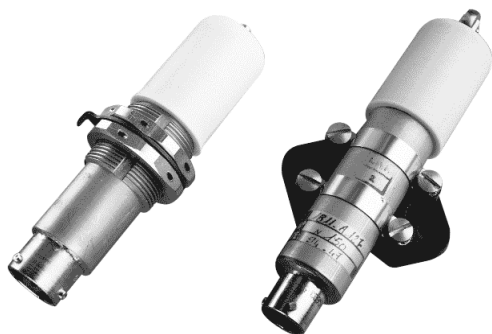


## ENGINEERING DATA SHEET

# SERIES 1811, 1816, 1860, 1866

## HERMETICALLY SEALED LIMIT SWITCH

### 1-2 PDT, 5 AMP



- 1811 series

\* **Certification** \_ **AIR 8461**

\* **Letter** \_ \_ \_ \_ | **40874 STPA**  
| **of 22/10/63**

- 1816-1860-1866 series

\* Issued from 1811

Meets the requirements of **AIR 8461**  
**AIR 9461**  
**AIR**  
**0713**

### PRINCIPLE TECHNICAL CHARACTERISTICS

Hermetically sealed plunger switch (quick make/break)

Simple push button operation (axial command only)

Operated by roller-ended plunger (compatible with oblique actuation forces)

Transfer of movement via metal bellows

Actuation force internally adjusted by rotation within the collar, or

Actuation force management by locknuts and positioning washers within the smooth housing

Weight **55 to 75 grams ±5%**  
see P/N chart

Nickel plated brass frame

Switch terminals soldered to a hermetic connector

### CONTACT ELECTRICAL CHARACTERISTICS

| Load type           | Electrical ratings    |                        |                       |                        |
|---------------------|-----------------------|------------------------|-----------------------|------------------------|
|                     | 30Vdc                 |                        | 115Vac / 400Hz        |                        |
|                     | Nominal rating (Amps) | Overload rating (Amps) | Nominal rating (Amps) | Overload rating (Amps) |
| Resistive           | 5                     | 7.5                    | 5                     | 7.5                    |
| Inductive (L/R=5ms) | 4                     | 5                      | 4                     | 5                      |
| Lamp                | 3                     | 5                      | 3                     | 5                      |

**Esterline** **Power Systems**

Featuring **LEACH**® power and control solutions  
[www.esterline.com](http://www.esterline.com)

#### AMERICAS

6900 Orangethorpe Ave.  
P.O. Box 5032  
Buena Park, CA 90622

Tel: (01) 714-736-7599  
Fax: (01) 714-670-1145

#### EUROPE

2 Rue Goethe  
57430 Sarralbe  
France

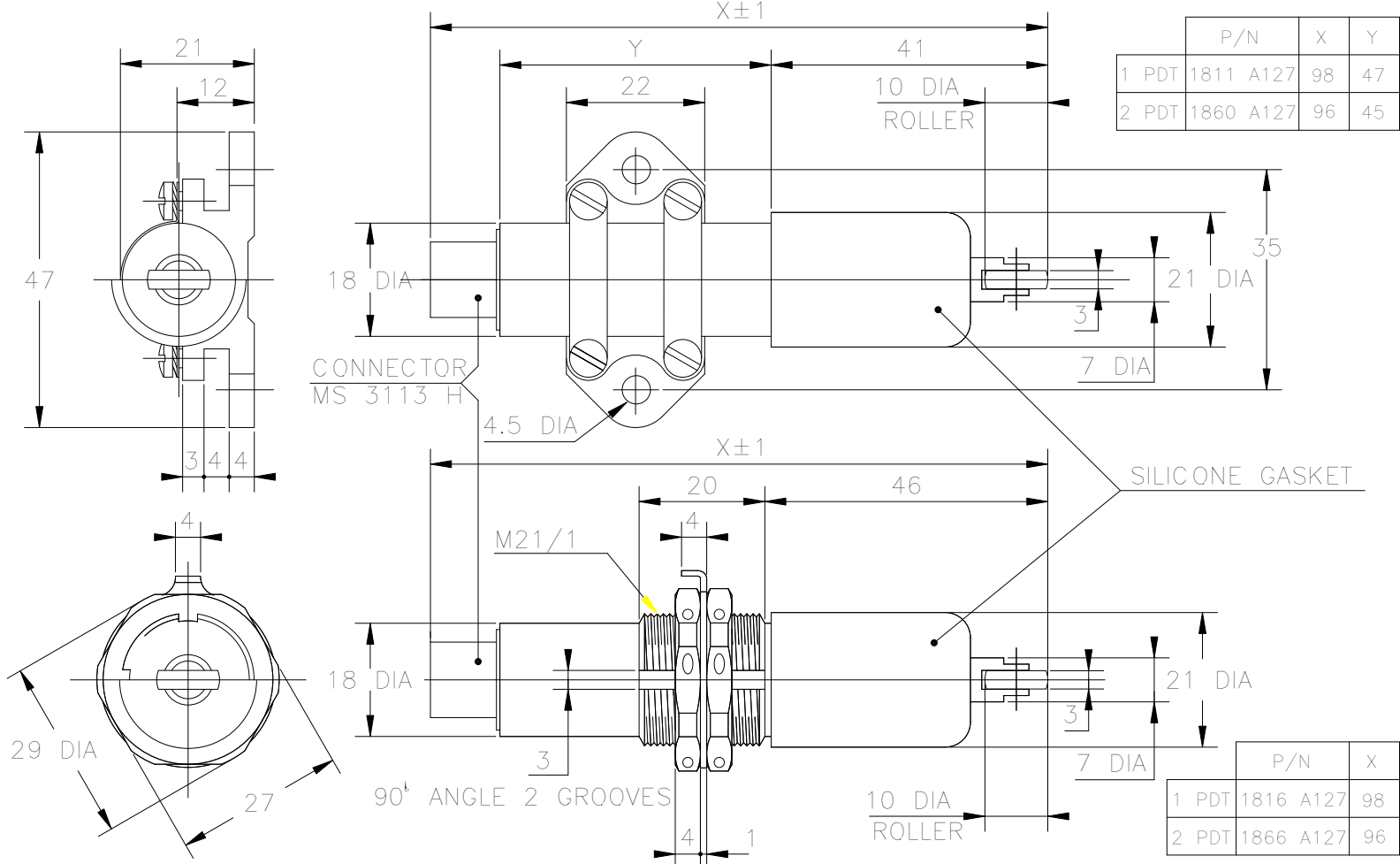
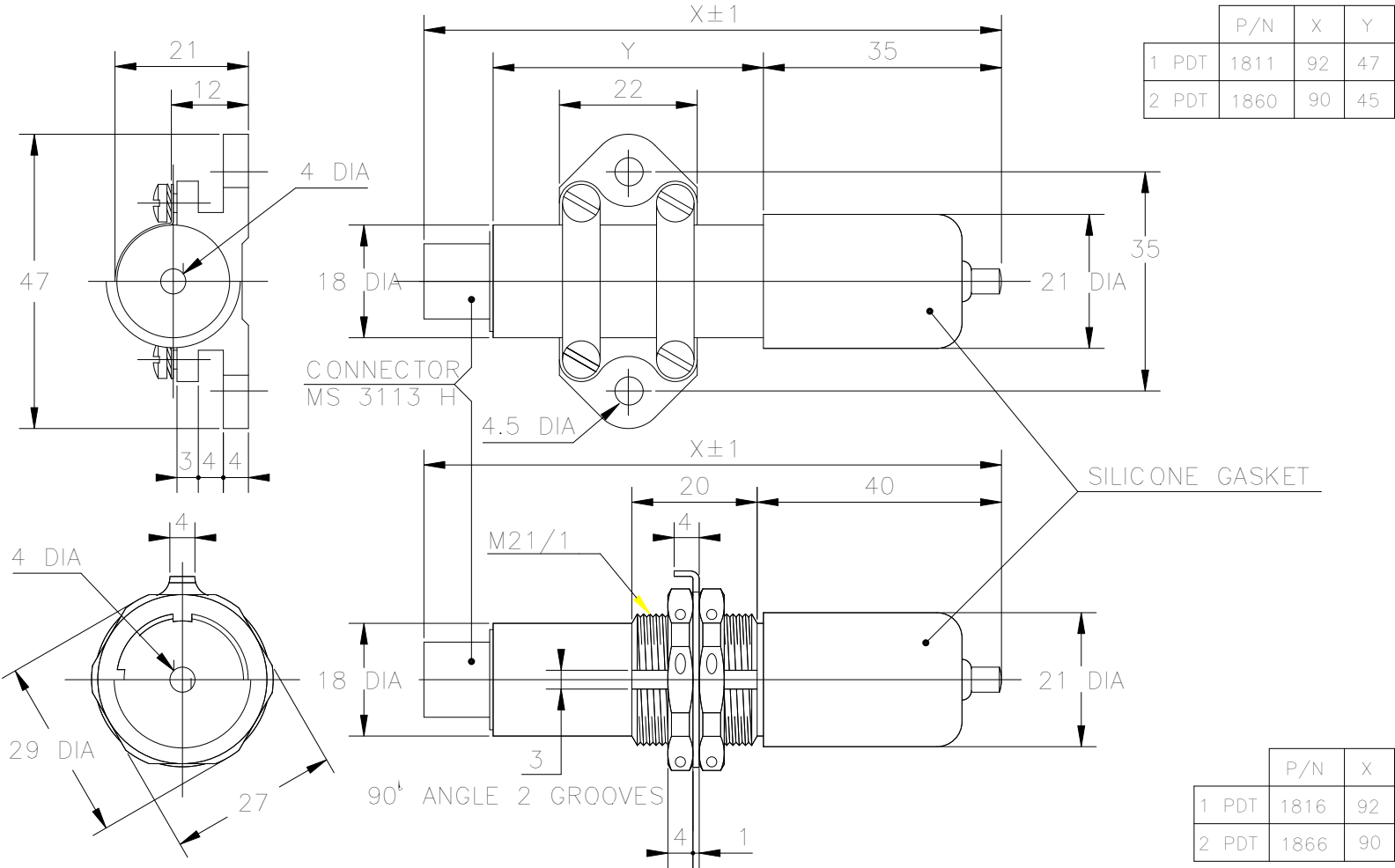
Tel: (33) 3 87 97 31 01  
Fax: (33) 3 87 97 96 86

#### ASIA

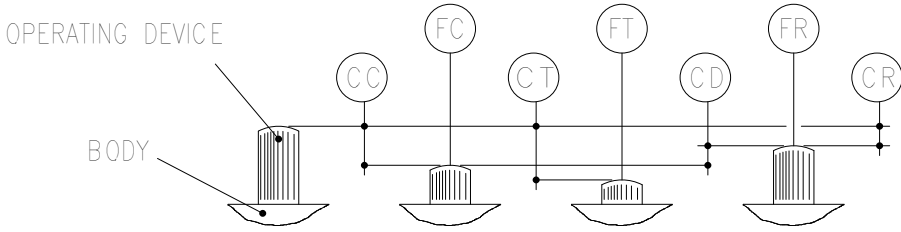
Units 602-603 6/F Lakeside 1  
No.8 Science Park West Avenue  
Phase Two, Hong Kong Science Park  
Pak Shek Kok, Tai Po, N.T.  
Hong Kong

Tel: (852) 2 191 3830  
Fax: (852) 2 389 5803

Data sheets are for initial product selection and comparison. Contact Esterline Power Systems prior to choosing a component.



DIMENSIONS IN MM  
STANDARD TOLERANCE : ±0.5

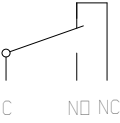
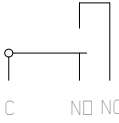
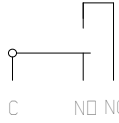
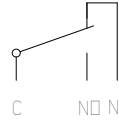


**TRAVELS**

CC = Operating travel  
CT = Total travel max  
CD = Differential travel  
CR = Residual travel

**FORCES**

FC = Operating force  
FT = Total travel force  
FR = Release force  
FM = Max overtravel force

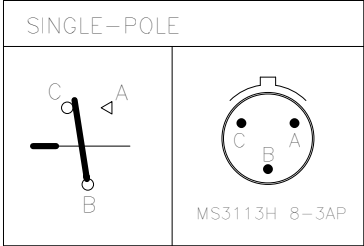
| POSITION                         |  | REST                                                                              | OPERATING                                                                         | OVERTRAVEL                                                                        | RELEASE                                                                            |
|----------------------------------|--|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| CORRESPONDING ELECTRICAL CIRCUIT |  |  |  |  |  |
|                                  |  | C NO NC                                                                           | C NO NC                                                                           | C NO NC                                                                           | C NO NC                                                                            |

|         |              | 1 PDT | 2 PDT | FORCES |           | daN   |
|---------|--------------|-------|-------|--------|-----------|-------|
| TRAVELS |              | mm    | mm    | FC     | Operating | < 3   |
| CC      | Operating    | < 2.2 | < 2.2 | FT     | Total max | < 12  |
| CT      | Total max    | 6     | 6     | FR     | Release   | > 1.2 |
| CD      | Differential | < 1.2 | < 0.8 | FM     | Max       | 24    |

- Angular command capability only for roller-ended plunger models, in accordance with max travels. (see curve last page)  
- For optimum device use, nominal travel must be around the median between operating and total travel values.

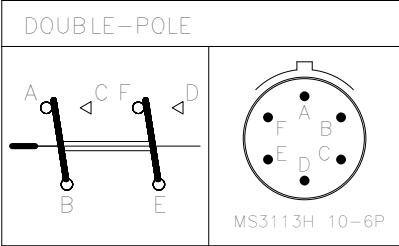
SCHEMATIC DIAGRAM

SINGLE-POLE



MS3113H 8-3AP

DOUBLE-POLE



MS3113H 10-6P

**TERMINALS**

hermetic connector 851 version conform to:

- MIL-C 26482 G series 1 (MS 3113 H)
- NFC 93422 - HE 301 B 1 H
- VG 95328 G

PART NUMBERS

| P/N       | Weight       | Type     | Mounting      |                | Actuator      |                      | Terminals     |               |
|-----------|--------------|----------|---------------|----------------|---------------|----------------------|---------------|---------------|
|           |              |          |               |                |               |                      | Connector     |               |
|           | in grams ±5% | pole (s) | Threaded body | Clamp mounting | Plain plunger | Roller-ended plunger | MS3113H 8-3AP | MS3113H 10-6P |
| 1811      | 55           | 1 PDT    |               | ■              | ●             |                      | ○             |               |
| 1811 A127 | 60           | 1 PDT    |               | ■              |               | ●                    | ○             |               |
| 1816      | 65           | 1 PDT    | ■             |                | ●             |                      | ○             |               |
| 1816 A127 | 70           | 1 PDT    | ■             |                |               | ●                    | ○             |               |
|           |              |          |               |                |               |                      |               |               |
| 1860      | 60           | 2 PDT    |               | ■              | ●             |                      |               | ○             |
| 1860 A127 | 65           | 2 PDT    |               | ■              |               | ●                    |               | ○             |
| 1866      | 70           | 2 PDT    | ■             |                | ●             |                      |               | ○             |
| 1866 A127 | 75           | 2 PDT    | ■             |                |               | ●                    |               | ○             |

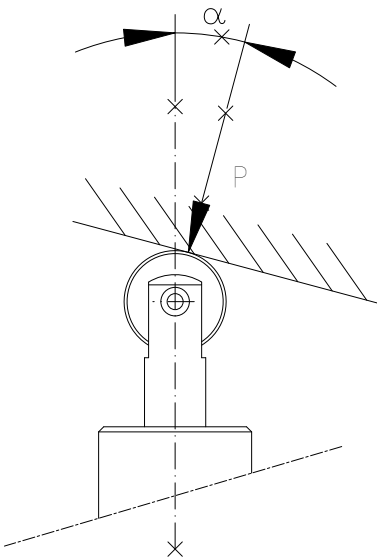
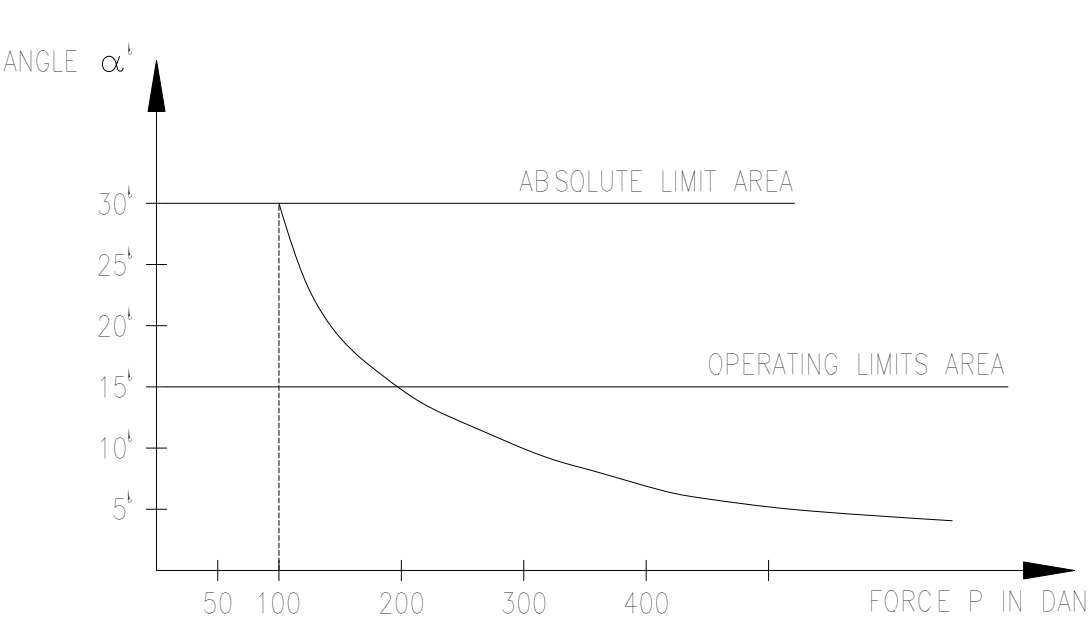
GENERAL CHARACTERISTICS

SERIES 1811, 1816, 1860, 1866

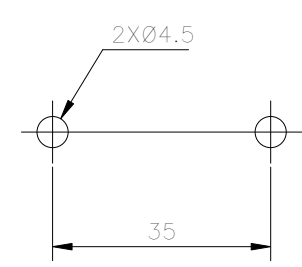
|                                               |                     |
|-----------------------------------------------|---------------------|
| Temperature range                             | -55°C to +125°C     |
| Minimum operating cycles (life) at rated load | 50,000 cycles       |
| Dielectric strength at sea level              | 500 V               |
| Dielectric strength at max altitude           | 300 V               |
| Insulation resistance at 500 Vdc              | 100 M Ohms          |
| Sinusoidal vibration                          | 10G / 20 to 2000 Hz |
| Shock                                         | 50G / 11 ms         |
| Contact voltage drop, initial value           | 120 mV              |

NOTES

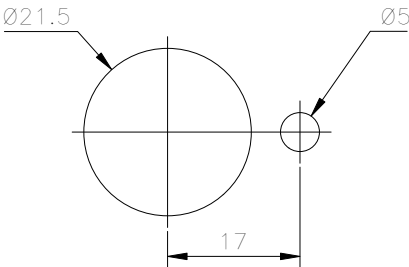
Admissible limits curve for angular commande



PANEL CUTOUT



CLAMP MOUNTING MODELS



THREADED BODY MODELS

OTAN CODES

| Type           | N.N.O. |    |     |      |
|----------------|--------|----|-----|------|
| 1811.....      | 5930   | 14 | 231 | 8161 |
| 1811 A127..... | 5930   | 14 | 244 | 8381 |
| 1816.....      |        |    |     |      |
| 1816 A127..... | 5930   | 14 | 313 | 6726 |
| 1860.....      | 5930   | 14 | 272 | 2989 |
| 1860 A127..... | 5930   | 14 | 244 | 8382 |
| 1866.....      | 5930   | 14 | 326 | 2530 |
| 1866 A127..... | 5930   | 14 | 271 | 8689 |