

# PRO UNI-D CO., LTD.

## PNEUMATIC ACTUATOR

### PERFORMANCE

Operating Pressure Range: 40 to 120PSIG.

Maximum allowable Working Pressure: 150PSIG.

Maximum operating pressure: 120PSIG.

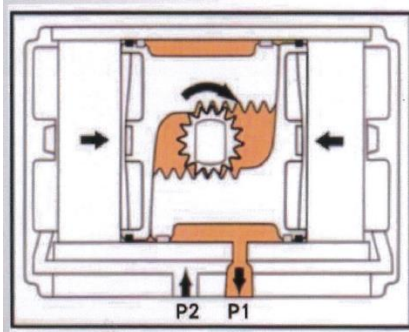
Operating Media: Dry or lubricated non-corrosive gas.

Operating Temperature Standard:  $-40^{\circ}\text{F} \sim +200^{\circ}\text{F}$



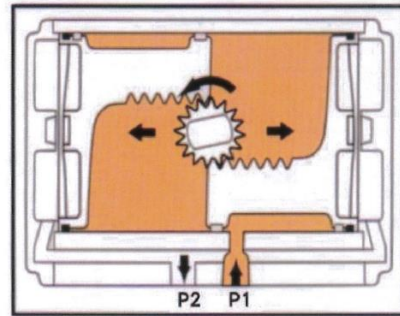
### OPERATION

Double-Acting (Top View A)



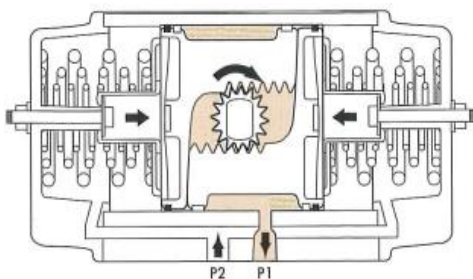
For clockwise output, apply pressure to P2, which force the pistons to move together. The volume between the pistons is exhausted at P1.

Double-Acting (Top View B)



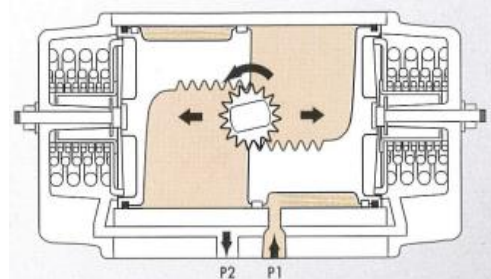
For counterclockwise output, apply pressure to P1, which force the pistons apart. The linear travel of the pistons is converted to a rotation of the drive shaft by the rack to pinion connection. The volume outside each piston is exhausted at P2.

Spring-Acting (Top View A)



For clockwise output, the volume between the pistons is exhausted at P1, causing the springs to force the pistons together. The volume outside the pistons is vented at P2.

Spring-Acting (Top View B)



For counterclockwise output, apply pressure to P1, which force the pistons apart and compress the springs. The linear travel at the pistons is converted to a rotation of the drive shaft by the rack to pinion connection. The volume outside each piston is exhausted at P2.

※ When required Reverse Rotation the pistons can be inverted in the housing resulting in a clockwise rotation when pressure is applied to P1.

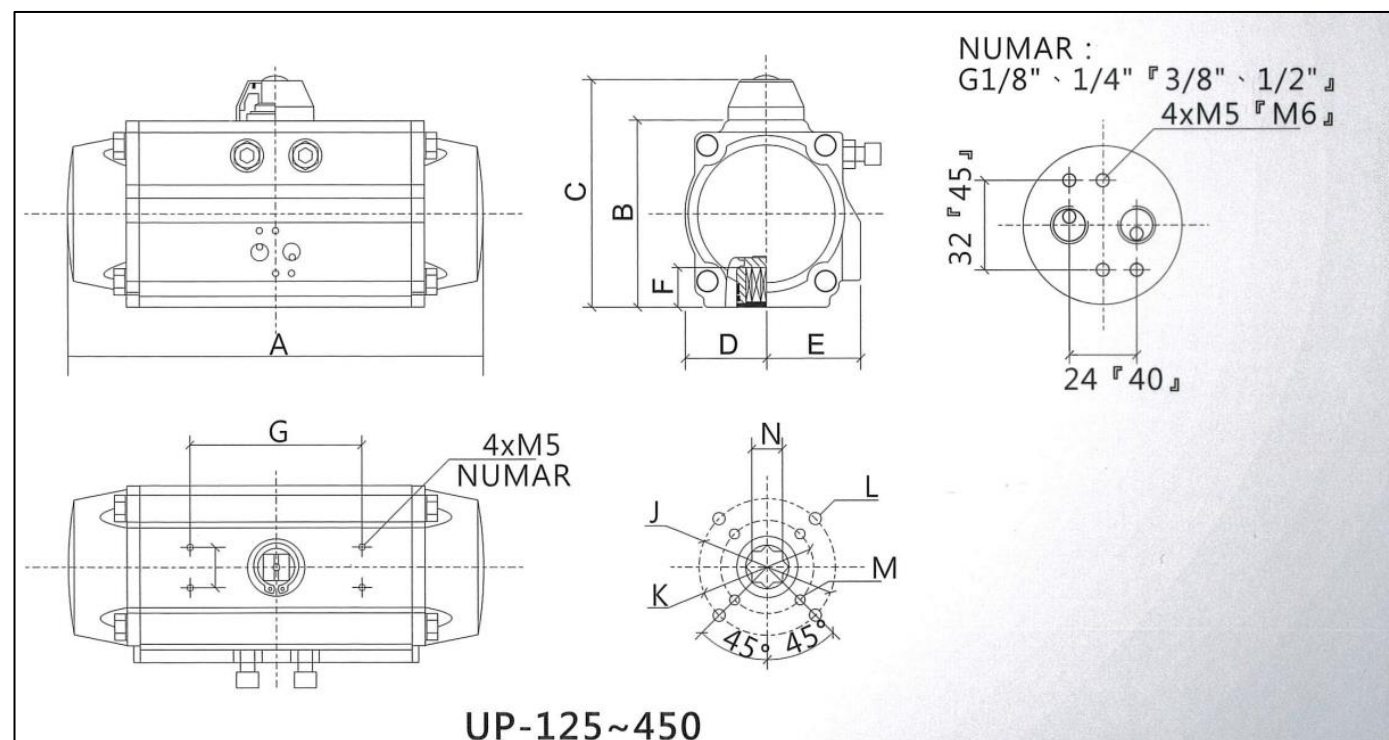
# PRO UNI-D CO., LTD.

## Pneumatic Rack & Pinion Actuators TORQUE RATINGS (IN-Lbs)

### Double-Acting Actuators

| Model    | Air Torque Output at Operating Pressure - Psig |      |       |       |       |
|----------|--|------|-------|-------|-------|
|          | 40   | 60   | 80    | 100   | 120   |
| UP-125   | 71   | 107  | 140   | 181   | 214   |
| UP-250   | 124  | 190  | 250   | 319   | 379   |
| UP-450   | 247  | 376  | 500   | 633   | 752   |
| UP-1000  | 500  | 750  | 1000  | 1250  | 1500  |
| UP-2250  | 1125   | 1687 | 2250  | 2812  | 3375  |
| UP-3650  | 1825   | 2738 | 3650  | 4563  | 5475  |
| UP-5000  | 2500   | 3750 | 5000  | 6250  | 7500  |
| UP-11000 | 5500   | 8250 | 11000 | 13750 | 16500 |

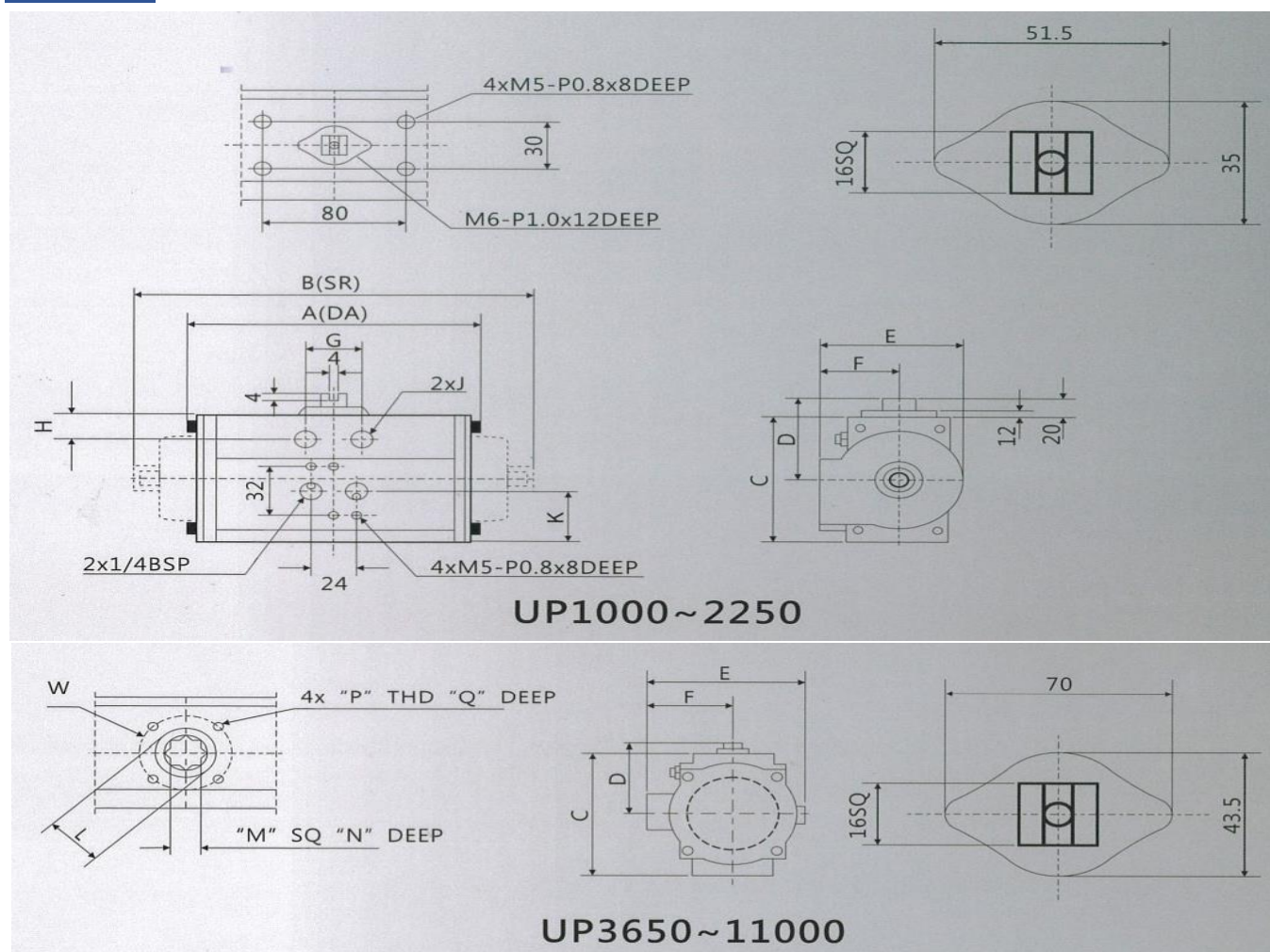
### DIMENSIONS



| Model  | BODY SIZE |       |       |      |      | Shaft |    |    |    | ISO PATTERN |     |    |    |    | Gland thread |
|--------|-----------|-------|-------|------|------|-------|----|----|----|-------------|-----|----|----|----|--------------|
|        | A         | B     | C     | D    | E    |       | F  | G  | H  | J           | K   | L  | M  | N  |              |
| UP-125 | 155       | 69    | 89    | 29   | 41   | 12    | 12 | 80 | 30 | F05         | F03 | M6 | M5 | 11 | G1/4"        |
| UP-250 | 168       | 85    | 105   | 36.5 | 46.5 | 14    | 14 | 80 | 30 | F05         | F03 | M6 | M5 | 14 | G1/4"        |
| UP-450 | 219       | 102.5 | 122.5 | 43   | 52.5 | 18    | 18 | 80 | 30 | F07         | F05 | M8 | M6 | 17 | G1/4"        |

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## DIMENSION



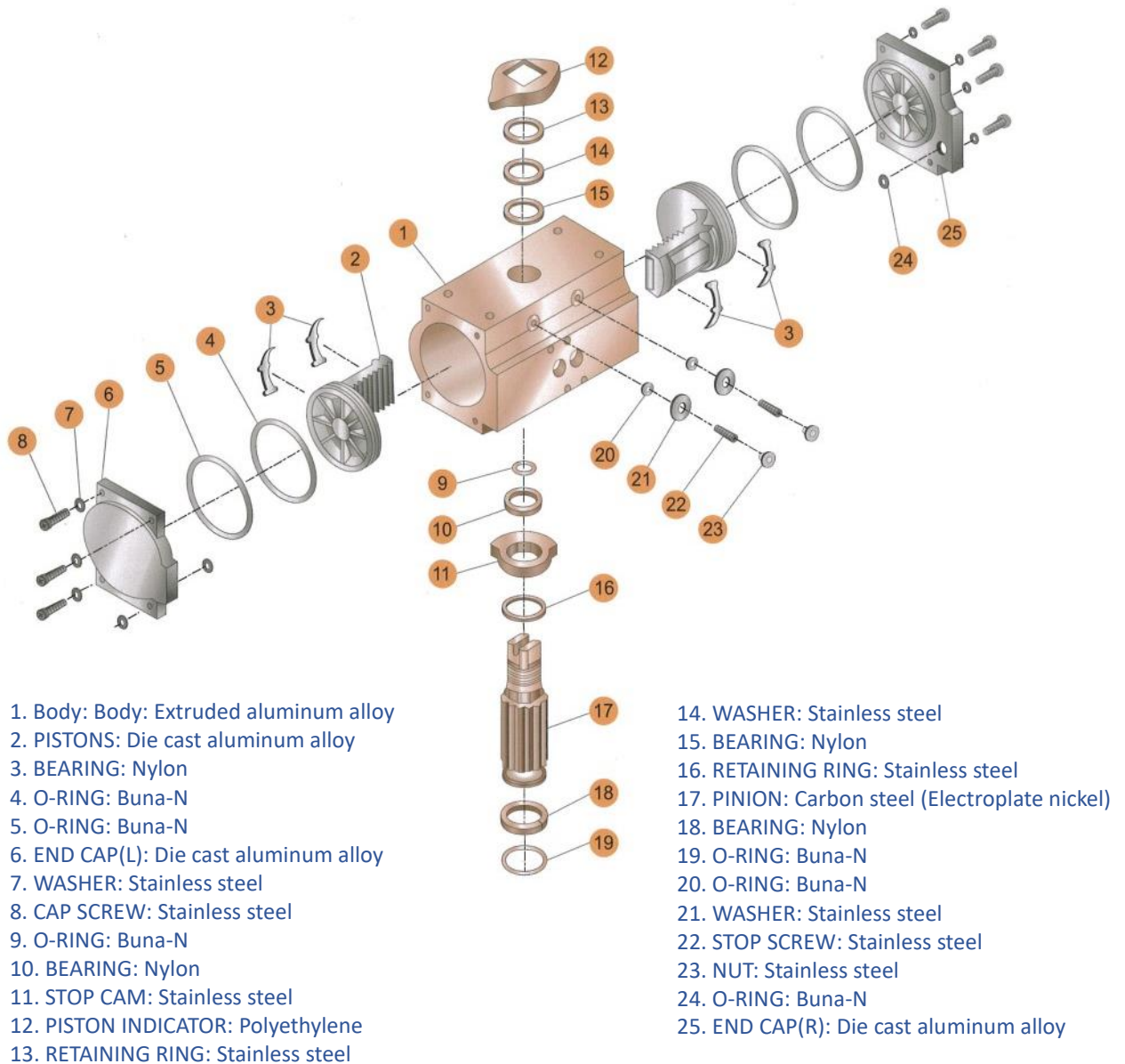
| Model    | ISO<br>PATTERN | A     | B     | C     | D     | E     | F     | G    | H    | J         |
|----------|----------------|-------|-------|-------|-------|-------|-------|------|------|-----------|
| UP-1000  | F05 or F07     | 183.0 | 250.6 | 121.0 | 79.2  | 119.0 | 64.5  | 46.2 | 16.6 | M8*P1.25  |
| UP-2250  | F07 or F10     | 277.5 | 364.0 | 141.0 | 89.5  | 140.5 | 75.5  | 54.0 | 18.6 | M10*P1.5  |
| UP-3650  | F10 or F12     | 304.3 | 422.0 | 176.0 | 99.1  | 185.2 | 105.5 | 79.7 | 27.3 | M12*P1.75 |
| UP-5000  | F10 or F12     | 364.4 | 487.0 | 196.0 | 116.5 | 204.8 | 107.8 | 79.4 | 28.3 | M12*P1.75 |
| UP-11000 | F14            | 490.0 | 642.0 | 243.7 | 138.5 | 238.2 | 125.0 | 95.3 | 35.8 | M16*P2.0  |

|          | K     | L    | M    | N    | P                  | Q         | W           |
|----------|-------|------|------|------|--------------------|-----------|-------------|
| UP-1000  | 33.5  | 23.0 | 17.0 | 25.5 | M6*P1.0/M8*P1.25   | 10.0/12.0 | 50.0/70.0   |
| UP-2250  | 39.0  | 29.5 | 22.0 | 31.0 | M8*P1.25/M10*P1.5  | 12.0/15.0 | 70.0/102.0  |
| UP-3650  | 97.4  | 35.5 | 27.0 | 35.0 | M10*P1.5/M12*P1.75 | 15.0/19.0 | 102.0/125.0 |
| UP-5000  | 99.0  | 35.5 | 27.0 | 35.0 | M10*P1.5/M12*P1.75 | 15.0/19.0 | 102.0/125.0 |
| UP-11000 | 124.7 | 47.5 | 36.0 | 45.0 | M16*P2.0           | 24.0      | 140.0       |



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## DESIGN and CONSTRUCTION

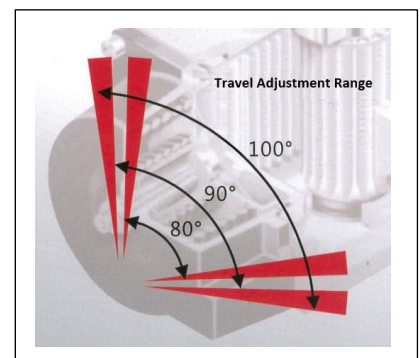


## BI-DIRECTIONAL TRAVEL STOP ILLUSTRATION

Our pneumatic actuators feature bi-directional pinion travel stops. Side located stops allow a full  $\pm 5\%$  of valve travel adjustment, giving a guaranteed range of adjustment between  $80^\circ$  and  $100^\circ$  of actuator travel. These travel stops are designed to absorb the maximum rated torque of the actuator and the maximum impact loads associated with recommended stroke speed.

### Standard Assembly

Adjustment of the counterclockwise and clockwise rotation limits are accomplished by turning the respective left and right stop adjustment screws to reduce or increase output rotation.

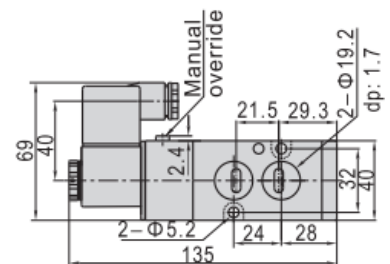
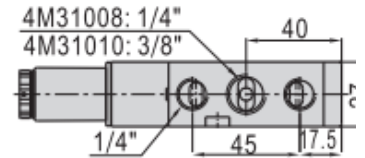


# PRO UNI-D CO., LTD.

## Solenoid valve (5/2way)

### Specification

|                    |  |
|--------------------|--|
| Model              | 4M310008 / 4M31010   |
| Fluid              | Air (to be filtered by 40 $\mu$ m filter element)          |
| Acting             | Internal piloted   |
| Port size          | 1/4" / 3/8", PT, PF (G), NPT available                     |
| Orifice size       | 25 mm <sup>2</sup> (cv=1.40) / 30mm <sup>2</sup> (cv=1.67) |
| Valve type         | 5 port 2 position  |
| Operating pressure | 0.1-0.8MPa (21-114psi)                                     |
| Proof pressure     | 1.5MPa (215psi)  |
| Temperature °C     | -20~+70  |
| Material of body   | Aluminum alloy   |
| Lubrication        | Not required   |
| Max. frequency     | 4cycle/sec (no-load state)                                 |
| Weight             | 310g   |



### Coil specification

|                            |                                     |
|----------------------------|-------------------------------------|
| Standard voltage           | AC220V, AC110V, AC24V, DC24V, DC12V |
| Scope of voltage           | AC: $\pm 15\%$ DC: $\pm 10\%$       |
| Power consumption          | AC: 3.5VA DC: 3.0W                  |
| Protection                 | IP65(DIN40050)                      |
| Temperature classification | B Class                             |
| Electrical entry           | Terminal, Grommet                   |
| Activating time            | 0.05 sec and below                  |



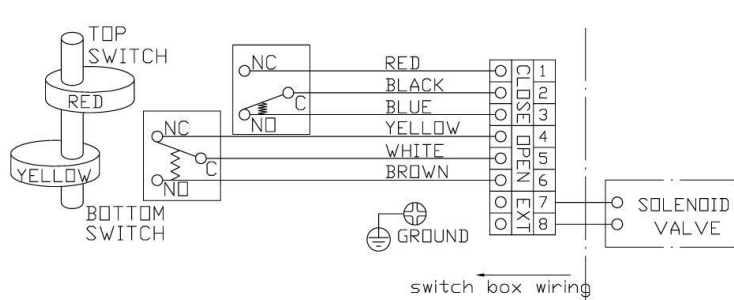
### Product feature

1. Internally piloted structure.
2. Structure in sliding column mode: good tightness and sensitive reaction.
3. Double control solenoid valves have memory function.
4. Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life.
5. No need to add oil for lubrication.
6. Install in the side plate with the surface upward, which can be used by directly connecting with the actuators.
7. Affiliated manual devices are equipped to facilitate installation and debugging.
8. Several standard voltage grades are optional.

# PRO UNI-D CO., LTD.

## Position indicator for Pneumatic actuator

|                    |  |
|--------------------|--|
| Enclosure          | Waterproof IP67  |
| Temperature        | -20°C to 80°C  |
| Conduit Entries    | NPT 1/2  |
| Terminal Strips    | 8 points (.08-2.5mm <sup>2</sup> )   |
| Position Indicator | Closed: Red, Open: Yellow  |
| Switches           | Mechanical switch x 2 SPDT   |
| External Coating   | Polyester powder coating (black)   |
| Shaft              | ISO Standard (17mm long)   |
| Housing            | Powder coated die cast aluminum  |
| Cam                | Quick Set spring loaded splined cam (no need to adjust again after initial setting, set without tools) |
| Mounting Interface | Namur  |
| Max Current        | 5 A/AC125V, 3A/250V, 5A/DC8V & 14V, 4A/DC30V, 0.4A/DC125V, 0.2A/DC250V                                 |
| Mounting Bracket   | Standard Bracket included to suit 80mm x 30mm Mounting with 30mm height (the bracket can be adjusted). |



Wiring Diagram

