

PULCOM Σ -D System

Digital Measuring Head

NEW

Features

Wide measuring range (maximum diameter difference of 40 mm)

Using an optical scale, replacing the existing LVDT, as a sensor allows continuous measuring to diameters of 40 mm difference, without setup.

High Precision Measuring

The high precision, rigidity and durability proven in the PULCOM Σ -V Series are maintained to make a wide range of high precision measurements possible.

Superior Linearity for All Measurements

Fulcrum measuring mechanism is used in a best-fit method of automatic compensation of problematic diameter deformations caused by centering and measurement deviations, to achieve superior linearity.

Short Setup Time

With the size shift function of previous models, it was necessary to do mastering for each diameter measured, however it is now possible to do all measurements with only three types of mastering required during setup.

(Standard Mastering: to do zero setting, Size master: to adjust linearity)

This makes it possible to greatly reduce setup time to provide a system that is suitable for a wide variety of products and diameters.

A-Quad-B output Digital Transmission

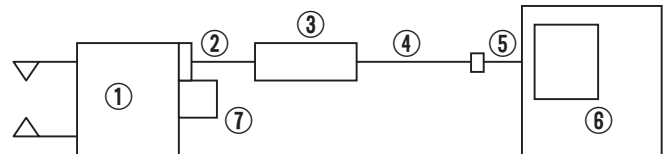
Digital transmission shortens startup time compared to previous size shift mechanisms (1/3 of previous) as well as increasing noise immunity.

Improved Maintenance

Removable connectors are standard equipment which improves maintenance.



System Configuration A



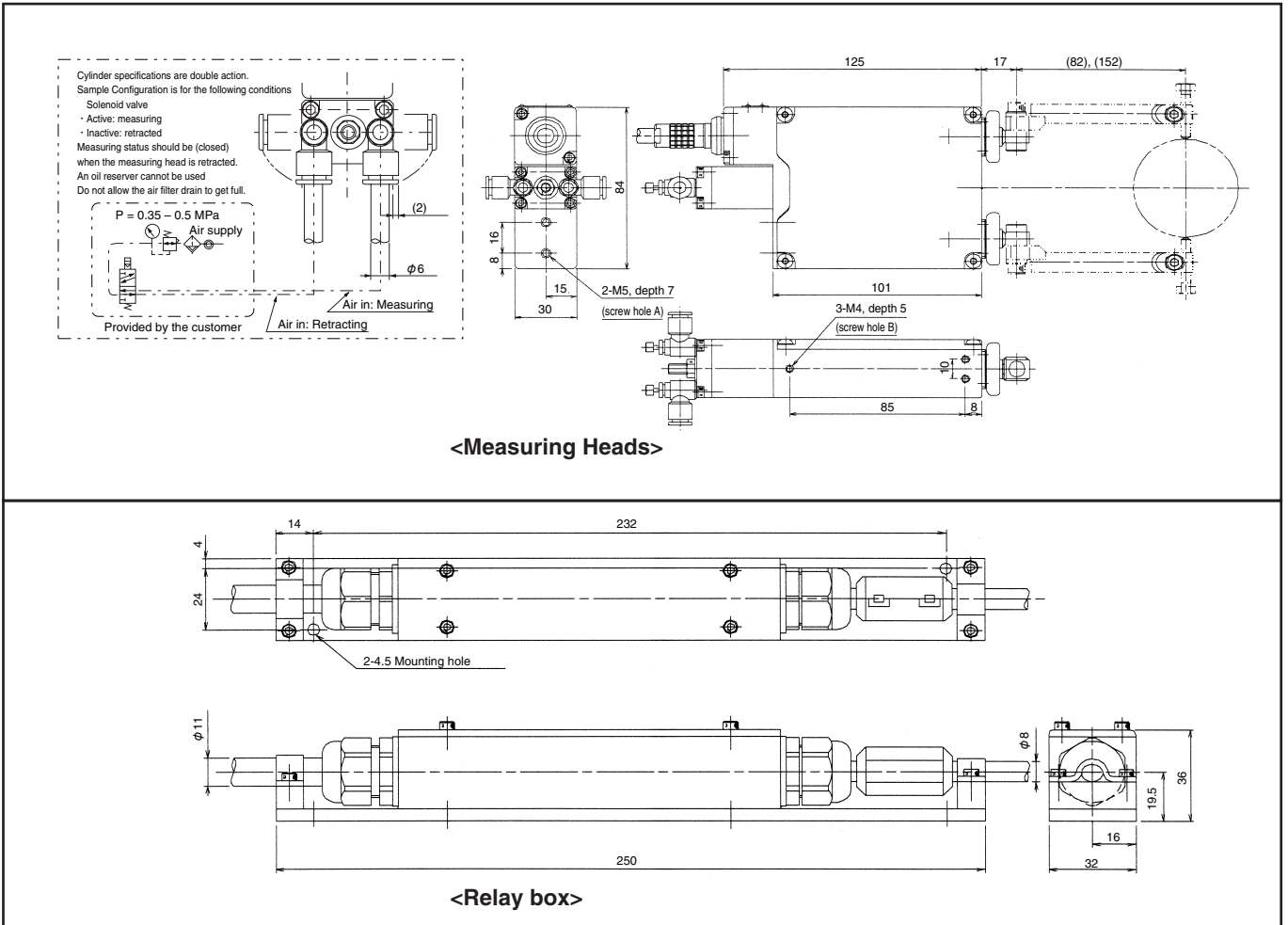
- ① Measuring head : Σ -D
- ② Analog cable : 2m fixed (minimum bend radius R40mm)
- ③ Relay box : A/D conversion circuit board internal
- ④ Digital cable : Standard 1m or 4m (special order up to 13m)
Custom lengths require an extension cable between 4 and 5.
A-Quad-B 2ch output
- ⑤ Conversion cable : Approx 200 mm
- ⑥ Control unit : Count board internal dedicated V10
Only the V10 controller is supported.
- ⑦ Double action cylinder for retraction : Standard air supply setting is 0.4 MPa

Specifications

For continuous outer diameters

| Model | Σ -D (Σ -D-OD-AR) | | | | | | |
|--|---|--|--------------------|--------------------|--------------------|----------------------|--------------------|
| Main applications | Cylindrical outer diameter and width | | | | | | |
| Finger length | 82 mm | 102 mm | 112 mm | 122 mm | 132 mm | 152 mm | |
| Model | Vertical surface | E-TD-4162 | | | E-TD-4163 | | |
| | Horizontal surface | E-TD-4166 | | | E-TD-4167 | | |
| Supported diameters (continuous measuring range) | 25 mm | 29 mm | 31 mm | 33 mm | 35 mm | 40 mm | |
| Measuring range | Standard | $\phi 4 - \phi 76.5$ | $\phi 4 - \phi 79$ | $\phi 4 - \phi 80$ | $\phi 4 - \phi 81$ | $\phi 4 - \phi 82.5$ | $\phi 4 - \phi 84$ |
| | Option | Consult us separately for measured diameters exceeding the standard. | | | | | |
| Repeatability (Standard measuring range) | 0.2 $\mu\text{m}/4\sigma$ | 0.4 $\mu\text{m}/4\sigma$ | | | | | |
| Measuring force | 0.6 - 3 N | | | | | | |
| Front travel (one side) | ≥ 6.5 mm | ≥ 7.5 mm | ≥ 8.0 mm | ≥ 8.5 mm | ≤ 9.0 mm | ≥ 10.3 mm | |
| Retract distance (one side) | ≥ 7.3 mm | ≥ 8.3 mm | ≥ 8.8 mm | ≥ 9.3 mm | ≥ 9.8 mm | ≥ 11.0 mm | |
| Wide linear range (reference value) | $\leq 0.05\%$ /all diameters (for 25 mm diameter fluctuation: $\leq 12.5 \mu\text{m}$, for 40 mm diameter fluctuation: $\leq 20 \mu\text{m}$) | | | | | | |
| Narrow linear range (reference value) | $\leq 0.5\%$ ($\leq 5 \mu\text{m}$)/ $\pm 500 \mu\text{m}$ | | | | | | |
| Finger offset | 0 - 8 mm (standard 8 mm) Consult us separately for offsets exceeding 8 mm. | | | | | | |
| Contact radius | $\geq \text{SR}1.5$ | | | | | | |
| Waterproof standard | IP67 compliant (measuring head, relay box) | | | | | | |
| Air pressure supply | 0.35 - 0.5 MPa (for double action retract cylinder) | | | | | | |
| Temperature range | Usage temperature range: 0 - 40°C/storage temperature range: -30 - 70°C | | | | | | |
| Head weight | Approx. 1.4 Kg | | | | | | |

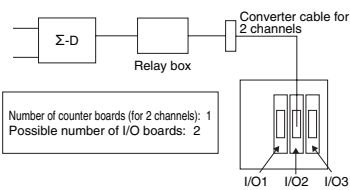
Outer Appearance/Dimension Diagram



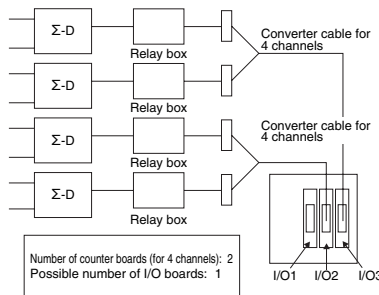
System Configuration B

| Product code | Product name |
|--------------|---|
| 4300347 | Measuring head Σ -D |
| 4300475 | Relay box (3m cable provided) |
| 4300476 | Relay box (6m cable provided) |
| 4206513 | Converter cable (for 2 channels) |
| 4206512 | Converter cable (for 4 channels) |
| 0930015 | Controller V10 (Σ D 1 unit specifications) |
| 0930014 | Controller V10 (Σ D 2 units specifications) |
| 4300473 | Software (switching up to 40 workpiece items) |
| 4300474 | Software (switching up to 128 workpiece items) |

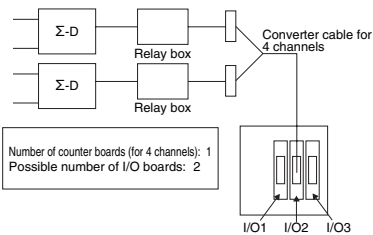
A: 1 head specifications



C: 4 head specifications



B: 2 head specifications



D: Combined with LVDT

