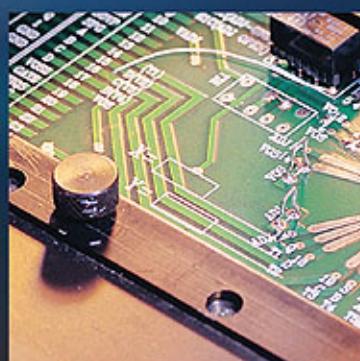


Automatic Control Solution

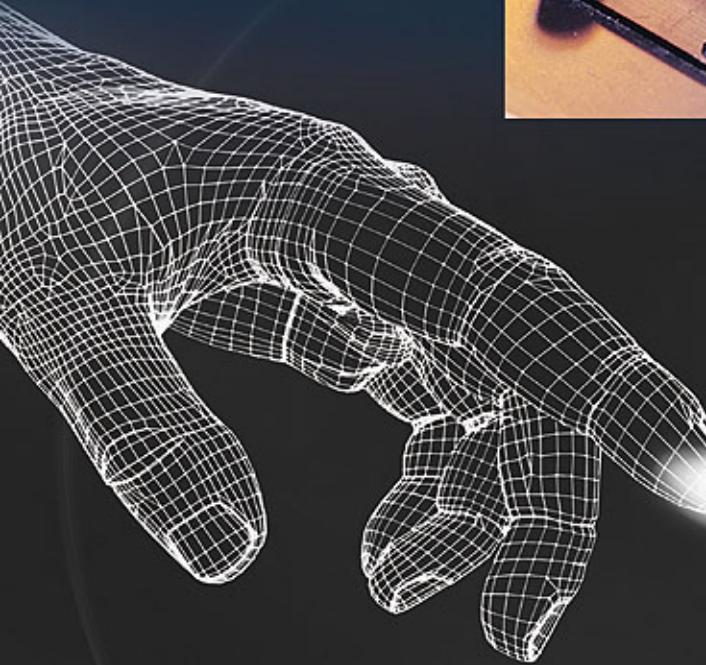


- Developing & Designing controller and related product of the needs of the market.
- Representing advantage HALSTRUP-Walcher pressure sensors and LIKA encoders.
- Integrated automatic control system including plan, design and execution.
- Buying & Selling automatic control components.



專業自動化控制系統規劃

- 極高精度數位式比例同步／同期／張力連動控制
- 各式張力放料／捲取高精度控制系列
- 德國HALSTRUP風壓風量流速量測控制系列
- 高精度LVDT間距控制器／顯示器
- 歐洲超強譯碼器LIKA增量碼／絕對碼
- 各式工業控制元件／產品測試系統



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4



差壓、流量控制組件系列 Pressure Sensor Series

5



譯碼器系列 Incremental / Absolute Encoders

公司簡介

INTRODUCTION

企宏電工系統化有限公司 成立於西元1988年7月，草創之初僅3名員工，主要營業項目為工業自動化零組件貿易及自動化系統設計製造；西元1990年4月股東會議決議為求公司永續經營及發展，確立本公司之營運發展方向如下：

- 一、自動化控制系統整合規劃及設計製造。
- 二、自行研發符合市場需求之高功能自動控制系統。
- 三、接受客戶委託開發專用控制器。
- 四、代理歐美進口之先進感測器及自動控制元件。
- 五、自動化控制相關零組件銷售。

經過了十多年來的用心經營，目前本公司員工已增加為26人，相關研發人員8人，每年業績以25%~35%成長，自行研發之控制產品達數十種，獨家代理義大利LIKA譯碼器及德國halstrup-walcher氣體偵測相關產品在華人地區總代理權，不僅運動、張力控制系列產品已通過CE認證。

- 一、西元1988年07月：企宏電工系統化有限公司成立。
- 二、西元1990年04月：股東會議確立未來經營方向及營運制度。
- 三、西元1990年12月：LVDT間隙顯示控制器研發成功。
- 四、西元1991年02月：機械式比例控制器研發成功。
- 五、西元1991年05月：機械式電線絞距控制器研發成功。
- 六、西元1992年03月：取得德Halstrup風壓／風量傳訊器代理權。
- 七、西元1992年06月：比例同步控制器(RSC-401)研發成功。
- 八、西元1994年06月：高精度比例同步控制器(RSC-406)研發成功。
- 九、西元1995年11月：E / P 電空轉換器研發成功。
- 十、西元1996年08月：塗佈控制系統(GC-502)研發成功。
- 十一、西元1997年10月：取得義大利 LIKA Encoder 代理權。
- 十二、西元1998年01月：壓力傳訊器(P-系列)研發成功。
- 十三、西元1998年02月：對應式壓力 / 張力控制器 (AA-866)研發成功。
- 十四、西元1998年05月：開始承接自動化系統設計製作。
- 十五、西元1998年08月：迴授式張力控制器(TC-606)研發成功。
- 十六、西元1998年12月：開始研發RSC-406的後續機種RSC-416。
- 十七、西元1999年02月：高精度比例運動控制板PRC-410研發成功。
- 十八、西元1999年05月：公司內部會議，確立未來方向，提昇營運目標：
1·邁向國際化 2·以市場導向為研發原則、制作 3·自動化系統整合
- 十九、西元1999年06月：玻璃機械同期系統試產成功。
- 二十、西元2000年07月：外徑演算張力控制器(TC-606)系統試成功。
- 二十一、西元2001年01月：高精度比例同步控制器(RSC-416)研發成功
- 二十二、西元2001年03月：開始高精度張力控制系統(TC-6068)研發工程。
- 二十三、西元2001年04月：TC-416T張力控制器研發成功。
- 二十四、西元2001年08月：DRC-607自動換輪、分條系統運行成功。
- 二十五、西元2002年01月：416, 607, DP通過CE認証。
- 二十六、西元2002年06月：TC-6068研發成功正式上市。
- 二十七、西元2002年11月：與正特企業合資於上海成立“上海宇廷電工系統化有限公司”。
- 二十八、西元2003年02月：為日本濱名機械公司研發專用張力系統成功通過驗收。
- 二十九、西元2003年03月：TC-6088自動換輪控制系統，研發工程開始。

十多年來，本公司研發之一系列產品，本於品質及服務於自動控制業界頗獲好評，並應用於各型先進機械之控制系統上，且出口至全世界各地。

未來，本公司將朝向系統化多元化以及產品國際化方向前進，企宏全體員工皆相信，我們將會在全球自動控制的領域佔有一席之地，期望我們的努力能帶給人類更大的福祉。

TRC-406T 極高精密度智慧型 張力控制系統

用 途：

伸線機，合成皮，機械，紡織，造紙等機械需要高精度張力聯動之控制。

特 點：

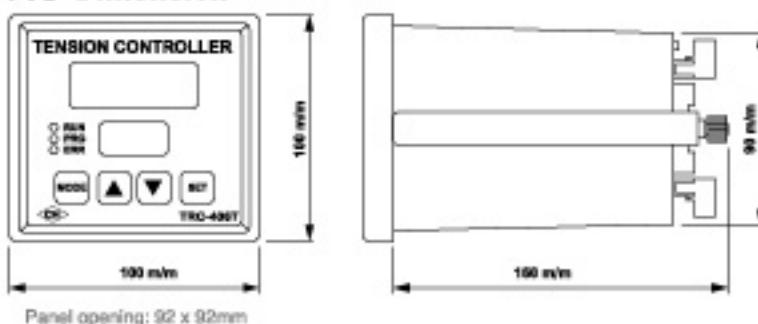
- 具數位AB相位信號及張力信號回授功能。
- 可任意設定張力值。
- 上、下極限輸出。
- 多功能、一體化、節省成本。
- 張力設定，實際張力值雙顯示功能。
- 有基準速比功能，可切換做聯動控制。
- 功能高、經濟實惠。

Usage:

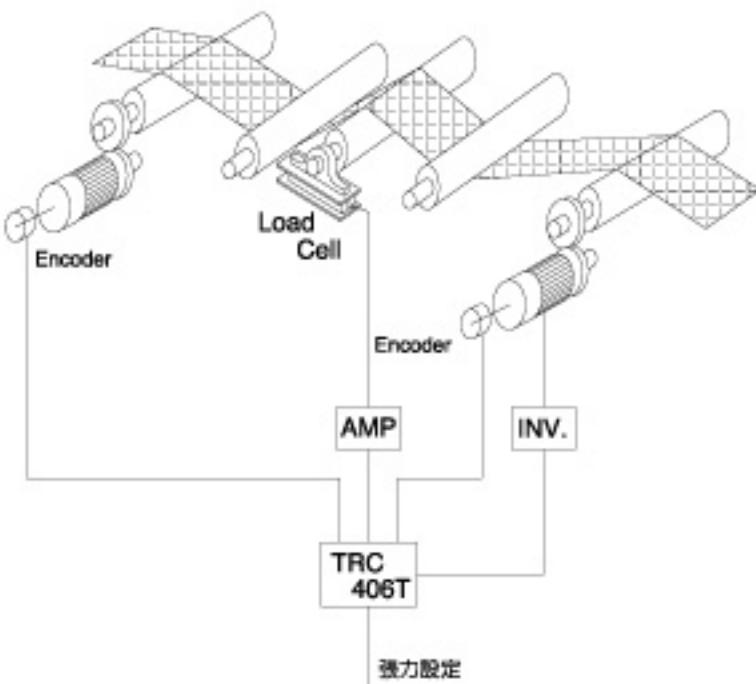
Papermaking, textile, corrugated paper, molding machines, plastic, synthetic leather and wiring etc. with high-accuracy tension of mechanical linkage movement control.

Features:

- Digital AB phase signal and tension signal feedback function.
- Easy operation of setting.
- With Max/Min setting.
- Multi-function, all-in-one, saving capital.
- Setting value and actual value displays.
- With function of standard speed ratio, available for ratio controlling.
- High functional with reasonable price.

**尺寸 Dimension**

Panel opening: 92 x 92mm

**TRC-406T 應用圖 Application****電器特性
Electrical Characteristics**

電源入力 Power supply	AC 220V±10%, 50/60 Hz
轉碼器回授 Encoder feedback	供應電壓 Power supply DC 12V, 100mA 信號入力 Signal input 相位差 Phase: 90°±45° 響應速度 Frequency speed over 10K CPS
Load Cell Amp 入力 Load Cell Amp Input	輸入阻抗 Input impedance 100K Ω 輸入電壓 Input voltage 0~10V DC 可調比例 Available ratio range ±12.5%
D/A 從速指令輸出 D/A speed command output	輸出阻抗 Output impedance 100K Ω 輸出電壓 Output voltage 0~10V DC 解析度 Resolution 12 Bit
其他輸入 Other input	NPN輸出，光耦合隔離 NPN Optically-coupled isolated
RELAY 輸出 Relay output	250V, 1A
工作溫度 Operating temperature range	0°~50°C
貯存溫度 Storage temperature range	-10°~70°C
濕 度 Humidity	< RH 85%
重 量 Weight	1Kg max.

RSC-416T

極高精密度智慧型

線上張力
控制系統

用途：

伸線機，合成皮，機械，紡織，造紙等機械需要高精度張力聯動之控制。

特點：

- 具備416控制器所有特點。
- 可任意設定張力值。
- 具有比例聯動/張力控制雙功能。
- 採行雙PID+FUZZY控制模態。
- 張力控制精度可達(F.S)±2%之內。
- 功能高、價格低廉。
- 具備張力檢出訊號，回授輸入點。



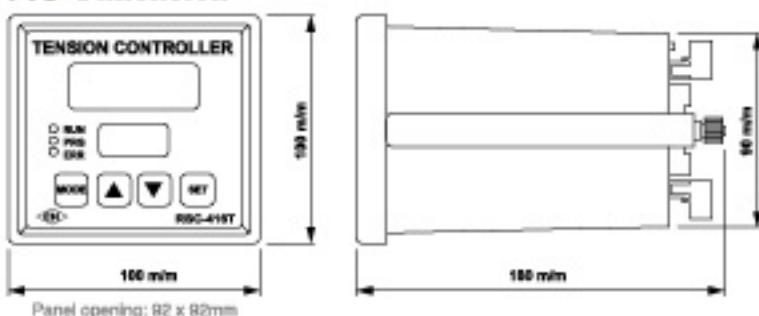
Usage:

Papermaking, textile, corrugated paper, molding machines, plastic, synthetic leather and wiring etc. with high-accuracy tension of mechanical linkage movement control.

Features:

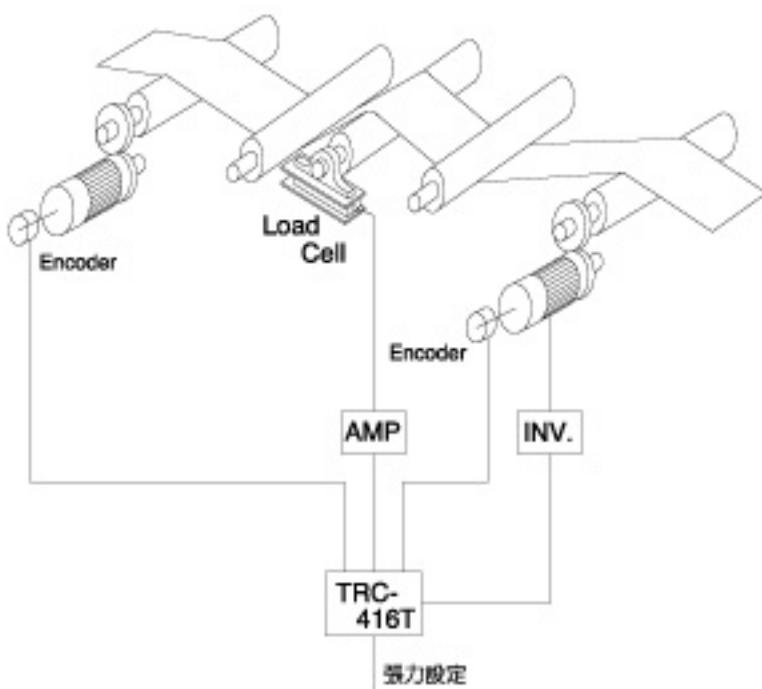
- Including all the advantages of 416.
- Easy setting function.
- Dual functions of ratio control and tension control.
- PID+FUZZY controlling mode.
- Available for any part of the product procedure.
- With tension detection signal, inverter output terminal.
- Accuracy within a range of (F.S.) ±2%.

尺寸 Dimension



電器特性

Electrical Characteristics



電源入力 Power supply	AC 220V±10%, 50/60 Hz
譯碼器回授 Encoder feedback	供應電壓 Power supply DC 12V, 100mA 信號入力 Signal input 相位差 Phase: 90°±30° 營運速度 Frequency speed over 30K CPS
Load Cell Amp 入力 Load Cell Amp input	輸入阻抗 Input impedance 100K Ω 輸入電壓 Input voltage 0~10V DC 可調比例 Available ratio range ±50% / 10 Bit
D/A 徒速指令輸出 D/A speed command output	輸出阻抗 Output impedance 100K Ω 輸出電壓 Output voltage 0~10V DC 解析度 Resolution 12 Bit
其他輸入 Other output	NPN輸出，光耦合隔離 NPN Optically-coupled isolated
RELAY 輸出 Relay input	250V, 1A
工作溫度 Operating temperature range	0°~50°C
貯存溫度 Storage temperature range	-10°~70°C
濕 度 Humidity	< RH 85%
重 量 Weight	1Kg max.

TC-606

外徑演算補償式
張力控制系統

說明:

生產線上被加工材質張力之需求，而發展出高性能之開迴路張力控制組件，可自動演算外徑以調整扭力及剎車力。

特點:

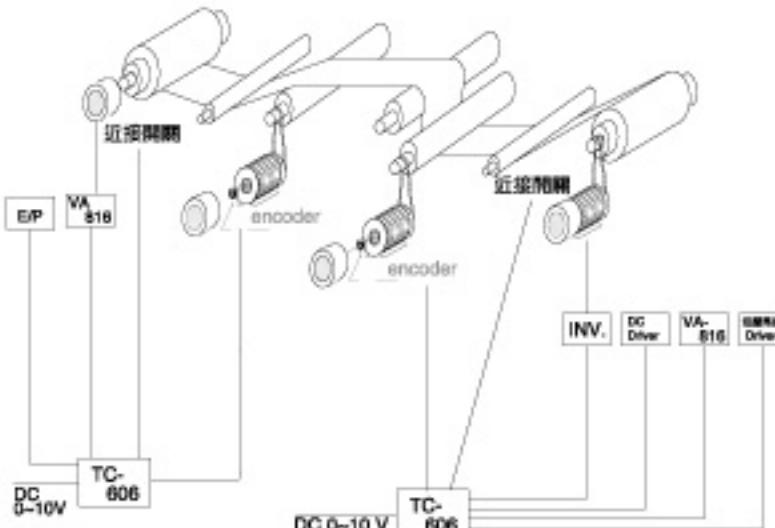
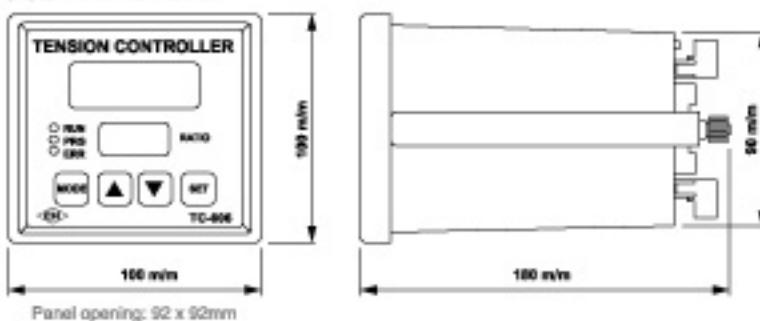
- 高精度，高可靠性價格合理。
- 人性化設計，易操作。
- 張力值以百分比設定。
- 停機張力打折功能，可克服停機慣量過大問題。
- 內藏多組獨立電源，抗干擾性特佳。
- 純數位化設計，特性不變。
- 外徑與張力設定值雙顯示功能。
- 可設定張力漸減功能。

**Illustration:**

TC-606 is a high accuracy tension controller designed for the need of stable tension of the material. Auto modification of the power of brake or torque.

Features:

- High accuracy, more reliable and reasonable price.
- Human design, easy operation.
- Tension value indicated by percentage.
- Digital function, stability.
- Double-indicated displays showed diameter and tension value.
- Compiled with many independent power supply, the input signal protected by photo couple, high anti-interference.
- Tension reducing orderly function avoiding tension overload.

尺寸 Dimension**電器特性****Electrical Characteristics**

電源入力 Power supply	AC 220V±10% 50/60Hz
消耗電力 Consumption	under 15W
編碼器頻率 Encoder frequency	5K CPS NPN or Push-pull Optically-coupled isolated cable
近接頻率 Switch frequency	30 CPS NPN Optically-coupled isolated cable
類比張力輸出 Analog tension output	DC 0~10V
類比訊號輸出 Analog signal output	DC 0~10V
工作溫度 Operating temperature range	0 ~ +60°C
儲存溫度 Storage temperature range	-20 ~ +70°C
濕度範圍 Humidity	0 ~ 95%RH
重量 Weight	1 KG max.

DRC-607

極高精密度智慧型
動力收/放料
微張力控制系統

說明：

適用於需以動力作高速微張力捲取/放料及自動換軸、分條複捲功能之高精度控制器。

特點：

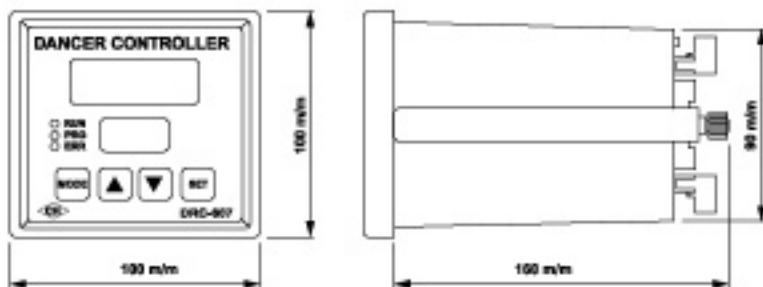
- 純數位控制，標準規格。
- 線徑可小於0.05mm。
- 薄膜最小可做0.01mm厚度。
- 可做薄膜70mm寬分條複捲。
- 具RS485通訊介面。
- 自動換軸時，切斷率100%。
- 捲徑比最高可達1:10(建議1:6)。
- 具有外徑演算，補償功能。
- 穩定性高、變位檢出行程變化量小。

Illustration:

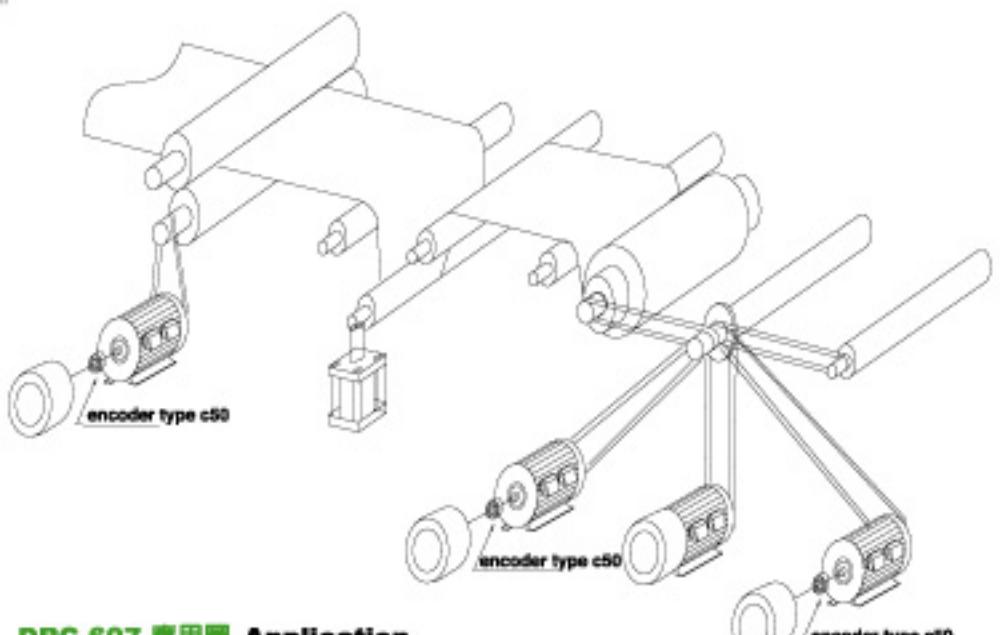
DRC-607 was specifically developed for clients who process materials that are either made of thin film, non-woven cloth, paper, or ultra fine fiber, etc. to match with the requirements of high speed and huge difference of rollers' diameter, re-roll after strip, and roller auto-change.

Features:

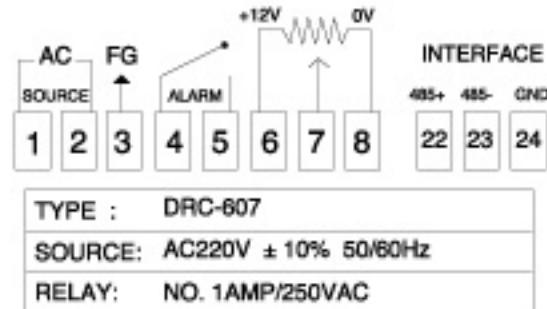
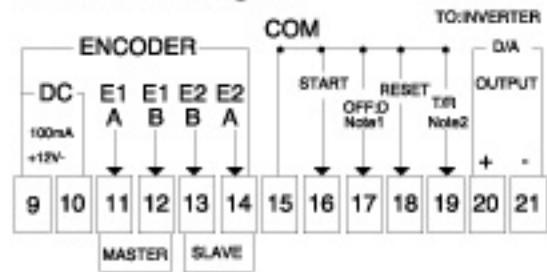
- Pure digital control, standard specification.
- The diameter of the thread can be lower than 0.05 mm.
- Membrane with the lowest thickness of 0.01 mm.
- Auto switching poles, with 100% cutting off ratio.
- The ratio of rolling diameter with the highest of 1:10 (recommended 1:6).
- Auto circumference calculation, compensative function
- Fast potential detection.

尺寸 Dimension

Panel opening: 92 x 92mm



DRC-607 應用 Application

**接線圖****Connection Diagram**

TC-608 回授式 張力控制系統

說明：

依據生產線上操作人員設定捲取或放料所需張力值，由荷重元量測實際張力值後，透過驅動介面以改變剎車力或捲取扭力的大小，自動達成實際張力與設定張力相同之控制系統。

特點：

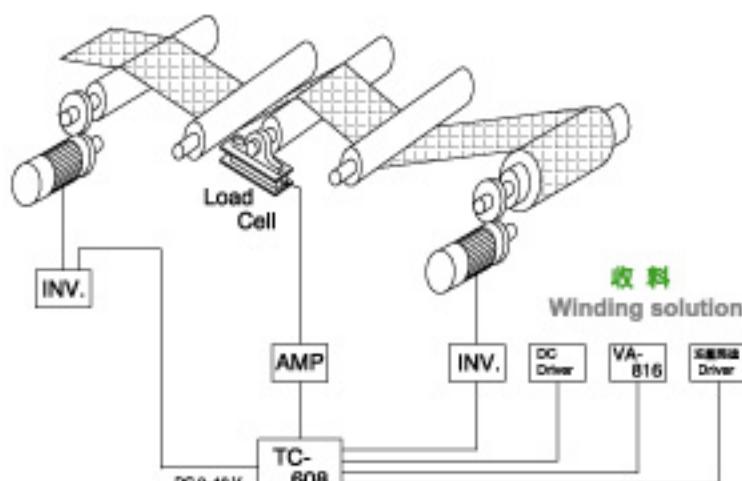
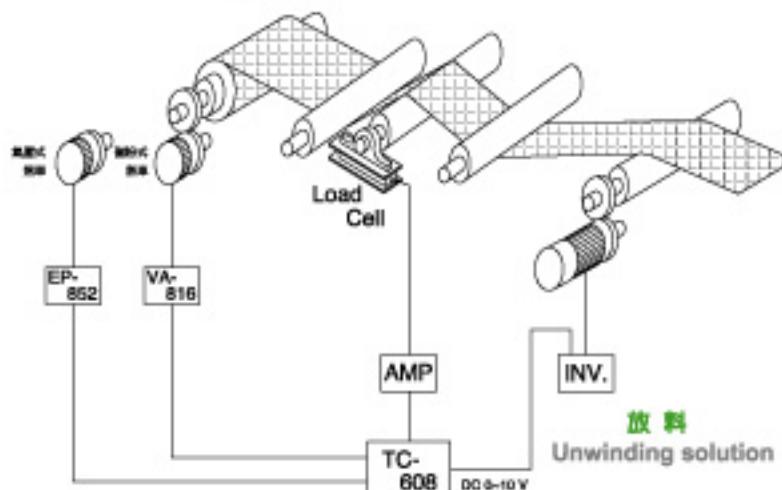
- 高精度，高可靠性，價格合理。
- 人性化設計，易操作。
- 張力值可以選擇單位為：kg / N / LB.
- 內藏多組獨立電源，抗干擾性特佳。
- 停機張力打折功能，可克服停機慣量過大問題。
- 純數位化設計，特性不變。
- 張力設定值、張力實際值雙顯示功能。

**Illustration:**

TC-608 is a high accuracy tension controller. The working principle of this controller is based on the comparative calculation between the required value and the actual value of tension, then the controller will automatically command to modify the brake power or roll-up torque to match the actual tension value with the required one.

Features:

- High accuracy and reliability with reasonable price.
- Intelligent design with easy operation.
- Changeover units of tensile value: kg / N / LB.
- Function of fall short of tension to overcome the problem with excessive tension as machine stops suddenly.
- Digital design.
- Dual displays for the required and the actual value of tension.
- Multi separate power sources built inside, with signals input isolated by photo coupling in order to get the best anti-interfering effect.
- Function of setting the tension decreasing gradually.
- Function of memory as power failure.

TC-608 應用 ■ Application**電器特性****Electrical Characteristics**

電源入力 Power supply	AC 220V±10% 50/60Hz
消耗功率 Consumption	15W max.
類比張力輸入 Analog tension input	A/D 14Bit
主速輸入 Main speed input	A/D 8Bit
控制輸出 Control terminal output	D/A 12Bit
警告輸出 x 2 Alarm output	Relay, 250VAC, 1A
工作溫度 Operating temperature range	0°~60°C
儲存溫度 Storage temperature range	-20 ~ 70°C
濕度範圍 Humidity	0 ~ 95%RH
重量 Weight	1 KG max.

TC-608H 回授式（通訊型） 張力控制系統

說明：

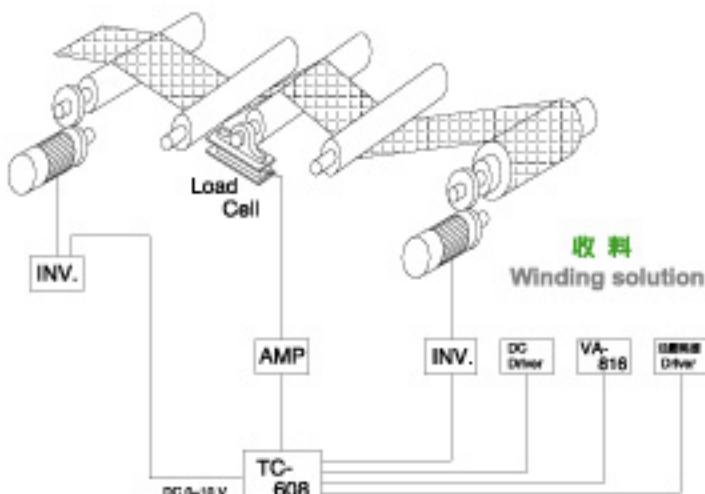
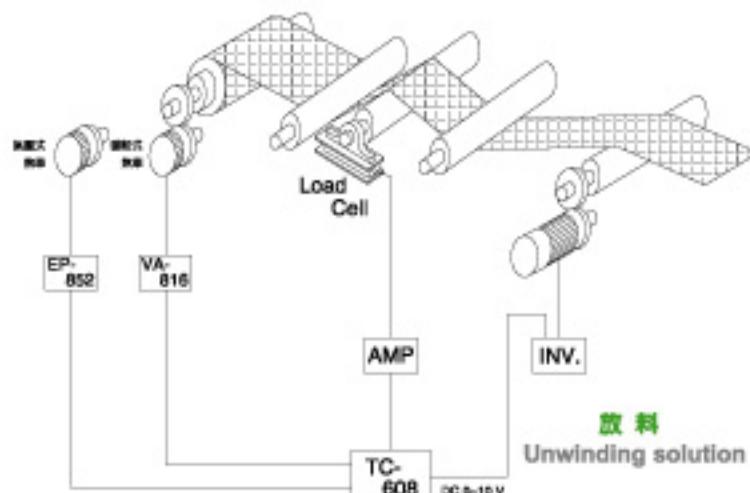
本控制器是依據生產線上使用條件之設定捲取或放料以及物料生產所需的張力值，608H會依設定以及LOAD CELL所傳回的感測值作比較計算後，修正輸出指令，以改變剎車力或捲取扭力的大小，自動達成實際張力和設定需求張力相同的高精度張力控制系統。

特點：

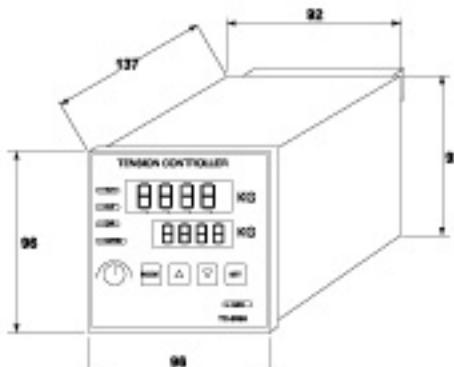
- 高精度，高可靠性。
- 數位化設計，特性不變。
- 人性化設計，易操作。
- 張力設定值、張力實際值輸出指令多功能顯示。
- 有外部輔助張力漸減功能。
- 參數停電記憶功能。
- 啓動增益功能，可補償啓動機械靜摩擦力。
- 停機張力打折功能，可克服停機慣量過大問題。
- RS-485通訊介面，可與PLC以及PC通訊。

Illustration:

TC-608H is designed for the requirement of the tension of producing process by load cell to inspect the actual value compared with the setting, then 608 change the power of the brake or torque to achieve auto-modifys.

TC-608H 應用圖 Application**Features:**

- High precision and reliable quality.
- Easy operation, human design.
- Setting and actual value displays.
- External auxiliary tension trim methods.
- Memorized function.
- Soft-end feature prevents tension overload problem when stop.
- RS-485 interface, compatible with PLC and PC.

尺寸 Dimension

Size: 86(L) x 96(W) x 137(H)
Panel opening: 92 x 92mm

**電器特性
Electrical Characteristics**

電源入力 Power supply	AC 220V±10% 50/60Hz
消耗功率 Consumption	< 15W
類比張力輸入 Analog tension input	A/D 14Bit
主速輸入 Main speed input	A/D 8Bit
控制輸出 Control terminal output	D/A 12Bit
警報輸出 Alarm output	Relay, 250VAC, 1A
工作溫度 Operating temperature range	0°~60°C
儲存溫度 Storage temperature range	-20 ~ 70°C
濕度範圍 Humidity	0 ~ 95%RH
重量 Weight	1 KG max.

TC-6068

極高精度智慧型
數位式
張力控制系統

說明：

TC-6068—綜合功能之數位式張力控制系統，內含PID張力控制、外徑演算、主速偏壓、張力漸減、介面傳輸等功能。

特點：

- 功能超強，技術支撐高。
- 內部可設定直線或COS θ 方式張力漸減功能。
- 簡化參數功能，容易設定各項參數。
- 人性化設計、使用者容易操作。
- 採用已知可靠科技、設計製作。
- 適應產品齊全，方便選用。
- 兩組類比輸出DC0-10V，可同時做速度與張力控制。
- MODBUS RTU模式介面。
- 在零速時，張力不演算執行修正。

Illustration:

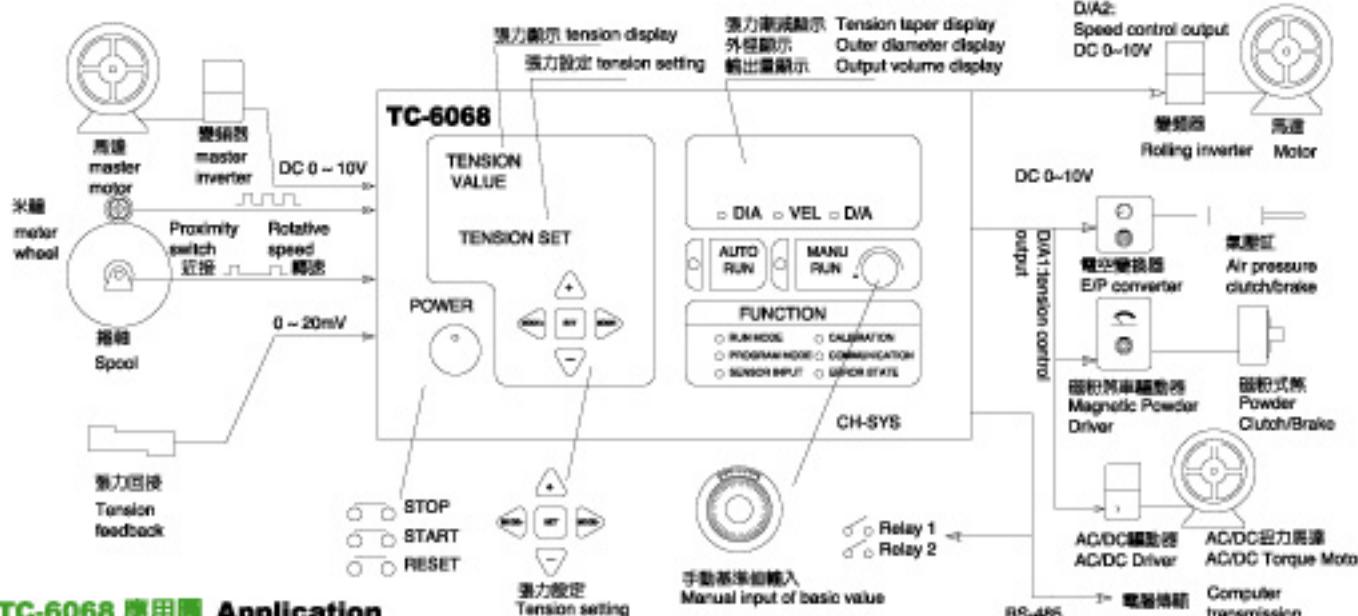
TC-6068 is a digital tension controller of full function including PID, diameter calculation, main speed modification, tension reducing orderly, interface transfer functions.

Features:

- Easy-to-input COS θ curve tension decrease.
- Tension feedback control stops performing mathematical calculations at shutdown.
- Speed control varies in response to changes to master's speed and outer diameter. Thus eliminates shifts at low speed during winding, making the whole process more secure.
- Possessing unique start-up, acceleration/deceleration, emergency stop, and compensation functions.
- Its unique manual/automatic control mode shifting function prevents vibrations from occurring.
- Structural gross weight deduction and tension correction are digitally entered for ease of use.
- Possessing RS-485, MODBUS-RTU transmission interface.
- Command-type contact point output makes it possible for users to tailor the settings to their own requirements.
- Powerful features, easy to use, and cost-effective.
- Password protected with fixed numbers avoids confusion.

**電器特性****Electrical Characteristics**

電源電壓 Power supply	AC 220V±10% 50/60Hz	
消耗功率 Consumption	Under 100W	
編碼器近接開關電源供應 Encoder / Limit switch power supply	DC 12 VDC±5% 100mA	
編碼器輸入 Encoder input	A or A/B phase (difference 90°) NPN input optically coupled isolated.NPN 輸入光耦合隔離	Resonance frequency 10K Hz
近接輸入、 Limit input	NPN input optically coupled isolated.NPN 輸入光耦合隔離	Resonance speed 50Hz/Sec
控制接點輸入 Control contact input	NPN input optically coupled isolated. NPN 輸入光耦合隔離	
張力檢出EX電源供應 Tension detect EX power supply	DC 10V±0.5VDC 80mA	
張力檢出繼訊號輸入 Tension detect signal input	0-30mVDC	Specifications: 5.10.20.30.50. 100.250.450KG
A/D輸入解析 A/D Input analysis	Tension Input: 12 Bit A/D Master Speed Input: 10 Bit A/D	DC: 0~10V DC: 0~10V
D/A輸出解析 D/A Output analysis	Tension output: D/A12 Bit Master speed output: D/A10Bit	
繼電器輸出 R1, R2 Relay output	A contact 250V AC 1A	
齒粉煞車離合器控制電流 Magnetic powder brake or clutch control current	1.3A-3.0A (DC 24V)	Embedded magnetic powder driver is optional



FBC-812 極高精密度智慧型 動力收／放控制系統

說明：

FBC-812為本公司專為動力收／放料需求開發出的控制器，工作時，從變位檢出器迴授位置訊號，進入FBC-812經由內部超高速16位元RSC的演算來控制收放料馬達速度，達成高精度的收／放料控制。

特點：

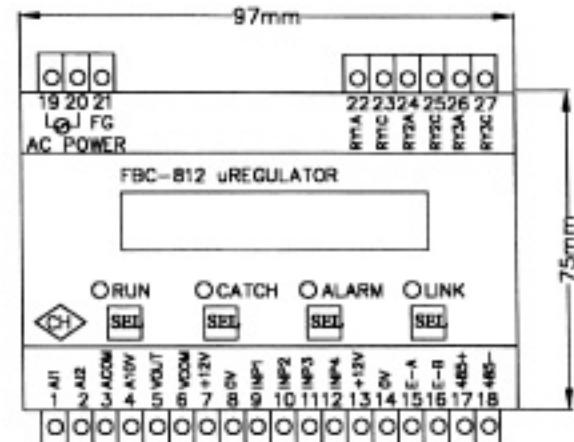
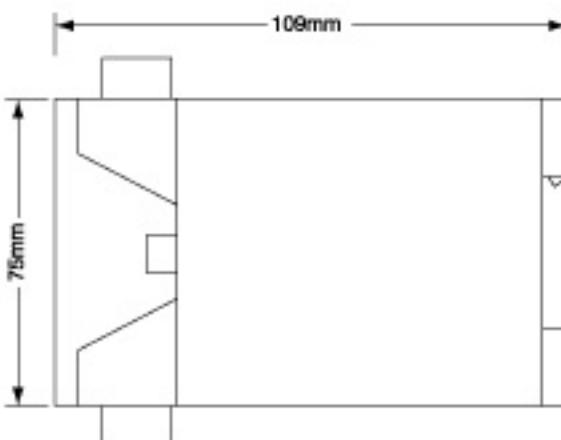
- RB-C1採用最新RISC架構，並融入工業通訊技術，適用於各式新一代控制需求。
- 全數位式架構，類比輸入配置12位元高速ADC轉換器，類比輸出為12位元高速DAC。
- 一組頻率輸入接點，可指定AB相ENCODER或單相輸入，頻率轉換時間可任意指定，AB相為4倍頻處理。
- 計算方式、設定值來源、基準值(主速)來源、回授來源、RELAY輸出方式、接點輸入方式，均可任意由參數設定。
- 通訊採用RS-485介面 MODBUS RTU 協定，可由通訊啓動、修正、指定輸出、讀取等全功能操作。

Illustration:

FBC-812 adopts speed tracking to monitor speed change during the whole course, which is different from other speed control by PG feedback. Using several FBC-812 with same speed command and accelerate or decelerate at the same time, no matter which FBC-812 alters its load. From operation to stop, you can get a consistent alteration on speed, even angle. This feature is very important for consequent start under multi-motors.

Features:

- RB-C1 adopts the newest 16-bit RISC construction with industrial communication technology, which can meet with the various controlling requirements in new generation.
- Digital structure, analogic input with 12-bit high speed ADC converter, analogic output with 12-bit high speed ADC.
- A group of contacts for frequency input. The input of AB channel or single channel and shift period of frequency can be assigned. AB channel is for 4-time treatment.
- Calculating method, origin of setting value, origin of base value (main speed), origin of feedback and RELAY output mode can be set by parameter as wish.
- Adopt RS-485 interface for communication under the agreement of MODBUS RTU, having full functional operation of start, modification, output assignation and read by communication.

接線圖**Connection Diagram****尺寸 Dimension****電器特性****Electrical Characteristics**

外框尺寸 External dimensions	97(W)x75(H)x109(D) mm
電源 <input type="checkbox"/> Power supply	AC 220V±15%
消耗功率 Consumption	30W max.
類比輸入 Analog input	-10V~+10V of 12-bit ADC, Sampling speed from 0.01 to 2.25 sec.
類比輸出 Analog output	-10V~+10V of 12-bit DAC
頻率輸入 Frequency	AB channel 90°, 6K Hz, interior 4-time treatment. Single channel, 10K Hz, NPN or PUSH-PULL
接點輸入 Contacts input	Dry contact or crystal (Low Active)
接點輸出 Contacts output	Relay contact A, 5A 250VAC/30VDC
運算方式 Calculating method	P, PI, PID, PD, I, ID and open loop
工作溫度 Operating temperature	0°~60°C
濕度範圍 Humidity	under 90%RH

VA-816 磁粉煞車控制系統

說明：

磁粉式煞車／離合器的控制是利用一穩定電流，通過煞車／離合器中的電磁粉系統，當磁線圈被激發，由於電流增強而使磁力增大和使磁粉被吸引，如此在連續的轉動中，轉矩可連續的傳遞。因此，利用一穩定的電流量即可精確地控制煞車／離合器，以驅動或中止捲軸動作，來達到控制張力的需求。

VA-816系列控制器，加強了溫度及敏感度的處理，透過電路的修正，使得磁粉式煞車／離合器在轉矩控制及輸出上都有優異的表現。另外除了VA-816系列控制器的造形美觀，加上特級的抗靜電塗漆，更為本體防護性加分不少。

特點：

- 1.3A~6A輸出，規格齊全。
- 高線性度，低零點飄移，輸出穩定。
- 具自我迴授修正功能。
- 金屬防干擾外殼，造形美觀。
- 適用於控制各型磁粉式煞車／離合器。

Illustration:

The control of Magnetic Powder Brake/Clutch applies stable electricity to the magnetic coil in Brake/Clutch. When electricity passes through the magnetic coil, it will engender magnetic force to gather magnetic powder for transmitting torque. Under continual movement, torque will be transmitted accordingly. By controlling the flow of electric current, Brake/Clutch is controlled accurately to move or to stop the rolling process, in order to get the required tension control.

The design of Controller VA 816 series is based on direct ratio relationship between electricity and magnetic field. Furthermore, we have improved the treatment of temperature and sensitivity, after the adjustment of electrical circuit, Magnetic Brake/Clutch can get excellent performance at torque control and output.

Features:

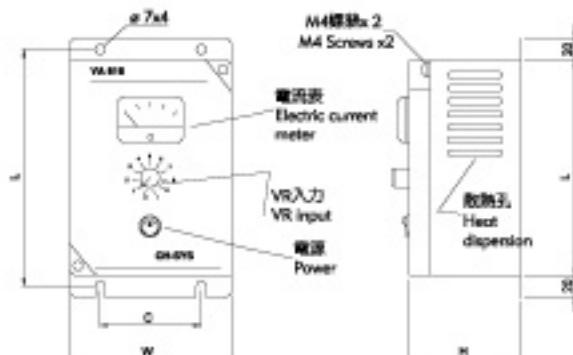
- Output range: 1.3A~6A, full style.
- Auto feedback modification
- Precision, lower zero-draft, stability output.
- High anti-interference casing.
- Compatible with various powder clutch or brake.

訂購編號 Ordering Code

Model	Electricity output	Recommended model and patterned torque of Mitsubishi Magnetic Powder Brake (Clutch)
VA 816-1300	DC 0~1.3A	ZKG-5~100(Model: ZN及YN); 0.5~10Nm(5~10Kgfm) ZX-0.3~1.2YN; 3~12Nm(0.3~1.2Kgfm) ZKB-0.06~2.5(Model: AN,BN,XN,HBN,YN及WN); 0.6~25Nm(0.06~2.5Kgfm)
VA 816-3000	DC 0~3.0A	ZKB-5~20 (Model: BN,XN,HBN及WN); 50~200Nm(5~20Kgfm) ZKB-5(Model: HC,CM及B-909); 50Nm(5Kgfm) ZA-20~40Y;200~400Nm(20~40Kgfm)
VA 816-4500	DC 0~4.5A	ZKB-40 (Model: BN,XN,HBN及WN);400Nm(40Kgfm) ZKB-10~20 (Model: HC,CM及B-909); 100~200Nm(10~20Kgfm)
VA 816-6000	DC 0~6.0A	ZKB-40 (Model: CM及B-909);400Nm(40Kgfm)

**尺寸 Dimension / unit:mm**

MODEL	L	W	H	C
VA 816-1300	200	130	95	65
VA 816-3000/4500/6000	250	145	130	80

**電器特性****Electrical Characteristics**

項目 ITEM	VA-816 1300	VA-816 3000/4500/6000
電源入力 Power supply	AC 220V±10% 50/60Hz	
線性精度 Accuracy	±0.15% FS	
溫度範圍 Temperature range	-40°C~85°C	
濕度範圍 Humidity	0~100% RH	
貯存溫度 Storage temperature range	-55°C~125°C	
輸出形式 Output type	Fixed current	
反應時間 Response time	0.2 sec.	
輸入方式 Input type	DC 0~10V DC 4~20mA, 0~5V	

A/A-866

對應式 張力壓力控制系統

接受輸入信號：

- 超音波外徑偵測器
- DC AC轉速發電機變頻之輸出指令
- 變位檢出器等

輸出控制：

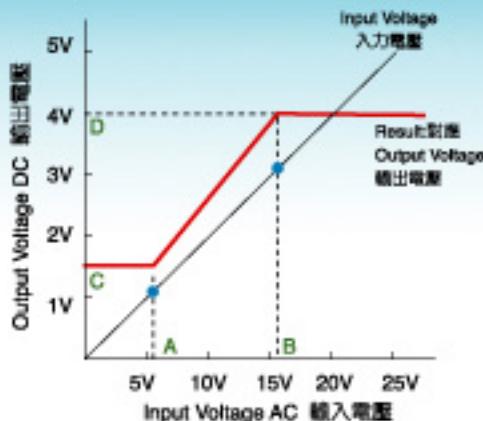
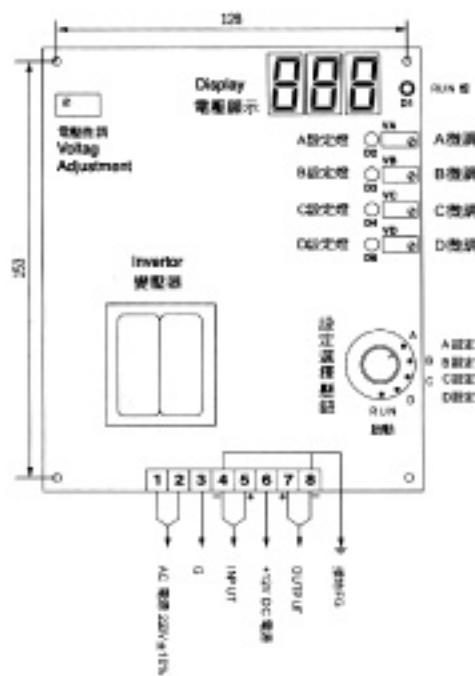
- E/P電空變換器、
- 磁粉煞車離合器
- 0~10V DC輸入之DC轉速馬達

**Available Input Signal:**

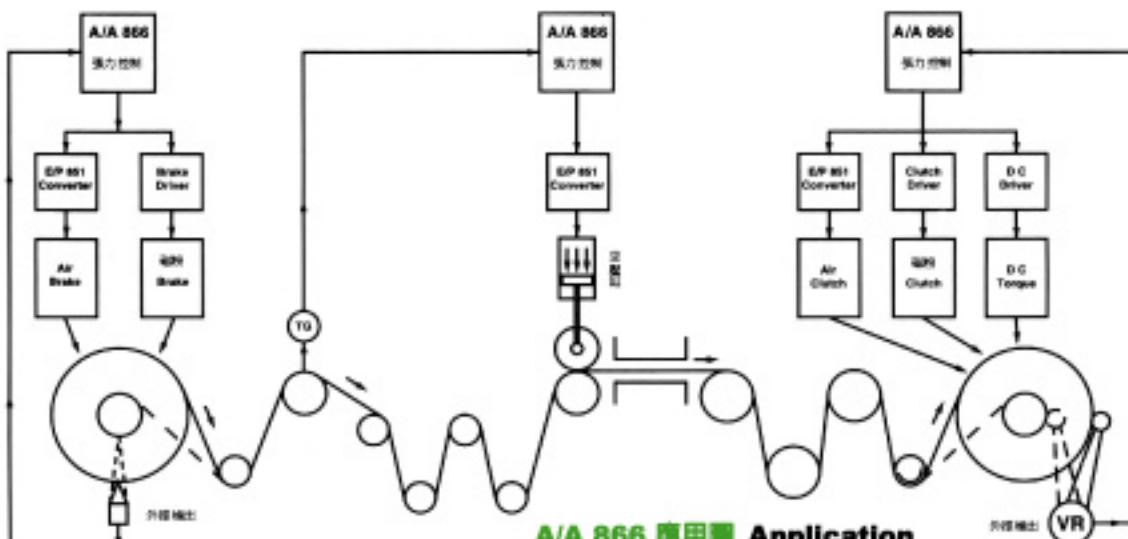
- Ultrasonic diameter inspector.
- Output command of DC AC generator.
- Position detector, ect.

Control Unit Suggestion:

- E/P converter.
- Power clutch or brake.
- DC motor with 0~10V DC input.

尺寸 Dimension / unit:mm**電器特性****Electrical Characteristics**

電源入力 Power supply	AC 220V±10% 50/60Hz
消耗電力 Consumption	under 7W
輸入信號 Input signal	DC 0~10V, 0~5V, 4~20mA, 0~20mA, 0~35V AC
輸出阻抗 Output resistance	20K Ω
輸出信號 Output signal	DC 0~10V or DC 0~5V (Option)
輸出阻抗 Output resistance	50K Ω
線性精度 Accuracy	±0.5%
濕度範圍 Humidity	under 85%

**A/A 866 應用 ■ Application**

電空變換器系列 E/P Converter

用 途：
空壓張力放料、收料控制系統、壓輪壓力控制…等。

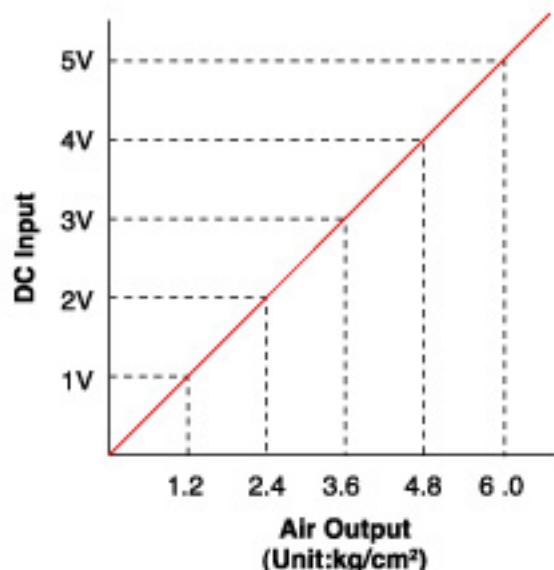
特 點：
藉由電氣信號輸入轉換成空壓 $0\sim 6 \text{ kg/cm}^2$ 輸出

Features:
Transfer electric signal input to air pressure output $0\sim 6 \text{ kg/cm}^2$

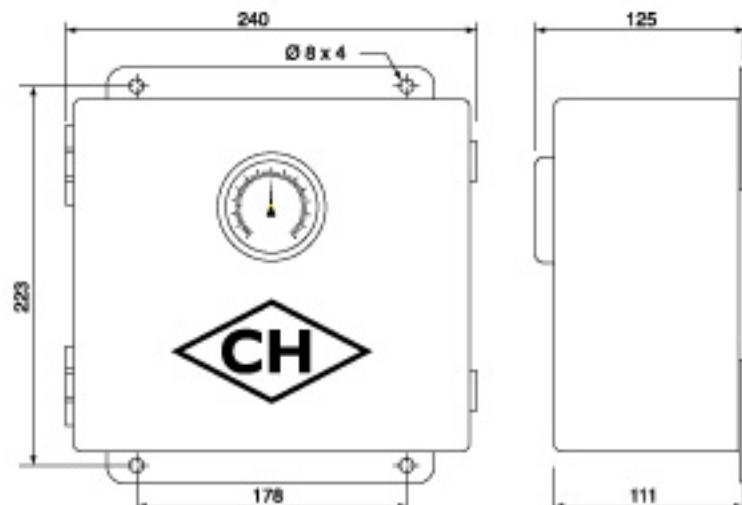


訂購編號 Ordering Code

Model	DC Input	Input Impedance	Air output
EP-851	0~5 V	100 KΩ	$0\sim 6 \text{ kg/cm}^2$
EP-852	0~10 V	100 KΩ	$0\sim 6 \text{ kg/cm}^2$
EP-853	0~20 mA	250 KΩ	$0\sim 6 \text{ kg/cm}^2$
EP-854	0~100 mA	51 KΩ	$0\sim 6 \text{ kg/cm}^2$
EP-855	4~20 mA	250 KΩ	$0\sim 6 \text{ kg/cm}^2$



外部尺寸 Dimension



電器特性 Electrical Characteristics

電源 <input type="checkbox"/> Power supply	AC 220V±10% 50/60Hz
輸入信號 <input type="checkbox"/> Input signal	DC Voltage or electric current input
線性精度 <input type="checkbox"/> Accuracy	±1.5%
敏感度調整 <input type="checkbox"/> Sensitivity adjustment	0.01~0.1 kg/cm^2
密閉性 <input type="checkbox"/> Protection	IP43
空氣 <input type="checkbox"/> Air input	$6\sim 8 \text{ kg/cm}^2$ clean air
重 量 <input type="checkbox"/> Weight	4.2 kg
輸出入接頭 <input type="checkbox"/> Connector	1/4" Soft tube

Page reserved
for
a new product

GC-502

極高精密度智慧型 塗佈控制系統

用途：

本系統專為膠帶、合成皮等相關業界開發之塗佈上膠數位控制系統。

系統組成：

- 間隙偵測元件
- 信號處理電路
- 微電腦晶片主控電路
- 面板及顯示電路
- 分割單位：0.001mm
- 控制範圍：2.5mm、6mm

特點：

- 絶對值特性偵測轉數位控制
- 感測範圍內可任意設定零點
- 附上、下極限輸出
- 具延遲輸出功能
- 超高精度、合理價位
- 數位式斜率調整



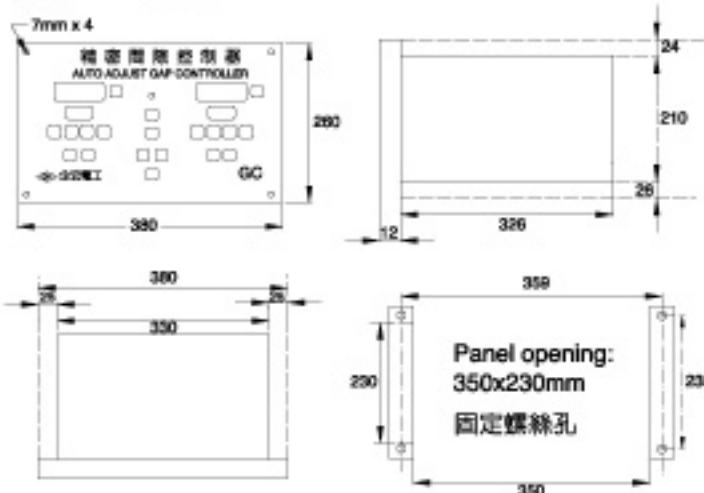
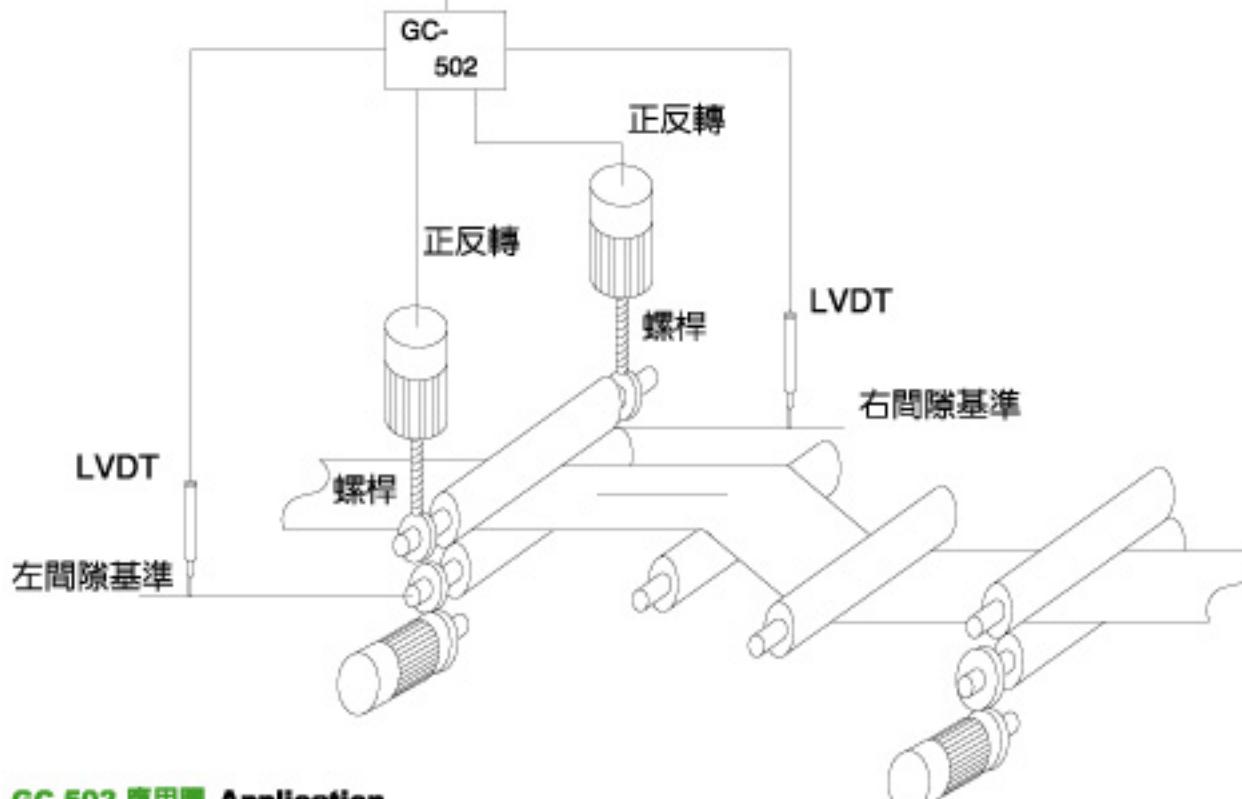
This is a digital controlling system for gluing developed for producer of adhesive tape, artificial leather and other related industries.

System Consists of :

- LVDT
- Signal Processing Circuit.
- Microchip Master Circuit.
- Panel and Display Circuit.
- Resolution: 0.001mm.
- Controlling range: 2.5mm, 6mm.

Characteristics:

- Absolute value detection turns into digital control.
- ZERO can be set at any point within measuring range.
- With upper and lower output limit.
- With hysteresis output feature.
- Hyper precision with extra low price.
- Digital slope adjustment.

尺寸 Dimension**左右間隙設定****GC-502 應用圖 Application**

MSC-402 主速控制器

工作原理：

- 用 +、-、0 接點信號，經由D/A轉換成主速馬達控速的電壓控速指令。

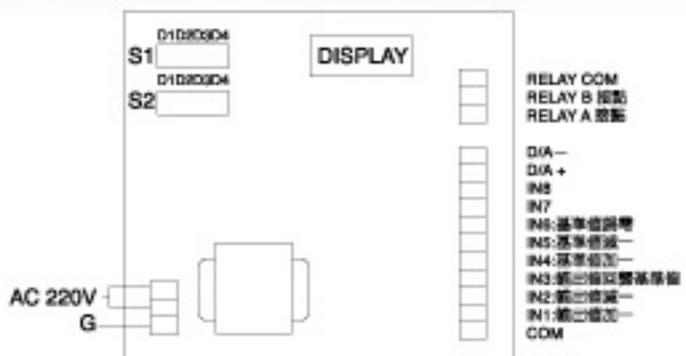


Operating principle:

- Transfer the signals (+, -, 0 V) to be the command of controlling speed of the main motor.

接腳圖

Connection Diagram



指撥開說明：Switch operating

S1	D1	D2	0→10.00 VDC 時間 所需時間
	OFF	OFF	10 sec
	ON	OFF	20 sec
	OFF	ON	40 sec
	ON	ON	80 sec

接線加／減速時間

Acceleration / Deceleration time

S1 D3 OFF	基準值開放	Standard value set open
ON	基準值鎖定	Standard value set close
S1 D4 OFF	按加／減速時，輸出電壓 停頓0.5秒後動作	Output voltage operating after 0.5 sec
ON	按加／減速時，輸出電壓 即時動作	Output voltage operating immediately

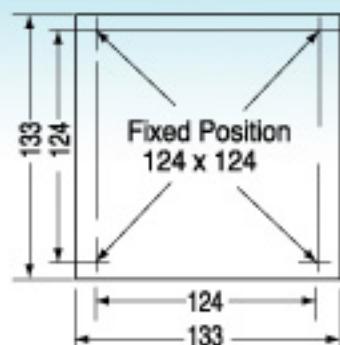
S2	D1	D2	Relay voltage 動作電壓
	OFF	OFF	0 V
	ON	OFF	0.2 V
	OFF	ON	0.4 V
	ON	ON	0.8 V

S2 D3 OFF 10位元模式 10 digital model
每按一次加／減速輸出電壓變化
(1/4096) x 10VDC
ON 8位元模式 8 digital model
每按一次加／減速輸出電壓變化
(1/256) x 10VDC

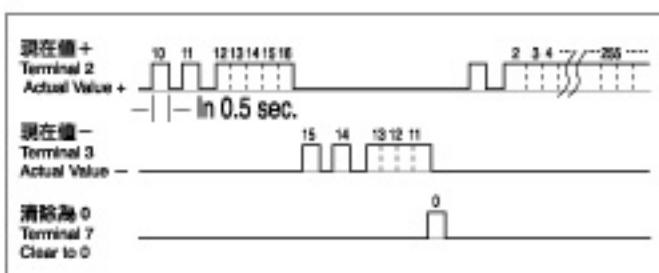
S2 D4 OFF 停電有記憶功能 Memorized when stop
ON 停電無記憶功能 Non-Memorized when stop

*每改變一次模式，需重新選電。
Please reset after you modify above setting.

尺寸 Dimension / unit:mm



主選設定動作 Operating Diagram



註：數字顯示為控制波段，最高255、最低0。
每次on超過0.5秒時，每0.1秒自動升階或降階一次。
Number above means different phrase, max 255 sec, min 0 sec.
Operating over 0.5 sec., auto-modify one time, up or down.

電器特性

Electrical Characteristics

電源輸入 Power supply	AC 220V±10%, 50/60 Hz
消耗功率 Consumption	< 2W
信號輸入 Signal input	光耦合隔離 Optically-coupled isolated
D/A 從速指令輸出 D/A output	輸出阻抗 Output impedance 1K Ω
	輸出電壓 Output voltage 0~5V or 0~10V DC
	解析度 Resolution 8 Bit
工作溫度 Operating temperature range	0°~50°C
貯存溫度 Storage temperature range	-10°~70°C
濕度 Humidity	< RH 85%
重量 Weight	0.5 Kg

RSC-406 極高精度智慧型比例同步控制器

用途：

造纸、纺织、瓦楞纸、定型机、压出机后段、塑膠、合成皮、电线等机械之联动控制。

特点：

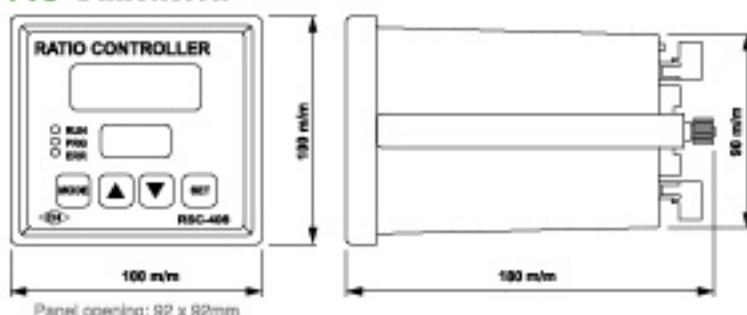
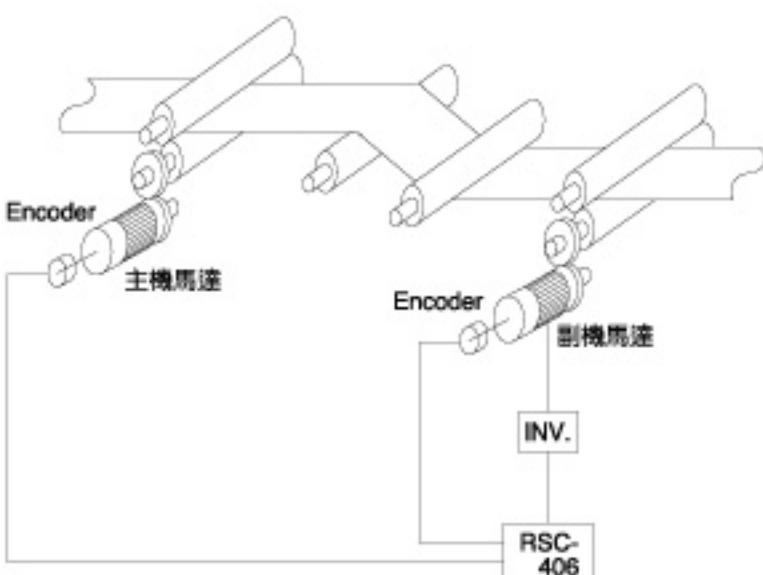
- 纯数字AB相信号反馈，抗干扰性特佳。
- 具速度、位置追踪功能。
- 内有测试程序，可显示相对误差。
- 简化PID程式，操作方便。
- 具比例设定，速率之双显示功能。
- 具电子齿轮比及速度值修正功能。
- 可用旋钮调整比例。
- 具有故障检测功能并附输出。
- 设计有电子差速器功能。
- 可外接变位检测器，自动调整比例。

**Usage:**

Papermaking, textile, corrugated paper, molding machines, plastic, synthetic leather and wiring etc. with machinery linkage movement control.

Features:

- Digital AB phase signal feedback, high anti-interference.
- Speed and position tracking functions.
- Providing testing program, capable of displaying relative errors.
- PID program-easily and conveniently operated.
- Ratio setting/speed dual display function.
- The ratio and speed of electronic gear revising function.
- Ratio adjustment by the V.R.
- Breakdown detection function, as well as output.
- Electronic speed adjustment function within a range of $\pm 10\%$.
- Capable of connecting to a potential meter, auto ratio adjustment.

尺寸 Dimension**電器特性****Electrical Characteristics**

電源输入 Power Supply	AC 220V±10%, 50/60 Hz
譜碼器回授 Encoder Feedback	供應電壓 Power supply DC 12V, 100mA 信號輸入 Signal input 相位差 Phase: $90^\circ \pm 45^\circ$ 響應速度 Frequency speed over 10K CPS
可變電阻輸入 Resistance Input	輸入阻抗 Input impedance 100K Ω 輸入電壓 Input voltage 0~10V DC 可調比例 Available ratio range $\pm 12.5\%$
D/A 從速度令輸出 D/A Speed command output	輸出阻抗 Output impedance 100K Ω 輸出電壓 Output voltage 0~10V DC 解析度 Resolution 12 Bit
其他輸入 Other Input	NPN輸出，光耦合隔離 NPN Optically-coupled isolated
RELAY 輸出 Relay output	250V, 1A
工作溫度 Operating temperature range	0°~50°C
貯存溫度 Storage temperature range	-10°~70°C
濕度 Humidity	< RH 85%
重量 Weight	1Kg max.

SC-406S 主速度控制器

用 途：

整經機，編織機捲取軸速度控制及高精度主速控制等。

特 點：

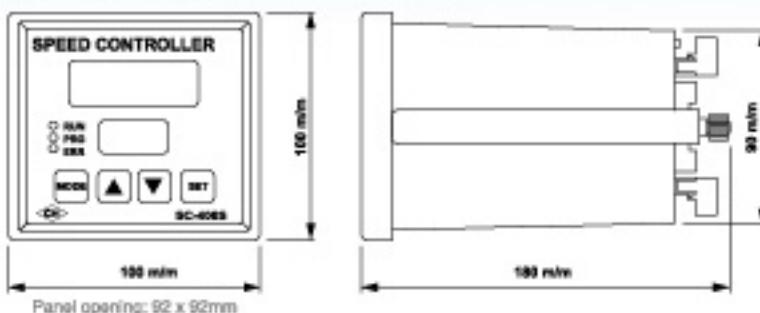
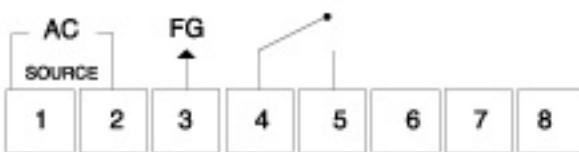
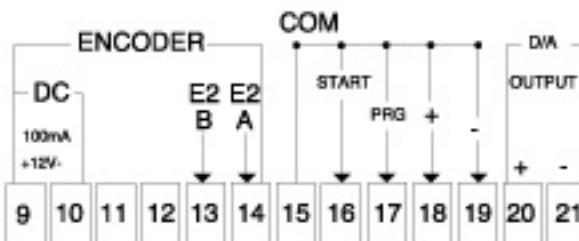
- 採用AB相諄碼器回授信號，抗干擾性強。
- 直接有加、減速接點，不用再增加主速度控制器。
- 加速與減速時間可設定。
- 具有速度設定及實際速度值之雙顯示功能。
- 具雙K值輸入參數，修正機械齒輪比及速度顯示值。
- 速度設定可選擇須不須要記憶。

**Usage:**

Warper, knitter rolling speed control and high-accuracy main speed control.

Features:

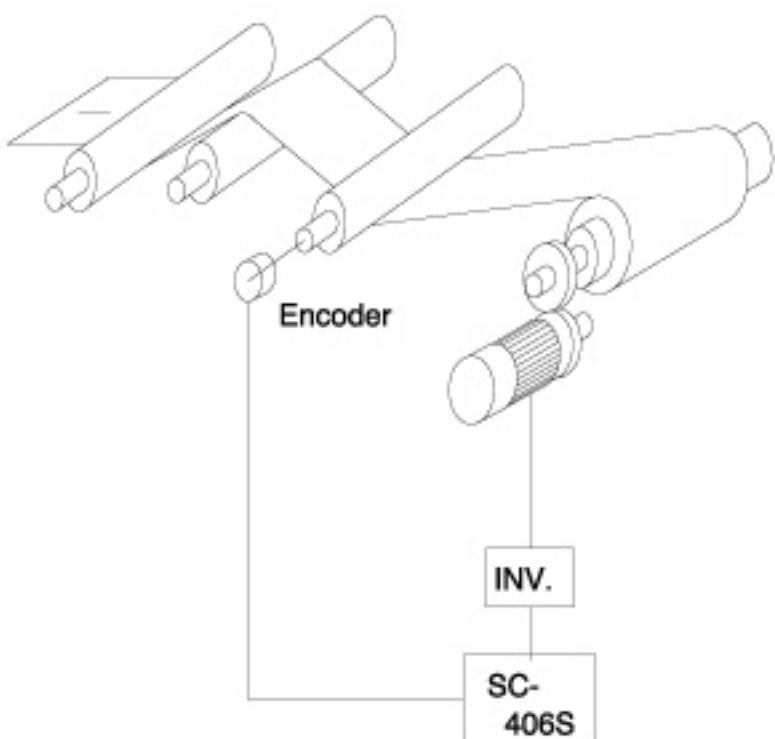
- AB phase feedback signal from encoder, higher anti-interference performance.
- Direct increasing/decreasing connection terminals, no need to add another main speed controller.
- Set and actual value of speed displayed.
- Double K input available, machine gear proportion and speed display revision.
- To save the speed setting optionally.

尺寸 Dimension**接線圖****Connection Diagram**

TYPE : RSC-406S

SOURCE: AC220V ± 10% 50/60Hz

RELAY: NO. 1AMP/250VAC



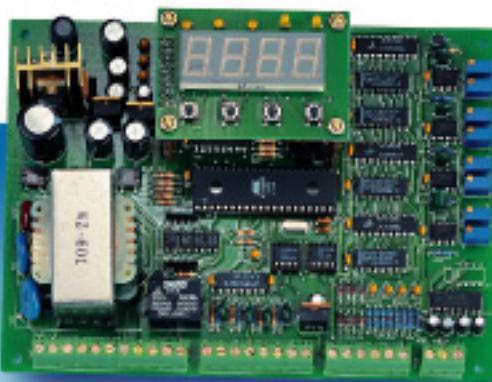
DRC-410 數位串／並聯式 比例運動控制器

用 途：

伸線機、合成皮革機、染色、膠布、造紙機械等之比例聯動控制。

特 點：

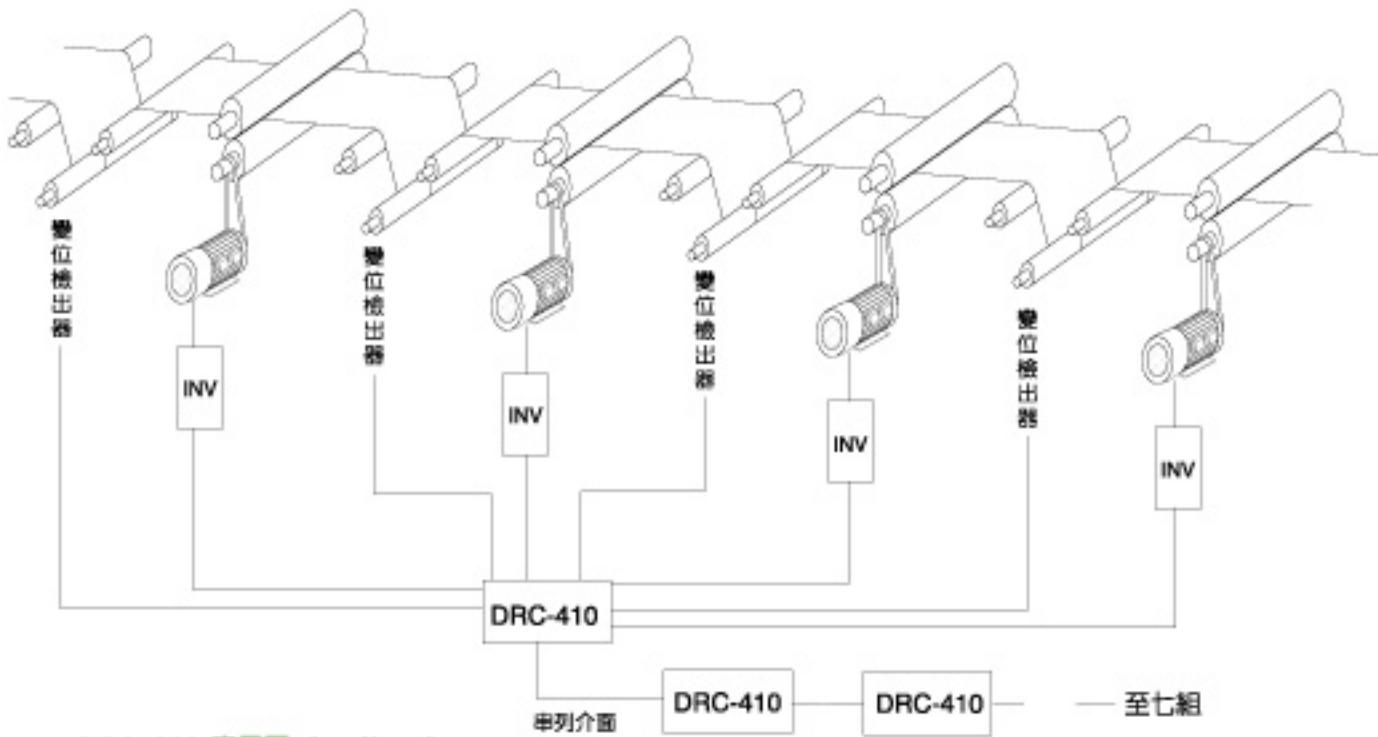
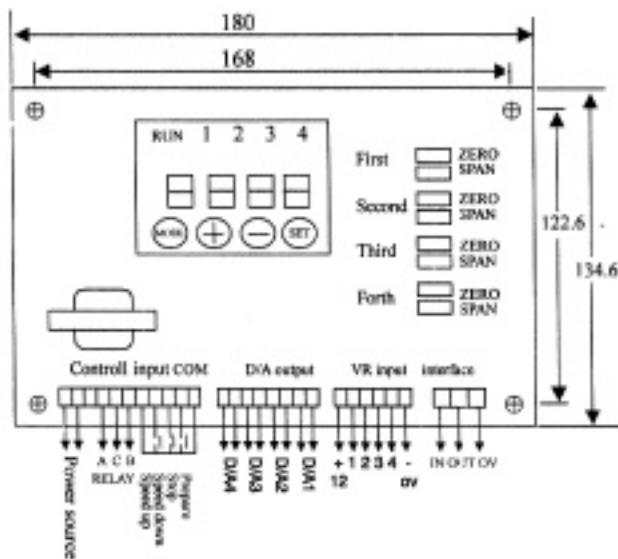
- 數位式比例設定，具有絕佳之線性度， $\leq 0.025\%$
- 每只控制器，具有四組電壓輸出及變位檢出輸入接點
- 具有串列傳輸介面，最高可達成28組馬達聯動
- 串／並聯選擇以參數設定
- 每組輸出有獨立的VR或變位檢出器輸入點，可做 $\pm 50.0\%$ 微調
- D/A輸出為12Bit，每刻度電壓為 $10V \div 4095 = 2.44mV$
- 具有零速接點輸出RELAY

**Usage:**

Synthetic leather maker, dyeing, adhesive, papermaking etc.
with ratio linkage movement machinery control.

Features:

- Digital ratio set with excellent linearity $\leq 0.025\%$.
- Each controller has 4 voltage output and variable resistor input.
- Series transmitted interface with the most of 28 sets of motor linkage movement.
- Series/parallel connection can be selected easily by inner parameter function.
- Independent variable resistor control $\pm 50\%$ in each output.
- 12 bit D/A output, each graduation of voltage is $10V/4095 = 2.44mV$.
- Zero-speed RELAY output .

接線圖**Connection Diagram / unit:mm**

DRC-415 數位／類比 主速發訊器

用 途：

伸縮機，合成皮革機，染色，膠布，造紙機械等之比例聯動控制。

特 點：

- 可選擇按鍵或VR輸入做主速發訊，具有1024段速度脈波
- A / B相訊號最高輸出頻率25.5kHz
- 信號強度高，可連接12台以上416產品
- 數位輸入，速度穩定在0.025%以下
- 具有16段加減速時間。



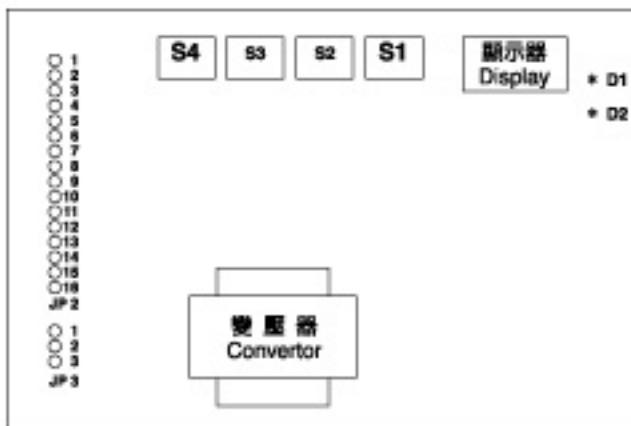
DRC-415 is specially made for 416's main speed signal sender to satisfy consumer's needs of high-accuracy linkage movement.

Features:

- By digital or VR input to set the main speed which has 1024 speed wave.
- AB phrase signal with the highest output frequency 25.5 KHz.
- Strong transmitted signal connected with 12 sets of 416 series or more.
- Digital input, stabilized speed under 0.025%.
- 16 set acceleration / deceleration setting time.

接線方式 Connection

- JP2**
1. Rely contact COM
 2. Rely contact NO
 3. Rely contact NC
 4. 輸入接點 Input contact (common)
 5. 啓動接點 Start contact
 6. 加速 Acceleration contact
 7. 減速 Deceleration contact
 8. 零速 Zero speed
 9. A / B相輸出
A and B phrase output contact (common)
 10. A 相 A phrase output
 11. B 相 B phrase output
 12. 電源 +10V power supply 100mA
 13. A / D input 10 Bit
 14. OV
 15. 類比輸出 0~10V (保留)
Analogy output 0~10V (Reserved)
 16. OV (保留) (Reserved)

尺寸 Dimension

單位 unit : mm
尺寸 size : 152.5 x 134.5
固定孔 Fixed hole : 136.5 x 119.3

- JP2**
1. AC 220V
 2. AC 200V
 3. F.G.

RSC-416【家族】比例同步控制器

用途：

造纸，纺织，瓦楞纸，定型机，压出机后段，塑胶，合成皮，电线等
机械之联动控制。

特点：

- 在任何速度下，相对比例绝对精确，可生产最高级产品。
- 比例值修正可達0.01%绝对精度。
- 试车容易，适用性高。
- 使用最可靠零件，寿命长，并通过CE认证之高标试验。
- 可把译码器A/B相讯号四分割，200P/R可解读成800P/R，增加控制精度。
- 416具备RS232专用串行界面，可连成多组马达串联。
- 具电子齒輪比，及速度值修正功能。
- 可用旋钮调整比例，可调比例量±50%。
- 设计有电子差速器±0.1~±25.6%功能。
- 可外接变位检测器，自动调整比例。

家族成员：

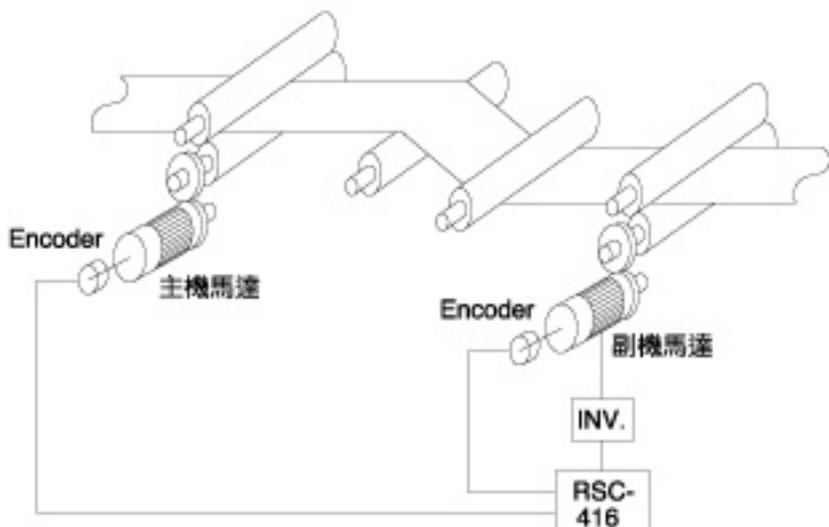
- 416A** 比例值修正可達0.01%绝对精度。
- 416H** 具RS485 MODBUS-RTU模式标准通讯界面，可与电脑、PLC、人机连接。
- 416T** 搭配Load Cell可做线上张力控制。

Usage:

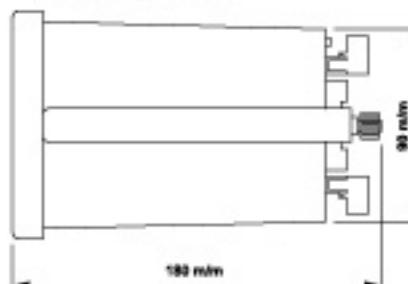
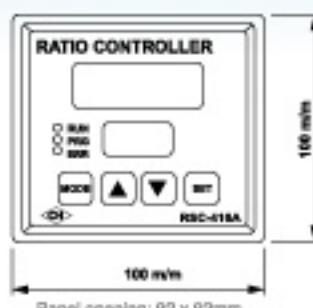
Synthetic leather maker, dyeing, adhesive, papermaking etc. with ratio linkage movement machinery control.

Features:

- Any speed, relative ratio is absolutely accurate; suitable for the machines of producing softness, weakness, easy-deformed or any special material.
- Ratio value can be revised with 0.01% absolute accuracy.
- Easy testing, applied various industry application.
- Using the most reliable spare parts, long-term life, high-pass test of CE certificate.
- Dividing A/B phase signal into quarters, 200 P/R can be decoded as 800 P/R, high accuracy performance.
- RS232 interface, capable of making multiple motors into series connection.
- Electronic gear proportion and the function of revising speed value.
- Ratio adjustment by V.R. within a range of ±50%.
- Electronic speed adjustment function within a range of ±0.1~±25.6%.
- Capable of connecting V.R., auto ratio adjustment.

**RSC-416 应用图 Application**

極高精密度智慧型

**尺寸 Dimension****電器特性****Electrical Characteristics**

電源输入 Power supply	AC 220V±10%, 50/60 Hz
驅動電壓 Power supply DC 12V, 100mA	供應電壓 Power supply DC 12V, 100mA
信號输入 Signal input 相位差 Phase: 90°±30°	信號输入 Signal input 相位差 Phase: 90°±30°
響應速度 Frequency speed over 30K CPS	響應速度 Frequency speed over 30K CPS
輸入阻抗 Input impedance 100K Ω	輸入阻抗 Input impedance 100K Ω max.
輸入電壓 Input voltage 0~10V DC	輸出電壓 Output voltage 0~10V DC
可調比例 Available ratio range ±50% / 10 Bit	解析度 Resolution 12 Bit
D/A 從速指令輸出 D/A Speed command output	輸出阻抗 Output impedance 100K Ω max.
RELAY 輸出 Relay output	輸出電壓 Output voltage 0~10V DC
工作溫度 Operating temperature range 0°~50°C	解析度 Resolution 12 Bit
貯存溫度 Storage temperature range -10°~70°C	NPN輸出，光耦合隔離 NPN Optically-coupled isolated
濕度 Humidity < RH 85%	工作溫度 Operating temperature range 0°~50°C
重量 Weight 1Kg max.	貯存溫度 Storage temperature range -10°~70°C

RB-5A

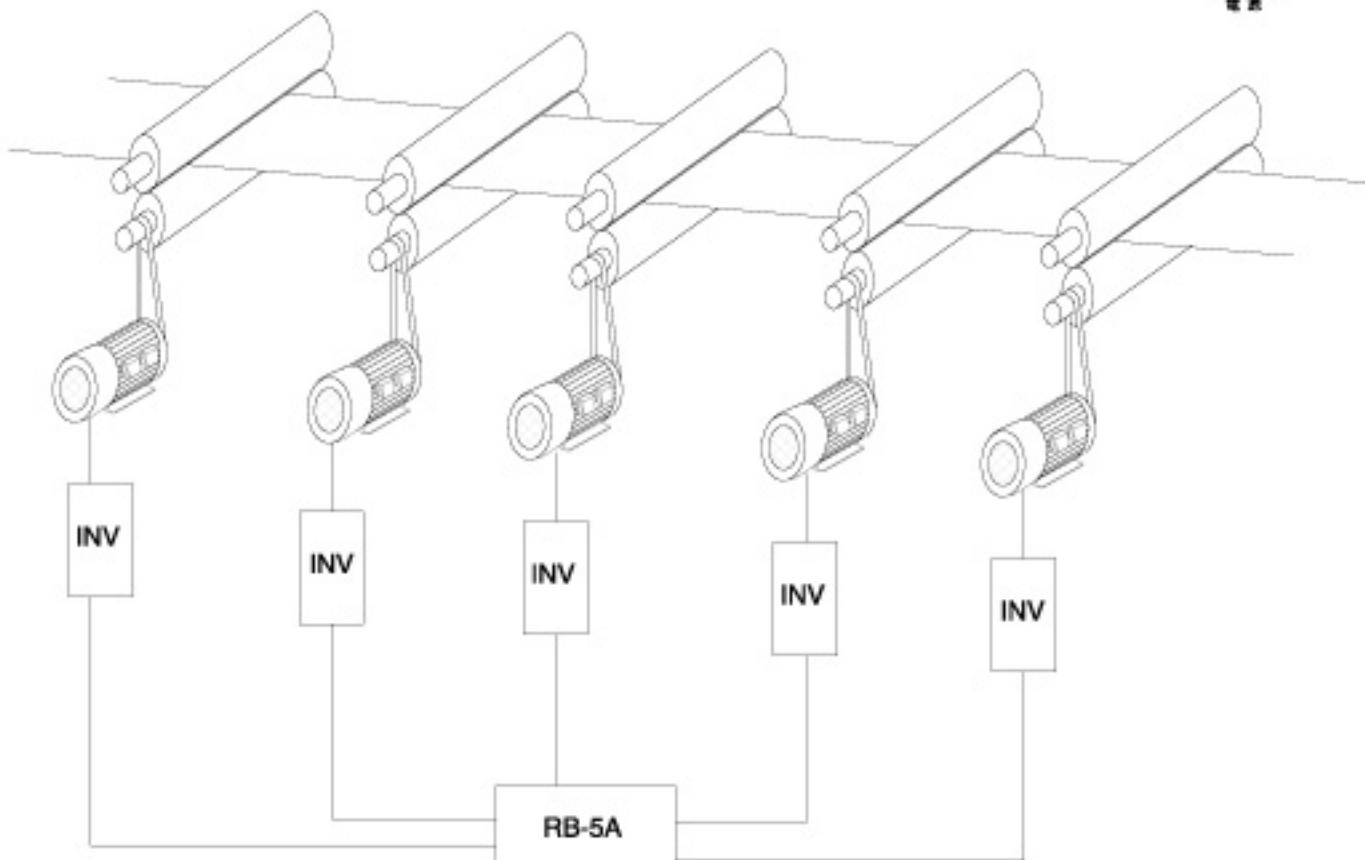
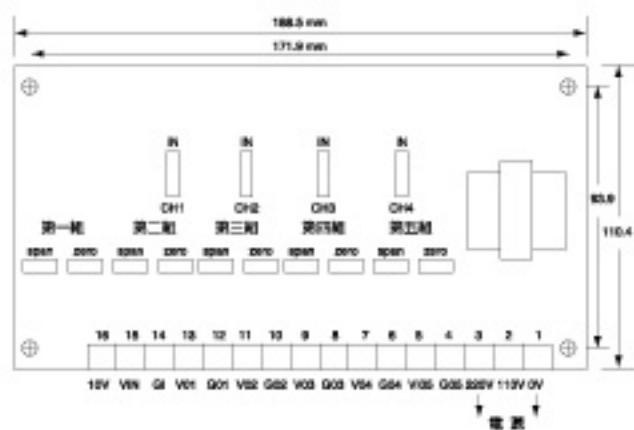
極高精密度智慧型
比例連動控制器

特點：

- 可配合伺服馬達驅動器、變頻器、DC驅動器等各種馬達驅動器作高精度比例聯動控制。
- RB-5A為開迴路設計，利用單一VR(可變電阻)輸入，對多組馬達做比例聯動控制。
- 每只控制器具有五組電壓輸出，每組輸出具有獨立的串、並聯Jumper設定及獨立的比例範圍SPAN調整。

Features:

- RB-5A will operate properly with any conventional drivers as servomotor driver, inverter and DC driver, etc.
- Excellent precision performance of ratio synchronized control.
- Open-loop design; easily achieve series motors synchronized by unit variable resistance(VR) input.
- RB-5A provides 5 sets voltage outputs, each output has independently Jumper setting in series or parallel and span adjustment of ratio range.

**尺寸 Dimension / unit:mm**

DT-300/J50S

電阻式
變位檢出器

DT-300 特點：

- 阻值2K~5KΩ
- 轉角±150°

Features:

- Resistance range: 2K~5KΩ
- Effective electrical angle ±150°

J50S 特點：

- 高精度
- 壽命長
- 多樣特色
- 低干擾

Features:

- High linearity through precision wire winding.
- Long life.
- High following characteristics.
- Low noise.



DT-300

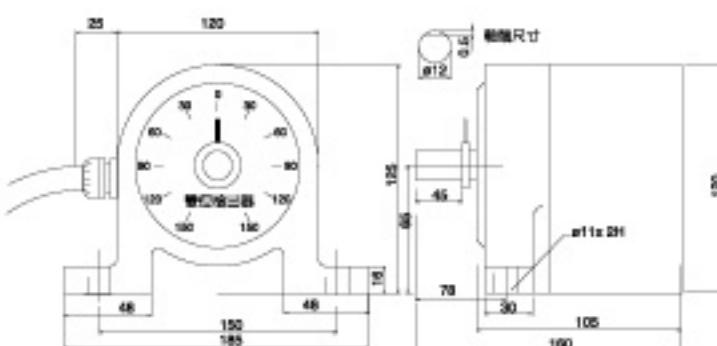
J50S

J50S 標準規格

Standard Specifications

Item	Part number	J50S
Nominal resistance tolerance	%	±5
Effective electrical angle		355° ±5°
Mechanical angle		360° continuous
Power rating (at 40°C)	W	1.5
Dielectric strength	Vrms	1,000 1min
Insulation resistance	MΩ min	1,000 (at DC 500V)
Rotational torque	mN.m (gf-cm) maximum	0.69 (7)
Peak noise	Ω maximum	10 (4 min⁻¹)
Temp. coefficient resistance	ppm/°C	±50
Operating temp. range	°C	-55~+85
Maximum rotational speed	(min⁻¹)	200
Net weight	g	Approx. 73
Ganging accuracy		±1° (Based on No. 1 terminal)

DT-300 外型尺寸 Unit: mm
External Dimension

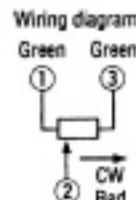
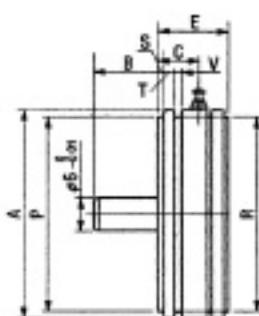
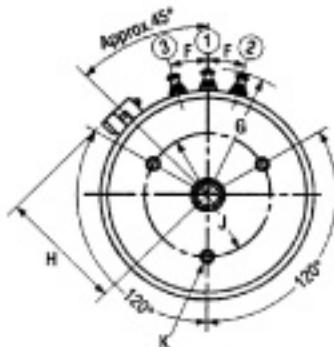


J50S List of outline dimensions

Part number	Marks	A	B	C	E	F	G	H	J	K	P	R	S	T	V
DT-2		ø50.8	20	10.5	16.6	12°	R30	30	ø30	M3 (P=0.5) D=3.0 min	ø47.62 0, -0.025	ø47.6	1.57	2.36	1.86

J50S 外型尺寸 Unit:mm

External Dimension



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張力檢出器

英國最高D3
等級檢出系統

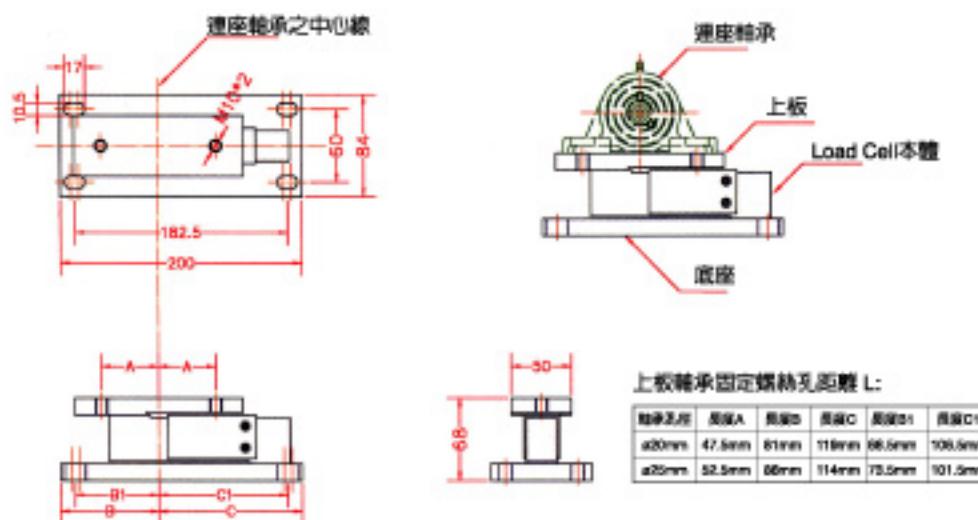
特點：

- 型式：5, 10, 20, 30, 50, 100kg 皆有共同尺寸。
- 特別規格：250, 450 kg。
- 精度： $\leq 0.025\%$ 配對銷售 無須各別補正。
- 固定軸承：直徑20mm~25mm聯座軸承。
- 選用規格：30mm~40mm。

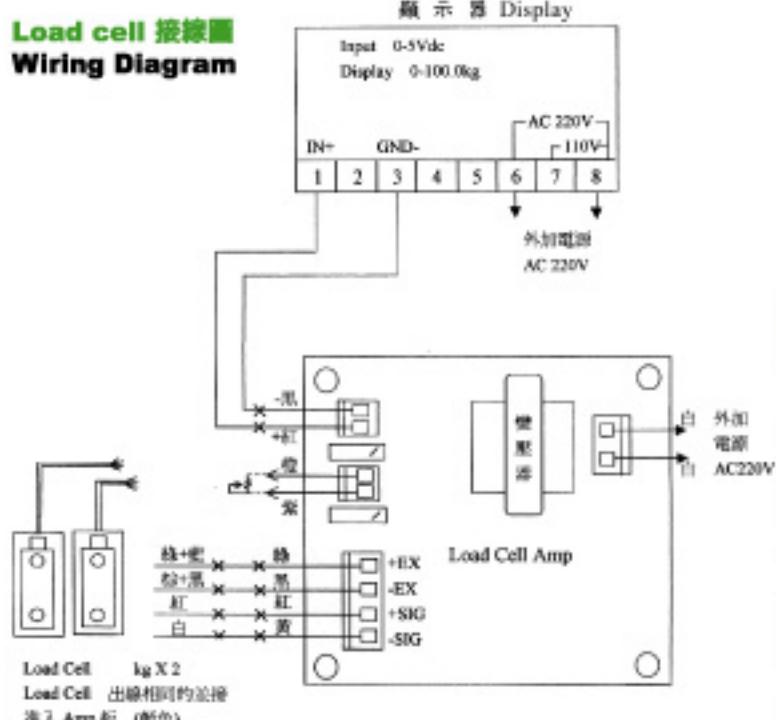
Features:

- Type: 5, 10, 20, 30, 50, 100kg etc.
- Special Type: 250, 450 kg
- Error: $\leq 0.025\%$
- The diameter of Bearing & Housing: 20~25mm
- Option: 30~40mm

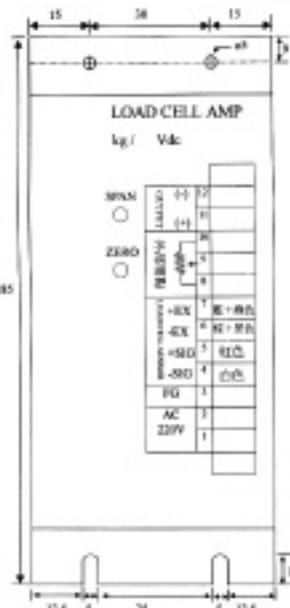
連座軸承組立之側視示意圖



Load cell 接線圖 Wiring Diagram



Load Cell AMP 外箱尺寸
Dimension of casing



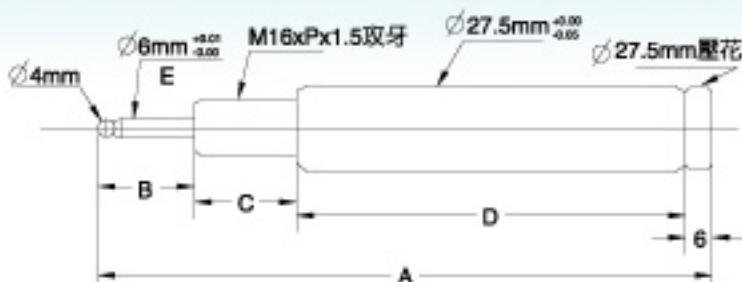
電器特性 Load cell amp without casing Electrical Characteristics

Excitation voltages	Nominal 9.8V DC, within 60mA (5V, 8V DC available)
Gain adjustment range	1mV/V to 4 mV/V to obtain 5V D.C.
Zero adjustment range	$\pm 0.75\text{ mV/V}$
Output voltage	5V DC or $\pm 5\text{ V DC}$ at load over $1\text{k}\Omega$
Output impedance	Lower $0.1\text{k}\Omega$ (has a serial resistor 100Ω to protect OSC)
Non-linearity	Within 0.015%
Response	100 ms typical (10 ms available)
Operating conditions	Temperature $-5^\circ\text{C} \sim +60^\circ\text{C}$
Power source	AC 220V $\pm 10\%$, 50/60Hz, about 5 VA
Dimension	118(L) x 100 (W) x 40H (mm)
Weight	about 290 grams

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LVDT 間隙 控制系統

• LVDT 本體

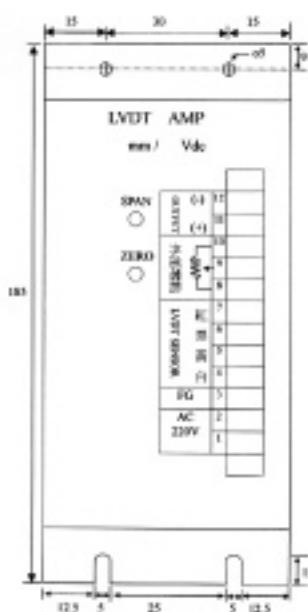
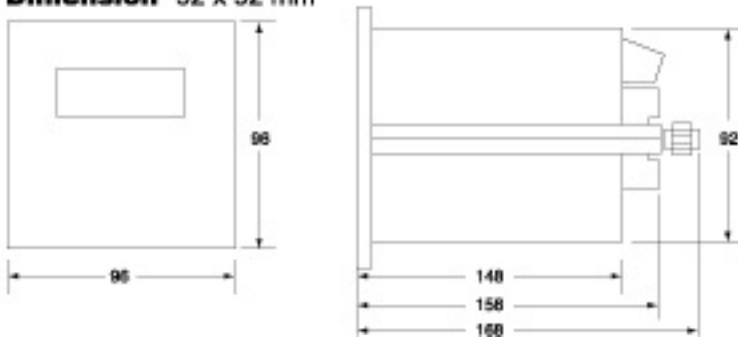
LVDT 本體尺寸
Dimension

- 數位式顯示器 (可設定)
ALC304
- 數位式純顯示型
ALM203

• LVDT AMP

• LVDT AMP
(含外箱)
with casing.

量測範圍 Measuring Length	長度A Length A	長度B Length B	長度C Length C	長度D Length D	孔徑E Hole diameter E
6mm	161mm	20mm	33mm	102mm	6mm
15mm	203mm	24mm	33mm	140mm	6mm
50mm	374mm	60mm	108mm	200mm	7mm; M18牙

LVDT AMP 外箱尺寸
Dimension of casingALM-203 / ALC-304 尺寸
Dimension 92 x 92 mmLVDT Amp 電器特性
Electrical Characteristics

Application	LVDT (Linear variable differential transformer)
Excitation voltages	Nominal 5.0V RMS sine wave, 150~4000Hz, within 50mA (3.5V RMS available)
Gain adjustment range	Nominal 5V D.C. (±20%)
Zero adjustment range	Nominal ±2V DC
Output voltage	5V DC or ±5V DC at load over 1kΩ
Output impedance	Lower 0.1Ω (has a serial resistor 100Ω to protect OSC)
Non-linearity	Within 0.05% F.S. max.
Response	100 ms typical (10 ms available)
Operating conditions	Temperature -5°C~+60°C
Power source	AC 220V±10%, 50/60Hz, about 4 VA (AC 110V available)
Dimension	118(L) x 100 (W) x 40H (mm) without casing.
Weight	about 290 grams without casing.

ALM-203 / ALC-304 電器特性
Electrical Characteristics

電源入力 Power supply	AC 220V±10%, 50/60 Hz
消耗功率 Consumption	<15W
控制輸出 Relay output	<1A, 250 VAC
工作溫度 Operating temperature range	0°~50°C
貯存溫度 Storage temperature range	-10°~70°C
濕 度 Humidity	RH≤ 85% 結露不可
重 量 Weight	700g Around
顯 示 Display	Red LED 3 1/2, or 4 1/2

LVDT 間隙 控制系統



• LVDT+ALM 203

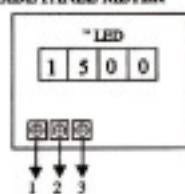


• LVDT+ALC 304

LVDT + ALM203 / ALC304顯示器接線圖

Wiring of Display ALM203 / ALC304

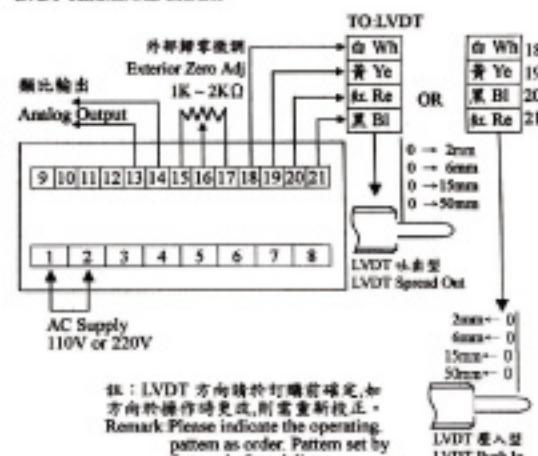
打開 PANEL METER 請看板
內部電路板之功能調整
FUNCTION ADJUSTMENT
INSIDE PANEL METER



面板說明
(1)顯示範圍 Display Span Adj
(2)ZERO 調整(歸零)
Zero Adj(RESET)
(3)SPAN 調整(比例)
Span Adj(PROPORATIONAL)
註：此裝置功能於出廠時已調
整完成，使用時如需必參
考為調整。
Remark: Adj set by factory.

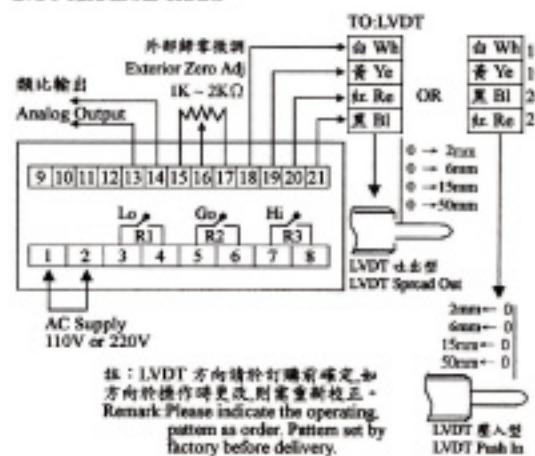
LVDT 端子接線圖 搭配ALM203

LVDT TERMINAL CHART

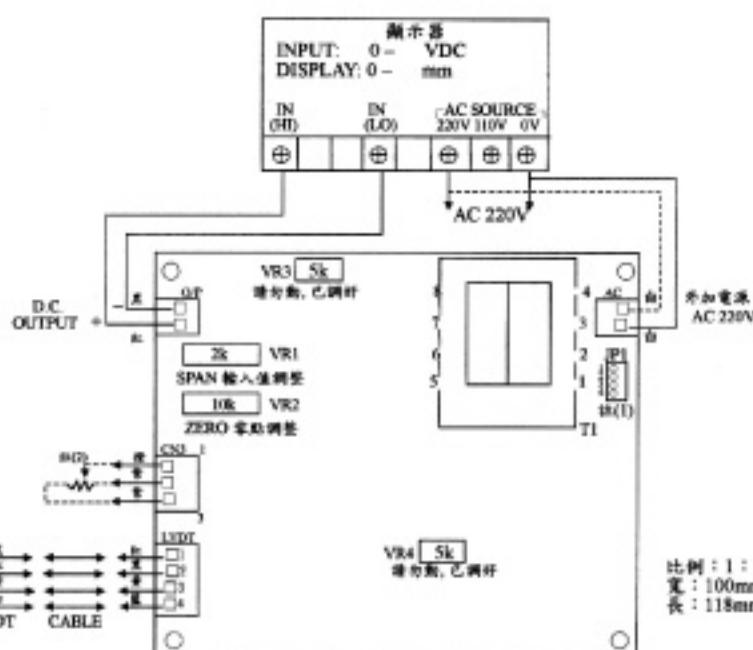
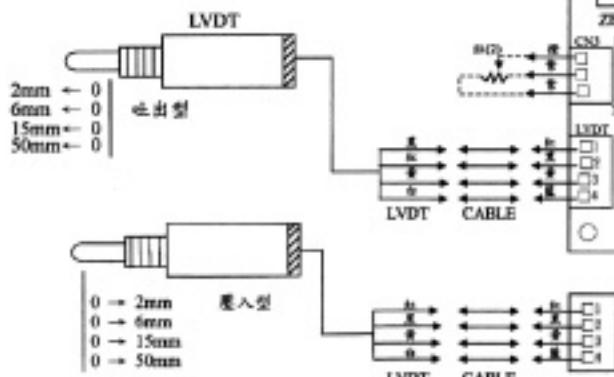


LVDT 端子接線圖 搭配ALC304

LVDT TERMINAL CHART



新LVDT電路板接線圖 LVDT+Amp Wiring



註(1) 外加電源為 220V 時，要短路(Short)JP1 的點 2、3。
外加電源為 110V 時，要短路(Short)JP1 的點 1、2 及點 3、4。
註(2) 外接線端電阻 1KΩ 或 2KΩ，作為外部零點微。
若不接，可將接頭 CN3 故障。
註(3) LVDT 典電路板接線如圖所示，則 LVDT 的 CORE 向出線端
移動時，O/P(+)電壓增加(出型)。
若要 LVDT 的 CORE 離出線端時，O/P(+)電壓增加(出型)。
則 LVDT 與電路板的接線紅、黑對調(即紅接黑，黑接紅)。

DP

Differential Pressure Transducer 高精度 差壓傳訊器

說明：

DP-系列傳訊器是一款專門用來量測氣體正負壓力及差壓的壓電式氣壓傳訊器。

其量測方式為被量測氣體經由導管輸入推擠傳訊器內部之壓電感應器，當氣體壓力變化時，壓電感應器會輸出一極為精確的電壓變化訊號，再經由電子電路處理及放大成為直流電壓或電流的標準電氣訊號輸出。

DP-系列傳訊器，加強了溫度及敏感度的處理，透過電路微小的修正，使得DP-系列傳訊器即使在溫差大的場合也能有優異的表現；電路板的安全保護設計，也能使配線錯誤所造成的損壞降至最低。

另外，DP-系列傳訊器，也加強了外殼防護，IP65的高防護等級加上進口級的抗干擾金屬外殼，更增加了現場使用的安全性。

特點：

- 最小測量範圍0~100mmH₂O。
- 高精度，低零點飄移。
- 金屬防干擾外殼，追緊式接頭。
- 經濟型新式樣，附LED顯示（選用裝置）。

適用範圍：

DP-系列傳訊器適用於空調、環保、機械、電子、食品...等行業作為差壓及壓力監測，並可用於集塵器，過濾器差壓監測，無塵室壓力，各種產品測漏。空調，環保工程之通(排)風設備壓力控制。

氣體流量監控及各型風管之動靜壓量測。

Illustration:

The DP-series is a voltage electrical air pressure transducer specifically designed to measure positive and negative gauge pressure and differential pressure of gases.

The gas to be measured is input through a tube to press the voltage electrical sensor inside transducer. When gas pressure changes, voltage electrical sensor outputs an extremely precise signal of voltage changed. After processed and magnified by electrical circuit, it becomes standard electrical signal output of DC voltage or current. The DP-series transducer comes with enhanced temperature and sensitivity handling capabilities. By means of minute electrical corrections, the DP-series transducer excels even on occasions of enormous temperature changes. Security design of the ECB minimizes damage caused by erroneous wiring.

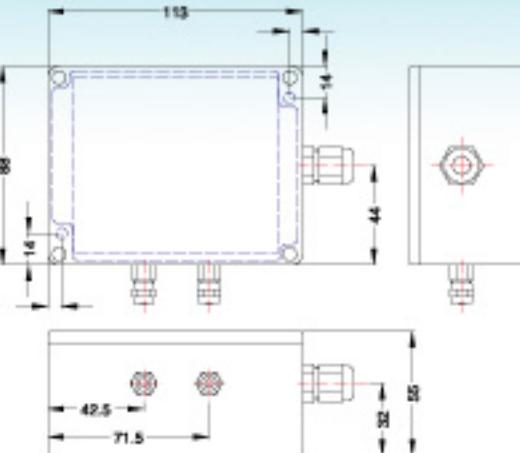
In addition, the DP-series transducer is equipped with reinforced casing. Its conformity to IP65 high protection standards, coupled with imported anti-interference metallic casing, makes it even safer to operate.

Features:

- Min. measuring range 0~100mmH₂O
- Measures positive and negative gauge pressure, differential pressure.
- Outputs voltage or current.
- High precision.
- Low zero-drift.
- Equipped with LED display (optional).
- Packing socket.
- Metallic anti-interference casing.
- Economical and stylish.

Applications

The DP-series transducer can be used to monitor differential pressure and pressure in industries such as air-con, environment protection, machinery, electronics, and food. Other applications include monitoring differential pressure of dust collector and filter, and of pressure in dust-free chamber, leak detection of various products, pressure control in ventilation equipment of air-con and environment protection engineering, and gas flow monitoring and moving and still pressure measuring of various ventilation pipes.

**尺寸 Dimension****電器特性****Electrical Characteristics**

工作電源電壓 Power supply	15~30V DC
消耗電流 Consumption current	30 mA
輸出阻抗 Output resistance	≥500 Ω
適用流體 Media	空氣及非腐蝕性氣體 Air or all non-aggressive gases
零點溫度漂移 Zero-point temperature hysteresis	±0.02% FS/°C
零點時間漂移 Zero-point time hysteresis	±0.1% FS/year
線性度 Linearity	±0.2% FS
磁滯性 Hysteresis	±0.2% FS
總誤差度 Accuracy	±1% FS
工作溫度 Operating temperature ranges	0°C~70°C
工作濕度 Operating humidity ranges	0~100% RH
保存溫度 Storage temperature ranges	-55°C~125°C
輸出形式 Output signals	Standard: 4~20mA Option: 0~5VDC, 0~20mA 0~10VDC
反應時間 Response time	10msec
暫時瞬間過壓 Transient overload	2-fold
破裂壓力 Max. pressure rate	20-fold
氣壓導管規格 Connecting tube spec.	4 x 6mm soft tube
外殼保護等級 Enclosure protection	IP 65
液晶顯示保護等級 Led protection rate	IP 54
重量 Weight	0.5 kg

P-82R

Pressure Transducer with Root Extraction
極高精密度智慧型
氣體流量偵測器
 Measurement ranges from 0...100 Pa to 0...20 kPa

說明：

PU-82R是一個具有開立方根功能之氣壓偵測器，可直接利用測得之差壓經過計算得到當時氣體之流量。差壓是由二股進入機組之空氣因流動而振動機組內之六面體薄膜之振動程度來測得在薄膜附近有一敏感度極高之偵測器來記錄振動情形，PU-82R各部並無接觸故其零件不會產生磨損。

流量計算是根據差壓而來，流量公式為 $qr \sim \sqrt{\Delta P}$ 利用測量口所得之差壓數 ΔP 經由壓力偵測器中開立根電子計算獲得流量的數值。

基本上，由本組件所得之數值為開立方根後之結果，若將開關格板至'S'之輸出形式則顯示器上將出現線性計算數值。



Illustration:

The pressure transducer P-82R with its square-root law transfer element is a pneumatic electrical transducer designed to measure positive and negative gauge pressure as well as differential pressure. The output signals are converted into a root extracted signal via the integrated circuitry. With this facility the instrument is ideal for flow measurement. The key part is a pressure measurement canister which contains a beryllium bronze diaphragm. Pressure differences on either side of the diaphragm subject it to deflections. These deflections are registered by a **contactless inductive pick-up**. The transducer therefore has no frictional or mechanical wearing parts.

The instruments PU-82R and PI-82R are transducers with root extracted voltage outputs (0...10V) and root extracted current output (0...20 mA) respectively. Flow measurement is achieved by using the differential pressure measurement technique. The rate of flow $qr \sim \sqrt{\Delta P}$. The differential pressure ΔP present at the orifice meter is converted by the root extracting transducer into the following outputs: PU-82R (voltage output 0...10V) or PI-82R (current output 0...20 mA) as a choice of linear signal (U_L ; I_L) or in root extracted form $U_R = \sqrt{10V \times U_L}$; $I_R = \sqrt{20 \text{ mA} \times I_L}$; or $I_R = 4 \text{ mA} + \sqrt{16 \text{ mA} \times (I_L - 4 \text{ mA})}$ (4...20 mA)

U_L : Linear voltage output 0...10V

I_L : Linear current output 0...20 mA

The output is root extracted during normal operation, but by operating the internal slide

switch 'S' the output can be changed to linear.

P | Differential Pressure Transducer

高精度差壓傳訊器

Measurement ranges from 0...50 Pa to 0...100 kPa

說明：

P-傳訊器是一種專門用來量測正、負壓力及差壓的電子一氣壓式轉換器。本轉換器的關鍵部份為一體有材質為鎇青銅的薄膜的壓力量測箱。

此量測箱內兩氣室間的壓力差致使薄膜產生偏移。該偏移量便由感應檢出的方式量得。本轉換器並不含有具機械性磨耗的零件。

特點：

- 高靈敏度（測量範圍從50Pa到100kPa）。
- 高精度及耐久之穩定性。
- 低零點偏移，遲滯性及低溫度依賴。
- 大範圍之工作電壓。
- 亦可做為雙線系統(PIZ)。
- 具選用規格的3H數字液晶顯示畫面。
- 具有校正說明書，10量測點（選用規格）。

本轉換器在通風及空調系統上有廣泛的應用，同時也可以應用在水位監視、過濾器監視及量測小量容積等方面上。

**Illustration:**

The P-Sensor is an electro-pneumatic transducer designed to measure positive and negative gauge pressure as well as differential pressure. The key part of this transducer is the pressure measurement canister which contains a beryllium bronze diaphragm. The difference in pressure between the canister's two chambers causes the diaphragm to deflect. These deflections are measured by an inductive pick-up. The transducer contains no mechanical wearing parts.

Features:

- High sensitivity.
(measurement ranges from 50 Pa to 100kPa)
- High accuracy and long term stability.
- Low zero drift, hysteresis and temperature dependence.
- Large range of operating voltages.
- Also available as two-wire system.
- Option 3 1/2-digit LCD display.
- Option calibration certificate (10 measurement points).

The transducer finds many applications in ventilation and air condition systems, it is also used for the monitoring of levels, monitoring of filters and for measuring small air volumes etc.

PS-18

Differential Pressure Transducer 高精度 差壓傳訊器

說明：

P-傳訊器是一種專門用來量測正、負壓力及差壓的電子一氣壓式轉換器。本轉換器的關鍵部份為一置有材質為鎔青銅的薄膜的壓力量測箱。

此量測箱內兩氣室間的壓力差致使薄膜產生偏移。該偏移量便由感應檢出的方式量得。在本轉換器並不含有具機械性磨耗的零件。

特點：

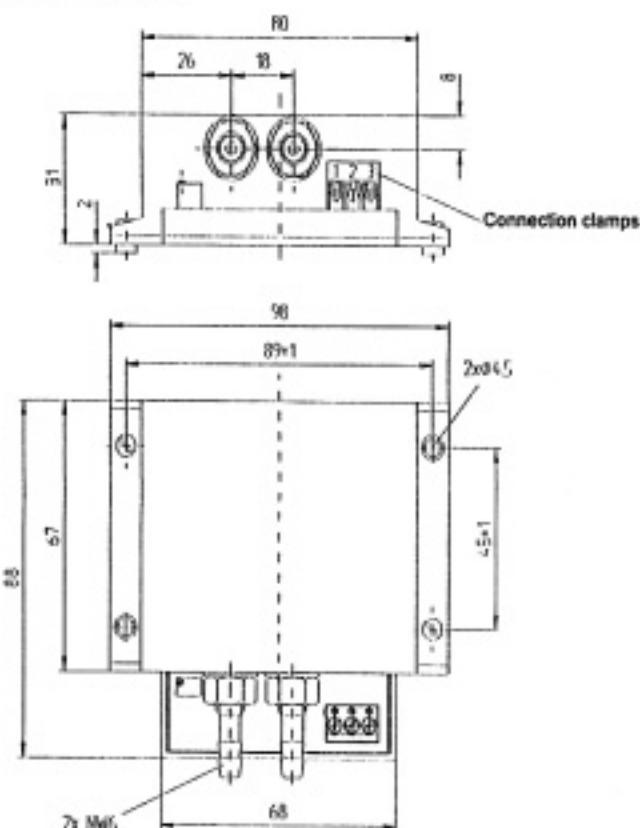
- 高靈敏度。
- 長時間、高穩定度。
- 低零點飄移。

Illustration:

The differential Pressure Transducer PS 18 is an electropneumatic transducer designed to measure positive and negative gauge pressure as well as differential pressure. The key part of this transducer is the pressure measurement canister which contains a beryllium bronze diaphragm. The difference in pressure between the canister's two chambers deflects the diaphragm whose movement in turn is converted into corresponding signals via a contactless inductive pickup. The transducer contains no wearing or moving parts.

Features:

- High sensitivity.
- Very high long term stability.
- Low zero drift and hysteresis.

**尺寸 Dimension****電器特性****Electrical Characteristics**

量程範圍 Technical data (subject to changes without notice)	0... 250 Pa 0... 500 Pa 0... 1 kPa 0... 2.5 kPa 0... 5 kPa 0... 10 kPa 0... 20 kPa 0... 50 kPa 0... 100 kPa
適用之測量介質 Media	Air, Non-aggressive gases 空氣、各種非活性之氣體。
超過負荷可能 Excess pressure limit	10-Fold (Measurement ranges ≤ 20 Kpa) 2-Fold (Measurement ranges > 20 Kpa)
直線性 Linearity	Typical ± 2.5 %
滯後性 Hysteresis	Typical 0.1%
響應時間 Response time	< 20 ms
輸出訊號 Output signal	Ps 18: 0...10 V 0...20 mA / 4...20 mA (Option)
工作電源 Supply voltage	24 V DC / 24 V AC (50...60 Hz) + 10 %
作業溫度 Operating temperature	0...60 °C
保護等級 Enclosure protection	IP 20

EMA-150

Portable Digital Manometer

攜帶型數位壓力計

Measurement ranges from 0...19.99 mmH₂O
to 0...1.999 kg/cm²

說明：

EMA-150 是專為測中、低型壓力量測範圍之正、負壓力、差壓而設計。EMA-150 由於方便使用及耐用的特性，非常適合在現場作下列工程的組裝及維修之用：加熱器通風設備及空調儀器上度數據的量取，煙囪通風的量測及過濾器的監測等。

此外，本儀器亦可利用壓差量測的原理配合皮托管、孔口板來量取氣體流速。

使用前注意事項：

如量測高壓力之低壓差時，請注意二端之壓力要同時進入量測室，如有時間差異超過0.05秒以上時，差壓計得選用更高等級產品如P92。

特性：

- 可量取正、負壓力及差壓。
- 利用有膜片的量測箱室為量測放大原理，當壓力作用在膜片上便會使其產生變形，而該變形量便由感應的方式檢出。
- 電池供電使用9V DC電池。
- 類比輸出0...+2V ($R_L \geq 2K\Omega$) / 選用規格。
- 3 1/2 LCD顯示
- 價格低廉。

Illustration:

The series of measurement instruments EMA-150 is designed to measure positive or negative gauge pressure as well as differential pressure in the lower and mid-range pressure ranges. Because of its robustness and easy to use characteristics the EMA-150 is ideal for installation and maintenance tasks such as those which are carried out in the field: measurement readings from heating, ventilation and air conditioning apparatus, the measurement of chimney drafts and monitoring of filters etc.

Furthermore the instrument can be used to measure the flow velocity using the principle of ΔP measurement in conjunction with pitot tubes and orifice meters.

Features:

- Measurement of positive or negative gauge pressure as well as differential pressure.
- Principle employs a measurement canister which contains a diaphragm. The pressure exerted on the diaphragm causes it to deflect and these deflections are inductively measured.
- Battery powered.
- Analogue output 0...+2 V ($R_L \geq 2K\Omega$) (Option).
- 3 1/2-digit display.
- Low cost.



EMA-160

Digital Manometer with Rooted Output for
Measurement of Velocity

攜帶型氣體壓力、流速兩用偵測器
Measurement ranges from 0...200 Pa to 0...20 kPa

說明：

電池供電式之可攜式數位壓力計EMA-160是設計用來量測在中、低壓力範圍內作為量測正、負壓力及差壓之用的壓力計；兼有風速計的功能。

因為其堅固耐用及操作方便之特性，本儀器特別適合用在為加熱器、通風設備、空調等方面的客戶售後服務及維修之用。諸如此類的應用都是應用在量測煙囪通風度、測定風壓及監示過濾器等。如和皮托管連接則可用來量測流速。類比信號及數位顯示可由“LIN/ $\sqrt{}$ ”切換來顯示差壓的量取值(LIN)或是流速($\sqrt{}$)。輸出信號可以用ULIN或UV表示(0...2V)。

特性：

- 可量測正、負壓力及差壓。
- 可量測流速（與皮托管連接）。
- 流速線性的量測範圍+5%...+100%。
- 電池供電（30分內沒有繼續使用則電源自動關閉）。
- 3 1/2 LCD顯示
- 價格低廉。
- 可測高風速達180m/s。
- 輸出訊號0...2V或-2V...2V（選用規格）。



Illustration:

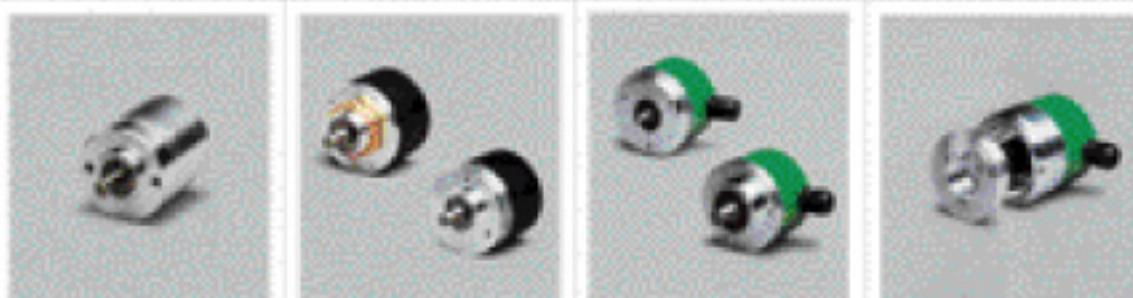
The portable battery powered digit manometer EMA-160 is designed to measure positive or negative gauge pressures as well as differential pressures in the lower and mid-pressure ranges. On account of its robustness and easy to use characteristics, the EMA-160 for example is ideal for service and maintenance in the heating, ventilation and air conditioning branch. Such applications are the measurement of differential air pressure, draught, monitoring of filters etc. In conjunction with a pitot tube it is possible to determine the velocity. The analogue output signal and digital display can be changed via the LIN/ $\sqrt{}$ switch to show the differential pressure reading (LIN) or velocity ($\sqrt{}$). The output signal will be either U_{lin} or U_v (0...2V). After switching on the EMA-160 automatically switches to the LIN mode.

Features:

- Measurement of positive or negative gauge pressure as well as differential air pressure.
- Determination of velocity (in conjunction with a pitot tube).
- Creeping suppression volume <5%.
- Battery powered with automatic switch off function.
- 3 1/2-digit LCD display.
- Inexpensive (Option).

增量型譯碼器 ROTAPULS incremental encoders

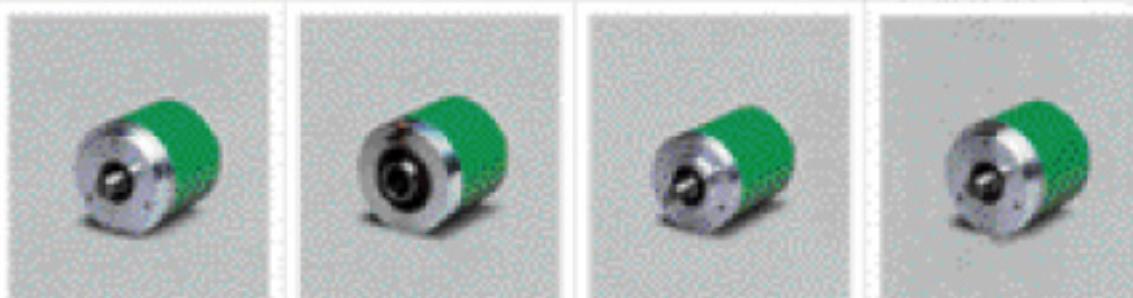
lika



Series	型 號	D8	D40, M41	M8, M8S	M8C
Features	特點說明			standard size	
Housing	外徑尺寸	28	40	58	58
Shaft	軸心尺寸	4.5	4, 6, 8	6, 8, 10, 12	6, 8, 10
Connections	連接方式	—	*	*	*
	(DIN 43650)	(DIN 43650)		*	*
Resolution	解 析 度	1024 max.	3600 max.	10000 max.	10000 max.
Output freq.	輸出頻率	100 max.	100 max.	300 max.	300 max.
Output	輸出型式	NPN, PNP, Push-Pull, Line Driver	Push-Pull, Line Driver	Push-Pull, Line Driver, 1 Vpp	Push-Pull, Line Driver
Operating temp.	工作溫度	-20 °C +70 °C max.	-20 °C +70 °C max.	-40 °C +100 °C max.	-40 °C +100 °C max.
Protection	保護等級	IP54	IP54	IP65 max.	IP65 max.

絕對型譯碼器 ROTACOD absolute encoders

lika



Series	型 號	A558, A558S, AM58, AM58S	ASC58, AMC58	A58, AMS	ASE58
Features	特點說明	standard size		small size	Programmable cam encoder
Housing	外徑尺寸	58	58	50	58
Shaft	軸心尺寸	6, 8, 10, 12	15 max.	6, 8, 10, 12	10
Connections	連接方式	—	*	*	*
	(DIN 43650)	(DIN 43650)		*	*
Resolution	解 析 度	17 bit, 17x12 bit max.	17 bit, 17x12 bit max.	11 bit, 11x8 bit max.	3600/0.1°
Output	輸出型式	Push-Pull, SSI, NPN, PNP	Push-Pull, SSI, NPN, PNP	Push-Pull, SSI, NPN, PNP	16x Push-Pull 100mA
Operating Temp.	工作溫度	-40 °C +100 °C max.	-40 °C +100 °C max.	-40 °C +100 °C max.	-20 °C +70 °C max.
Protection	保護等級	IP65	IP65	IP65	IP65

增量型譯碼器 ROTAPULS Incremental encoders



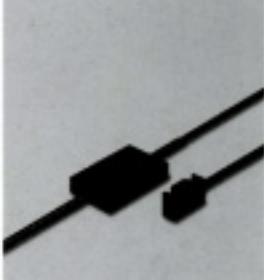
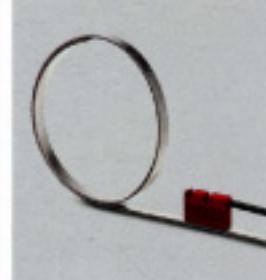
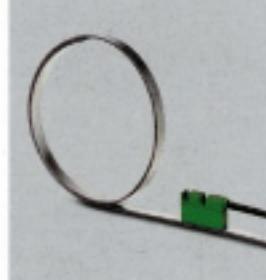
I65, IT65	C46, CK46	C50	C58, CK58	C80, C81
standard size		for motor applications		for lift motors
65	46	50	58	80
6, 8, 9, 52, 10, 12	4, 6	6, 8, 10	max. 15	max. 43, 95
*	*	*	*	*
*			*	
10000 max.	3600 max.	2048 max.	1000 max., 10000 max.	10000 max.
300 max.	50 max.	100 max.	50 max., 300 max.	300 max.
NPN, PNP, Push-Pull, Line Driver	Push-Pull, Line Driver	Push-Pull, Line Driver	NPN, PNP, Push-Pull, Line Driver	Push-Pull, Line Driver
-40 °C +100 °C max.	-40 °C +100 °C max.	-40 °C +100 °C max.	-40 °C +100 °C max.	-40 °C +100 °C max.
IP66 max.	IP54	IP65 max.	IP65 max.	IP65 max.

絕對型譯碼器 ROTACOD absolute encoders

LINEPULS



AS58 A	AS58, AS58 ISI	AM58 BUS	ASP58, AMP58	EBOX
Analogue output	Incremental serial interface	Fieldbus encoders	Programmable	
58	58	58	58	
6, 8, 10, 12	6, 8, 10, 12	6, 8, 10, 12	6, 8, 10, 12	55 x 75 x 20
*	*	*	*	*
*	*	*	*	-
12 bit	13 bit, 13x12 bit	13x12 bit, max.	13x12 bit max.	0,1 – 0,01 mm
0-5V, 0-10 V, 4-20 mA	ISI	ProfiBus, Interbus-S DeviceNet, CAN Bus	Push-Pull, SSI	Push-Pull, Line Driver
-40 °C +100 °C max.	-40 °C +100 °C max.	-40 °C +100 °C max.	-40 °C +100 °C max.	-10 °C +70 °C
IP65	IP65	IP65	IP65	IP40



CB50	SME	SMS	SMK, SML, SMH	SMB
feedback encoder for brushless motors		sin / cos version		
50	25 x 40 x 10	25 x 40 x 10	25 x 40 x 10	
max. 10	-	-	-	-
	*	*	*	*
*				
5000 max.	5 µm max.		50 µm max.	5 µm max.
200 max.	16 m/s max.	16 m/s max.	5 m/s max.	16 m/s max.
Push-Pull, Line Driver	Push-Pull, Line Driver	1 Vpp	Push-Pull, Line Driver	Push-Pull, Line Driver
-20 °C +100 °C max.	-10 °C +70 °C	-10 °C +70 °C	-10 °C +70 °C	-10 °C +70 °C
IP20	IP67	IP67	IP67	IP67

LINEPULS

Digital Displays



lika ...

Series	型 號	LD120	LD140	MC150	PV1-V
Features	特點說明				
Display	顯 示	LED 5 digit	LCD 6 digit	LED 6 digit	LCD 240x180 pixel
Nr. of axes	軸 數	1	1	1	1-4
Dimensions	尺寸(mm)	72 x 36	96 x 72	96 x 72	280 x 110
Sensor input	插入型式	Magnetic Sensor SM	Magnetic Sensor SM	PP, LD, SSI, Magnetic Sensor SM	PP, LD
Speed	速 度	< 10 m/s	< 10 m/s	330 kHz max.	1,5 MHz max.
Supply	電 源	+10 ~ 30 Vdc	Battery	24 Vdc, 24, 115, 230 Vac	24 Vdc
Interface	適用介面	RS485	RS232	RS232	RS232
Outputs	輸出型式	-	-	2x 24 V @ 500 mA	12x 24 V @ 500 mA ± 10 V

SERIES I40-I41



CONNESSIONI ELETTRICHE

CAVO 5 POLI (1 metro)			
黑色	-V	藍色	B
紅色	+V	白色	Z
棕色	A		

CAVO 8 POLI (1 metro)			
黃色	A	白色	Z
藍色	Ā	灰色	Ā
綠色	B	紅色	V+
橙色	Ā	黑色	V-

I connettori vengono forniti completi maschio e femmina.

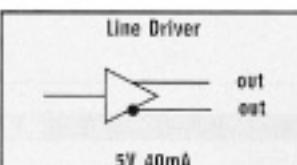
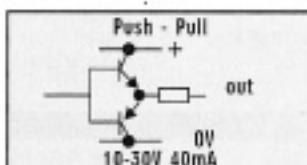
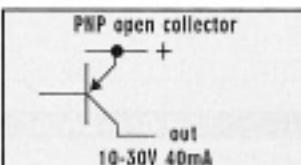
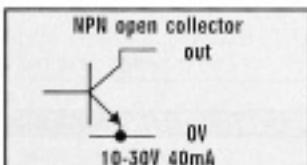
ELECTRICAL CONNECTIONS

5 POLES CABLE (1 meter)			
Black	-V	Blue	B
Red	+V	White	Z
Brown	A		

8 POLES CABLE (1 meter)			
Yellow	A	White	Z
Blue	Ā	Grey	Ā
Green	B	Red	V+
Orange	Ā	Black	V-

Connectors are with full set of groove and tongue supplied.

輸出電路 - OUTPUT CIRCUITS



訂購編號 ORDERING CODE

XXX - X - XXXX X

型號
SERIES
I40-I41

輸出電路型式
OUTPUT CIRCUITS

NPN (O.C.)	H
PNP (O.C.)	P
PUSH-PULL	Y
Line Driver AD26LS31 o equiv	L
PP/FD universal circuit	H

脈衝數
PULSE RATE (PPR)

每轉脈衝數
See electrical characteristics

輸出信號結構
OUTPUT SIGNALS CONFIGURATION

A 相 Monodirectional	N
A/B 相 Bidirectional	B
A/B/Z 相 Bidirectional with index pulse	Z

XXX XXX

軸心直徑
SHAFT DIAMETER

4	4 mm
6	6 mm
8	8 mm

電氣 / 輸出接頭 ELECTRICAL CONNECTIONS

M	標準輸出 Normal output	F	5芯電纜 1M長 5 poles cable, 1m.
C	完整輸出 Complementary output	U	8芯電纜 1M長 8 poles cable, 1m.

輸入電源及輸出電路型式 SUPPLY VOLTAGE VS OUTPUT CIRCUIT

+5V ± 5% (L output circuit)
+10V + +30V (N, P and Y output circuits)
+5V + +30V (universal circuit)

X XXX XXX

以下為選用配備
ADDITIONAL CODE:
(indicate only if necessary)

C 表面組裝輸出
Faced connector output

Lx 指定電線長度
例: L4 = 4 M
L7 = 7 M
Cable length on request
Ex.: L4 = 4 meters
L7 = 7 meters

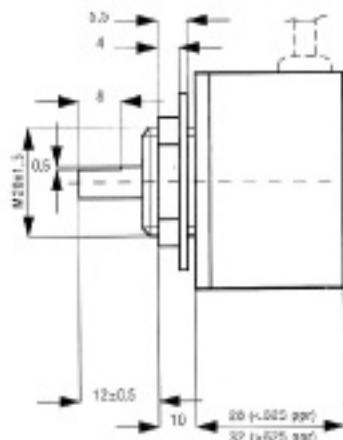
T 工作溫度範圍
Operating temperature range:
-20°C + 70°C

V 輸出頻率上限 700kHz
Output frequency up to 700kHz

P IP65 保護等級 (僅有I41系列)
IP65 Protection (I41 series only)
Q 電線保護
IP66 Protection Shaft end

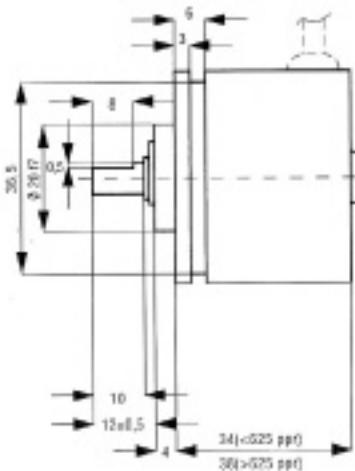
R 剝線電纜出線
Radial cable output

SERIES I40-I41



I40

* Albero Ø4 senza spianatura



I41

* Shaft Ø4 without facets

使用環境規格

耐震動：	50 G - 11 msec
耐振動：	10 G 10-2000 Hz
工作溫度範圍：	0°C. +60°C
儲存溫度範圍：	-20°C. +80°C (98% R.H. without condensation)
保護等級：	IP54
選項：	• 工作溫度 -20°C +70°C • 保護等級 IP65 (僅有I41系列) • IP66 軸端保護

ENVIRONMENTAL SPECIFICATIONS

Shock:	50 G - 11 ms
Vibrations:	10 G 10-2000 Hz
Operating temperature range:	0°C. +60°C
Storage temperature range:	-20°C. +80°C (98% R.H. without condensation)
Protection:	IP54
Options:	<ul style="list-style-type: none"> - Operating temperature range: -20°C +70°C • IP65 Protection (I41 Series only) • IP66 Protection Shaft end

機械結構

尺寸：	依圖片所示
軸心尺寸：	4,6,8 mm (須指定)
軸心負載 (徑向與軸向)：	最大 20 牛頓
軸心迴轉速度：	最高 3000 RPM
啓動轉距在20度時：	瞬間最高轉速 6000 RPM ≤0,3 Ncm (代表)
慣性慣性：	~ 20 gcm²
轉承壽命：	最少 10⁹ 轉
重量：	~ 0,1 kg

MECHANICAL SPECIFICATIONS

Dimension:	see drawing above
Shaft diameter:	4,6,8 mm (to be specified)
Shaft loading: (axial and radial)	20 N max
Shaft rotational speed:	3000 RPM max (up to 6000 RPM max for short periods)
Starting torque at 20°C:	≤0,3 Ncm (typical)
Moment of inertia:	~ 20 gcm²
Bearing life:	10⁹ rev. min.
Weight:	~ 0,1 kg

電路規格

每轉輸出脈波數規格 (或其他脈波數的要求)	1-8-10-15-20-25-30-32-40-50-60-72 90-100-125-127-150-176-180-200-250 300-314-320-360-400-500-540-600-625 635-720-900-1000-1021-1024-1080 1200-1250-1500-1600-2000-2500-3600	
電源	0V + 10V ± 30V	+5V ± 5%
輸出電路	NPN - PNP open col.	Push - Pull Line driver AD28LS31
每一相最大輸出電流	40mA	40mA
輸出頻率：	最大 50 kHz	
輸入電流：	最大 50 mA	
保護：	極性反接保護 (除了 +5V 型式之外)	
LED壽命：	最少 100,000 hrs	
選項：	• 輸出頻率最高為 100 kHz	

ELECTRICAL SPECIFICATIONS

STD pulse rate: (other PPR upon request)	1-8-10-15-20-25-30-32-40-50-60-72 90-100-125-127-150-176-180-200-250 300-314-320-360-400-500-540-600-625 635-720-900-1000-1021-1024-1080 1200-1250-1500-1600-2000-2500-3600
Power supply	0V + 10V ± 30V
Output circuits	NPN - PNP open col.
Max output current (per channel)	40mA
Output frequency:	50 kHz max
Input current:	50 mA max
Protection:	against inversion of polarity(except +5V version)
Optoelectronic life:	100,000 hrs min.
Options:	• Output frequency up to 100 kHz max.

材質

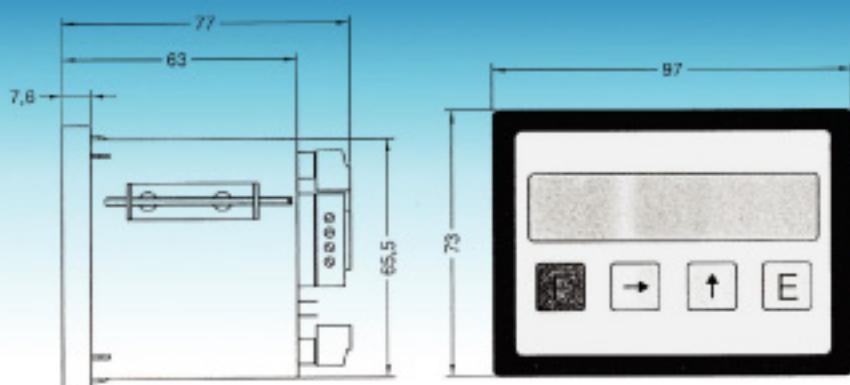
外型：	非腐蝕性・表面電鍍
外殼：	非腐蝕性・表面電鍍
轉承：	ABEC 5
軸心：	不鏽鋼・非磁性
光源：	GaAl 二極體

MATERIALS

Flange:	non corroding, sulphuric anodized
Housing:	non corroding, sulphuric anodized
Bearings:	ABEC 5
Shaft:	stainless steel, non-magnetic
Light source:	GaAl diodes

MC 150

尺寸 Dimension



電器特性

Electrical Characteristics

ENVIRONMENTAL SPECIFICATIONS		使用環境	
Operating temperature range:	0°C, + 50°C	工作溫度範圍	0°C, + 50°C
Storage temperature range:	-20°C + 80°C	儲存溫度範圍	-20°C + 80°C
Protezione / Protection:	IP 43	保護等級	IP 43
MECHANICAL SPECIFICATIONS		外觀尺寸	
Dimensions:	96 x 72 x 75 mm ³	尺寸	96 x 72 x 75 mm ³
Cutout:	90 x 66 mm ²	開孔尺寸	90 x 66 mm ²
Display	6 digit x 14 mm (-999999+999999)	顯示	6位數，長度14mm (-999999+999999)
ELECTRICAL SPECIFICATIONS		電路規格	
Power supply:	24V DC, 24V AC, 115V AC, 230V AC	工作電壓	24V DC, 24V AC, 115V AC, 230V AC
Consumption	150 mA	消耗功率	150 mA
Counting frequency:	330 kHz	計數頻率	330 kHz
Input circuits:	Push-Pull, Line Driver SM x Magnetic sensor	輸入電路	Push-Pull, Line Driver SM x Magnetic sensor
Outputs:	2 digital output 2 relay (optional) RS 232 (optional)	輸出	2 digital output 2 relay (加速度項目) RS 232 (加速度項目)

ORDERING CODE 訂購編號

ADDITIONAL CODE 選用配備

XXXXX

- XX - XX -

XX

型號
SERIES

MC-150

工作電壓
POWER SUPPLY24 VDC / 24 VAC ± 10% P1
230 VAC ± 10% P5
115 VAC ± 10% P6

INPUT

M1	A, B, O @ 24/24V
M6	A, /A, B, /B, O, /O, @ 24/24V
M7	SM x Sensor
M8	A, B, O @ 5/5V
M9	A/B, B/B, O/O, @ 5/5V
M10	A/B, B/B, O/O, @ 24/5V

OUTPUT

I1	RS-232
O2	2 Relay (Only with P1)

B-1/G-1 位移傳感器

B-1 特點：

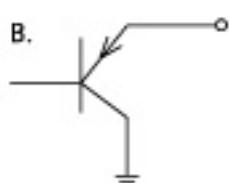
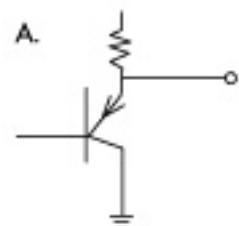
- 經濟型
- 軸心8mm

Features:

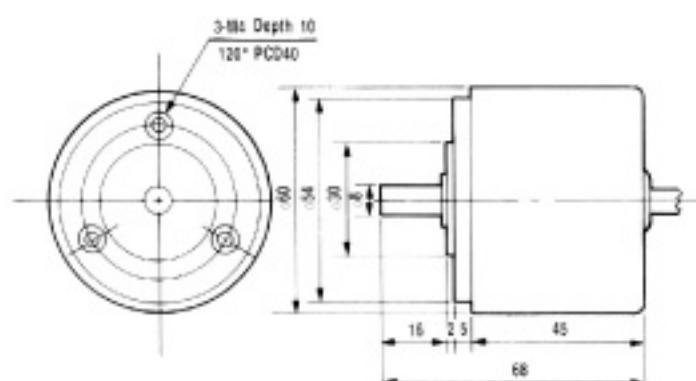
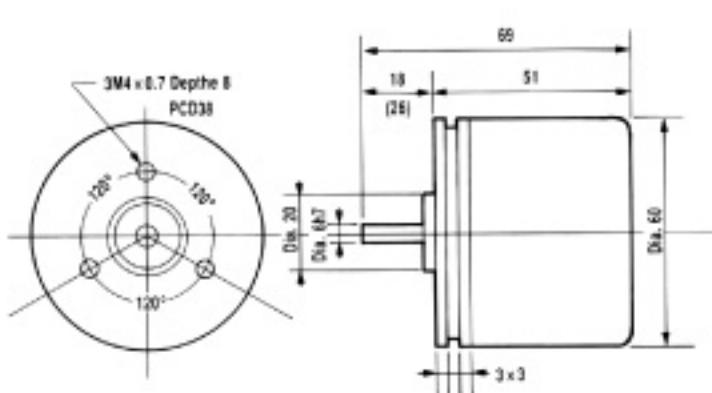
- General Type
- Shaft ø 8mm

B-1/G-1**Resolution (P/R):**

- 10, 20, 25, 30, 40, 50, 60, 90, 100, 120, 180, 200, 300, 360, 400, 500

Output Mode**接線圖****Connection Diagram**

紅色	黑色	白色	綠色	黃色	屏蔽線
RED	Black	White	Green	Yellow	Shield
+	-	A	B	Z	—

B-1 外型尺寸 Unit: mm
External Dimension

G-1 外型尺寸 Unit: mm
External Dimension
**電器特性****Electrical Characteristics**

電源入力 Power source	5V, 8~24V DC
消耗電流 Current consumption	50 mA or below
頻率響應 Response frequency	30 KHz
輸出阻抗 Impedance output	2 kΩ (Mode : A)
輸出型態 Output mode	A: With pull up resistor B: Open Collector
輸出訊號 Output signal	A & B A, B, Z.
輸出波形 Output wave form	
A	[Graph of square wave A]
B	[Graph of square wave B]
Z	[Graph of square wave Z]

起動轉矩 Starting torque	100g. cm or less
軸荷重 Shaft loading	B-1 Radial : 2kg G-1 Radial: 1.5kg Thrust: 1kg Thrust: 1kg
最大轉速 Max. r.p.m	60,000 r.p.m
耐衝擊 Shock	30g 10 ms
工作溫度 Operating temperature	-10°C ~ +70°C
貯存溫度 Storage temperature range	-20°C ~ +80°C
濕度 Humidity	85% RH max.
重量 Weight	350g max.

EHM 位移傳感器

特點：

- 米碼輪感應器。
- 安裝簡易。
- 測量單位：米／碼。

Features:

- Wheel Measuring Sensor.
- Mounting Easy.
- Meter, Yard Wheel Available.

Wheel Circle Length:

- Meter Wheel $300 \pm 0.1\%$
- Yard Wheel $0.3 \text{ Yard} \pm 0.1\%$
- "S" Type Meter Wheel $200\text{mm} \pm 0.1\%$
- "S" Type Meter Wheel $0.2 \text{ Yard} \pm 0.1\%$



型號 Type	測出單位 Resolution M/YD	測出方向 Output Signal
EHM-A1	1	Single direction
EHM-A2	0.1	Single direction
EHM-A3	0.01	Single direction
EHM-A4 "S"	0.001	Single direction
EHM-AB2	0.1	Bi - direction
EHM-AB3	0.1	Bi - direction
EHM-AB4 "S"	0.001	Bi - direction
EHM-AS "S"	0.1/min	Linear direction

電器特性

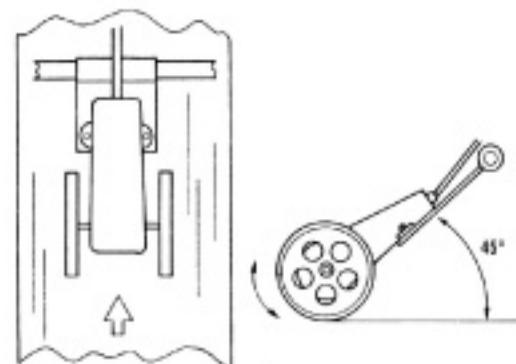
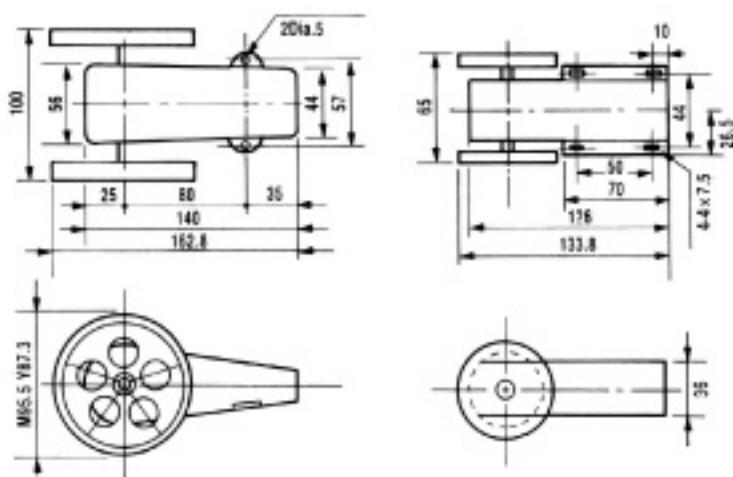
Electrical Characteristics

電源入力 Power source	12V, 24V DC
消耗電流 Current consumption	40 mA or below
頻率響應 Response frequency	20 KHz
輸出阻抗 Impedance output	4.7 KΩ
最大轉速 Max. measuring speed	120M Per min
重量 Weight	630g / S type 430g

接線圖

Connection Diagram

紅色 RED	黑色 Black	白色 White	綠色 Green	黃色 Yellow	屏蔽線 Shield
+	-	A	B	Z	三

外型尺寸 Unit: mm
External Dimension

CHF 超級連軸器

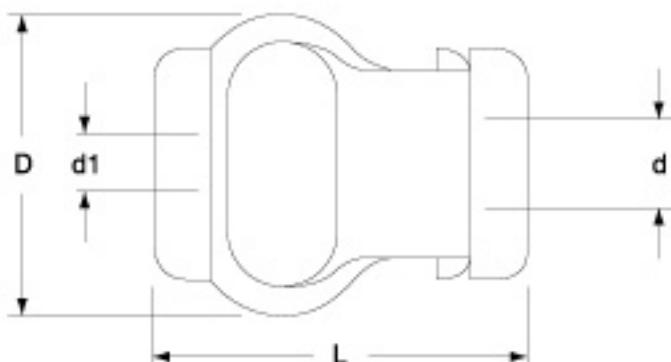
特點：

CHF Couplings為因應機械傳遞需無背隙之要求，而開發出此特殊材料，除可接受更大的偏心、偏角、壓縮量，更佳的耐酸鹼性外，特殊熱處理過程使其在100°C下傳遞能量不衰減，及擁有浸入在油質液體中不硬化的特性。



Features:

CHF couplings are specifically developed with this unique material to meet the requirement of zero gaps arising from mechanical transmission. In addition to tolerance of larger bias, deflection, compression, and better resistance to acid and alkali, their special heat treatment enables them to pass on energy under 100°C unabated as well as to possess the property of not hardening when dipped in greasy liquids.



各部尺寸 Dimension

ITEM	L	D	d	d1
CHF 6 x 6	31	24	6	6
CHF 8 x 8	31	24	8	8
CHF 10 x 10	31	24	10	10

* 尚有其他多樣選擇，例：CHF 6x8, CHF 7x7, CHF 6x10 or CHF 8x10 (option)

規格特性 Characteristics

Feature	特點	unit 單位	value 參考值
Max.Torque	最大扭力	N-cm	100
Max. Radial Offset	最大偏心量	mm	±2.4
Max. Axial Offset	最大偏軸量	mm	±4.8
Max. Angle Offset	最大偏角量	gradi	±7
Moment of Inertia	瞬間慣量	g-cm	40