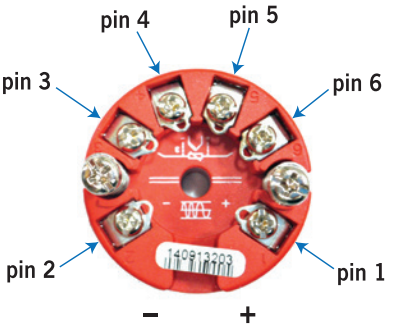
1. Above all, please confirm the input power supply and the wiring mode that are correct.
   請確保輸入電源與接線方式是否正確。
2. If the process of program set is error, please press and hold down the SET button until the LED lamp turns off. Then re-set it again according to Program Steps Method.
   規劃過程中如有誤，請連續按SET鈕直到LED燈滅，再重複規劃步驟。
3. Moves the indicator by manual and test run directly after the flow meter completion of installed, all of they are workable.
   用手移動指針或流量計安裝完成後直接試車規劃都可行。
4. The flow meter has completed program before shipping, therefore it doesn't need to program once more.
   產品出貨都已規劃完畢無須再次規劃。
5. Put Dit-Switch down before the program.
   指撥開關需往下按，才可規劃。

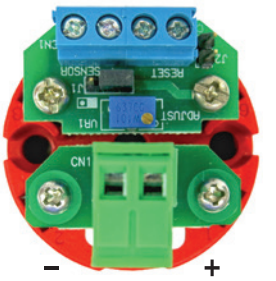
5.0 HART WIRE DRAWING

HART Wiring Drawing 金屬管流量計之HART接線示意圖

Takes apart the Wire Connector lightly, then connects with the loop power (4~20mA, 2-wires) by customer.

輕輕拆下端子並接上2線式4~20mA (Loop Power)後，再插回端子槽內。





WIRE CONNECTOR

NOTE. 注意事項

If customer requests to program the Flow Linear, please send the flow meter back to the manufacturer for calibartion.

如客戶需規劃流量線性(Flow Linear)，請將流量計送回原廠校正。

6.0 HART WIRING FOR SPECIAL STATUS

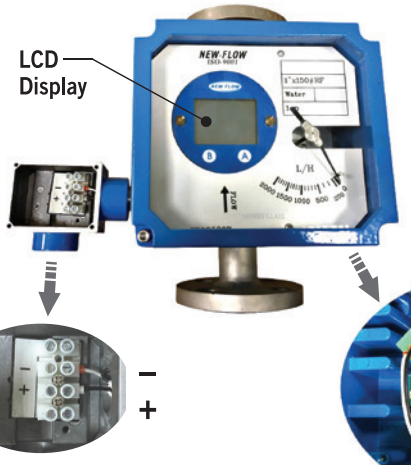
HART Wiring for Special Status 特殊情況之HART接線方式

1. For type of LCD Display (on the plate):

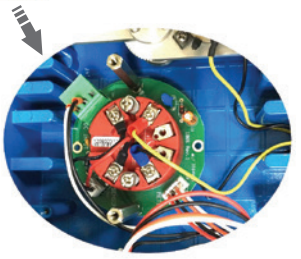
HART protocol is installed in the inner of case housing. The wiring of HART has completed by the manufacturer. Customer connects the wires with the loop power (4~20mA, 2-wires) from the electronic conduit by self, please. Or, using the power supply DC24V directly available.

LCD於面板顯示：

HART裝置已安裝於防水盒內，且原廠出貨前已完成接線。請客戶於接線盒端子上接上2線式4~20mA (Loop Power)即可。或是直接使用DC24V供電也可。



WIRE DRAWING
客戶接線端



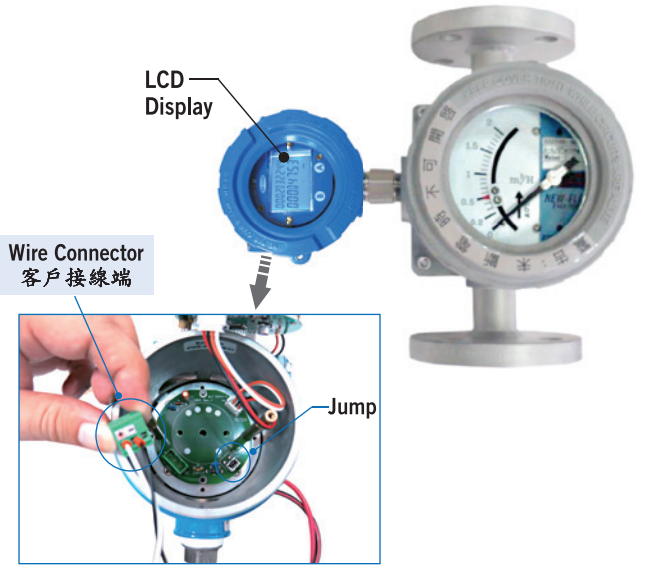
HART PROTOCOL
(inner the case housing/防水盒內部)

2. For type of LCD Display (assembled):

HART protocol is installed in the inner of electronic conduit head. Please lift the LCD plate, and takes apart the Wire Connector lightly, then connects with the loop power (4~20mA, 2-wires).

LCD顯示外部組裝：

HART裝置已安裝於接線盒內。請掀開LCD面板，並輕輕拆下端子並接上2線式4~20mA (Loop Power)後，再插回端子槽內。

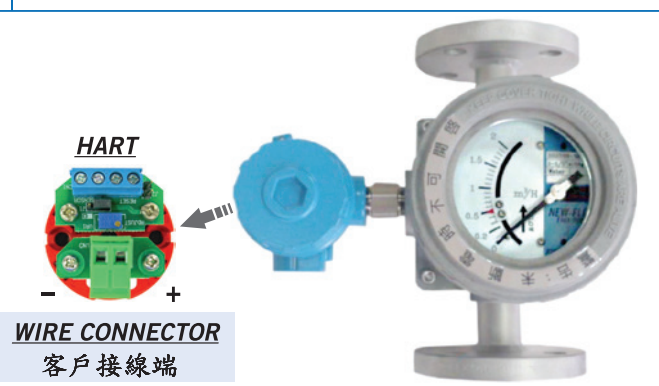


3. Without LCD Display:

HART protocol is installed in the inner of electronic conduit head. The wiring of HART has completed by the manufacturer. Customer connects the wires with the loop power (4~20mA, 2-wires) from the electronic conduit by self, please.

無顯示面板：

HART裝置已安裝於接線盒內，且原廠出貨前已完成接線。請客戶於接線盒端子上接上2線式4~20mA (Loop Power)即可。



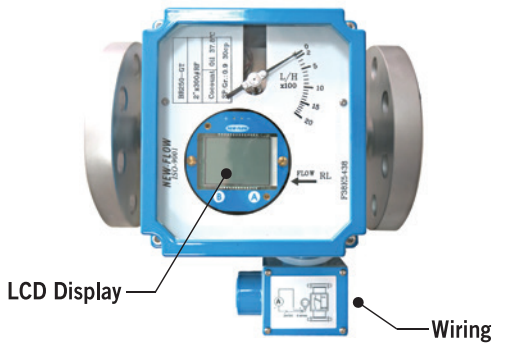
WIRE CONNECTOR
客戶接線端

7.0 TRANSMITTER 4~20mA WIRING

Transmitter 4~20mA Wiring Method 輸出傳送4~20mA接線方式

- **For type of LCD Display (on the plate):**
  4~20mA transmitter is installed in the inner of case housing.
  The wiring of 4~20mA has completed by the manufacturer.

  LCD於面板顯示:
  4~20mA輸出傳送裝置已安裝於防水盒內，且原廠出貨前已完成接線。



Operating Steps 操作步驟

Step 1.:
Please use an hexangular wrench to open the upper cover at the first.
請先使用六角扳手鬆開防水盒四邊螺絲以打開上蓋。

Step 2.:
Remove the scale plate slightly.
輕輕的將面板移走。

Step 3.:
Loosen the screws on the two-side of LCD display by "–" driver and then take apart the LCD display slightly to see the inner wiring.
鬆開固定LCD Display的兩側一字螺絲後，輕輕拿起即可看到內部接線。

Step 4.:
Put the magnet in the position as the fig.4 to make the batch flow rate to back to "zero".
使用批次歸零請將出廠時所附的磁鐵擺於圖示的位置。

FIG.1

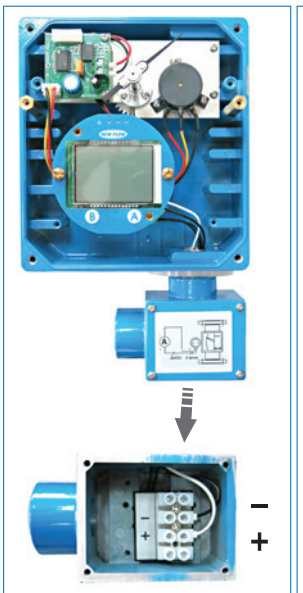


FIG.2

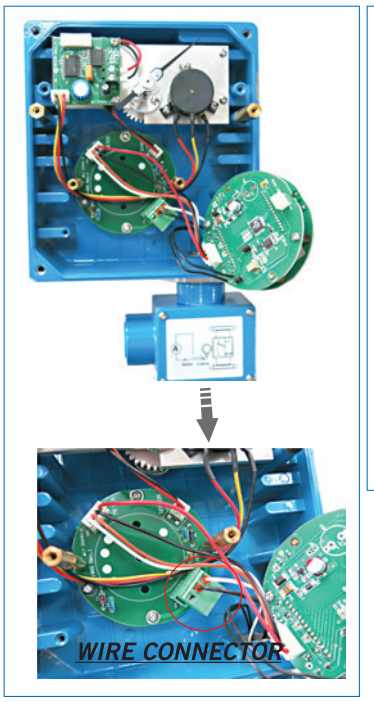


FIG.3

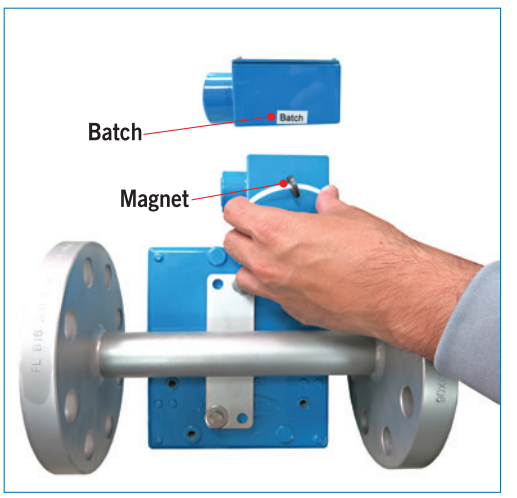


FIG.4

NEW-FLOW

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