

TD-300A

DIGITAL
TRANSDUCER
INDICATOR

OPERATIONAL MANUAL

TEAC INSTRUMENTS CORPORATION

TEAC

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1) GENERAL

TD-300A DIGITAL INDICATOR is an advanced version of its previous model TD-300A which is a micro-computer based general purpose digital indicator for a strain gauge type transducer such as Load Cells. It is small in size but has a builtin key-switch panel designed for a various kinds of functional operations.

This Operation Manual for TD-300A provides you with the necessary information to prepare for its set-up and start-up and then to operate TD-300A, properly so that you can enjoy its full benefits.

2) FEATURES

- 2-1. Easy and Simple Calibration by Key-Switch Operation.
- 2-2. Simple Presettings by Key-Switch Operation in Automatic Priority Order.
- 2-3. Non-Evaporating RAM (NOV RAM) Equiped. (No Need of Battery Back-up)
- 2-4. UNIPULSE U300 Low-Noise Preamplifier Equiped. (Well Stabilized Display)
- 2-5. High Speed Conversion. (15 Cycle per Second)
- 2-6. Serial Data Output Available for Large Sized Panel Display, Printer, Analog Converter (4 - 20mA, 0 - 10V), etc.
- 2-7. Wide Variety of Optional Units, such as Upper/Lower Limits Comparator, Peak-Hold, BCD Output, RS-232C Communication Interface, Analog Conditioner, and D/A Converter.
- 2-8. Excellent Noise-Resistivity by photocoupler for all Digital Input/Output including Serial Output and BCD Data Output.
- 2-9. Automatic Self-Check System for Internal Circuit Conditions.

3) PREPARATION



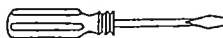

3-1. ANY DAMAGES DURING TRANSPORTATION ?

Right after being delivered to your hand, please unpack the shipping case and make sure if nothing has been damaged during its transportation.

3-2. CORRECT ITEMS DELIVERED ?

Packing List is attached to the shipping case. Please make sure if the delivered goods are right items that you ordered.

3-3. STANDARD ACCESSORIES ACCOMPANIED ?

- | | | | |
|---|---|--------|---|
| 3-3-1. AC Power Cord |  | | 1 Unit |
| 3-3-2. Spare Fuse (0.5A) |  | | 1 Piece |
| 3-3-3. Mini-Screwdriver |  | | 1 Unit |
| 3-3-4. BCD Output Connector (when OP-3 ordered) ... | | 1 Unit |  |
| 3-3-5. Operation Manual for TD-300A | | 1 Copy | |

NOTICE

TD-300A is carefully manufactured and thoroughly inspected by our qualified engineers before its shipment from our factory. Therefore, its quality and function are fully guaranteed by us. However, in case of any damages or erroneous functions found, please immediately report to us such conditions directly or via our sales agent from whom you purchased.

When you return TD-300A to us for its repair, please pack it just in the same way and in the same box as it was delivered to you. If you no longer have the same box and packing materials, you are requested to pack it as follows.

- (1) First, TD-300A shall be wrapped with a strong wrapping paper or plastic sheet.
- (2) Please use a carton box of which size shall be about 10 cm larger than each corner of the housing size of TD-300A .
- (3) In the space between TD-300A and the carton box, some shock-absorbing materials shall be filled.
- (4) The carton box shall be sealed firmly with an adhesive tape and reinforced by a tape-band if necessary.

4) SAFETY MEASURES

Before starting operation of TD-300A , please pay your attention to the following points.

4-1. GROUNDING

To avoid such accidents as electric and electro-static shocks, it is highly recommended to connect both Terminal F (+S) and G (-S) located at the rear panel of TD-300A to the ground.

Terminal F and G are internally connected to Ground Terminal of Noise Filter of AC Power Input Unit and to the frame respectively.

Terminal 17 (SHLD) is for internal connection of a shielded part of Transducer Input Cable to the frame.

4-2. PROHIBITED AREAS FOR OPERATION

It is prohibited to operate TD-300A in the areas where any flammable gas or vapor is existing. If any questions on this subject, please ask us for further information concerned.

4-3. INPUT POWER SOURCE

TD-300A is run by AC Power (90-110V, 50/60Hz) and its maximum power consumption is 14VA. In case the power supply is not stable, a voltage stabilizer is to be connected to the main power line.

Upon request, the input voltage may be changed to another ratings.

4-4. OPERATION & STORAGE TEMPERATURE

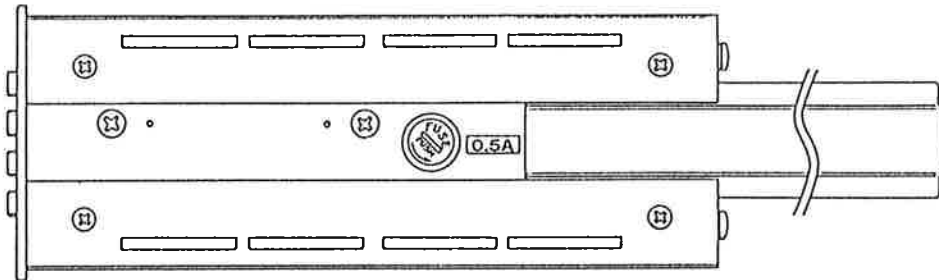
Operation Temperature Range : -10 °C to +40°C

Storage Temperature Range : -40 °C to +80°C

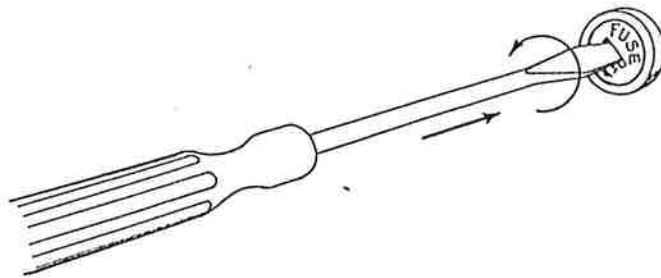
5) FUSE REPLACEMENT

Fuse can be replaced by a new one as per following procedures.

- 5-1. Untighten the screws located at the rear panel and pull out the side rail as shown below.



- 5-2. Push Fuse Holder and turn it counter-clockwise by the screw driver as far as it is to be moved out. Fuse rating is 0.5 A.

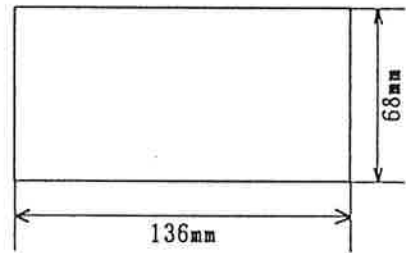


- 5-3. Replace with a new fuse and turn it clockwise into the fuse holder.

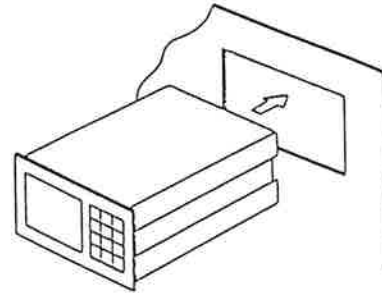
6) INSTALLATION

If TD-300A is installed in a panel rack, its panel cutting shall be made in accordance with the dimensions shown in 6-1 below, and then be fixed to the panel rack by the fixtures supplied with TD-300A .

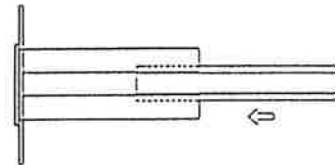
- 6-1. Make a hole in the size, 136W X 68H (mm) in the panel rack as shown in the right.



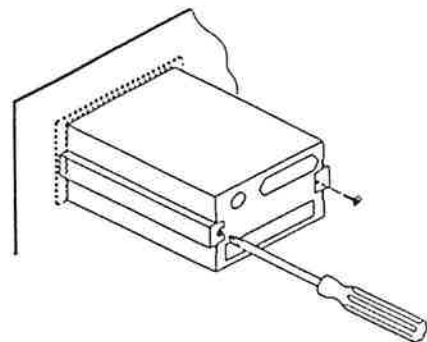
- 6-2. Remove the fastening bars at each side of TD-300A .
Then, insert TD-300A into the hole.



- 6-3. Put the fastening bars back to their original places from the rear side as shown in the right.



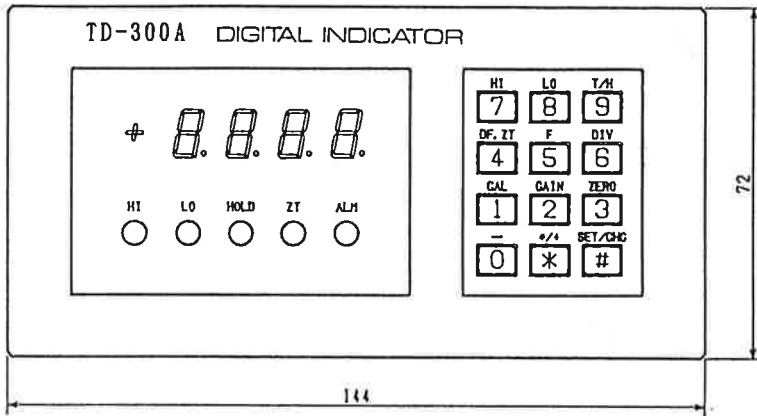
- 6-4. Fix the fastening bars firmly with the 4mm screws.



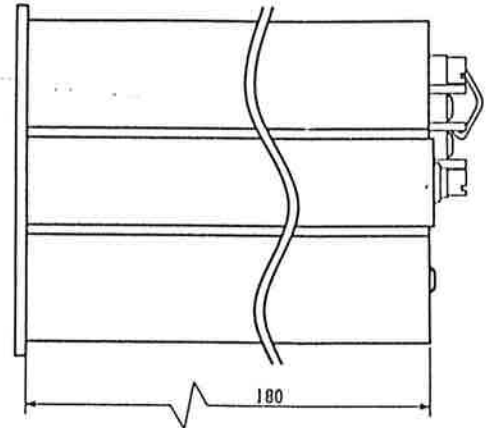
CAUTION

When it is necessary to be moved after installation, be careful any strong shocks or vibrations will not be given to TD-300A .

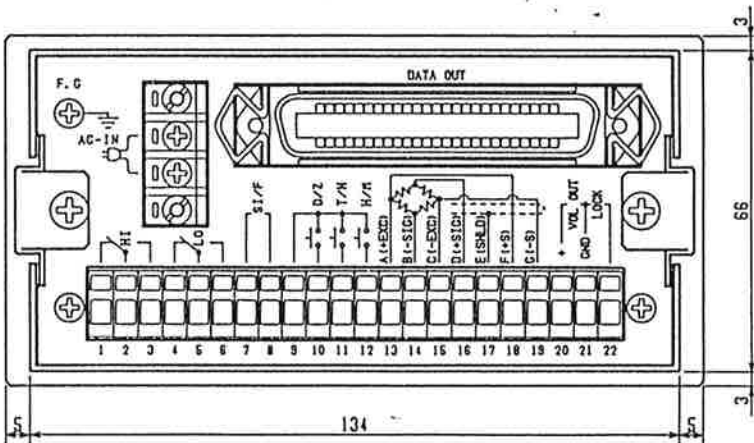
7) DIMENSIONS



FRONT PANEL



SIDE VIEW



REAR PANEL

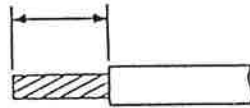
UNIT : mm

8) CONNECTION GUIDE (TERMINAL BOARD AT REAR PANEL)

Simple and easy Input/Output connection can be assured thanks to Cage Clamping System. (However, the cage clamping system is not applicable for BCD Output Terminals.)

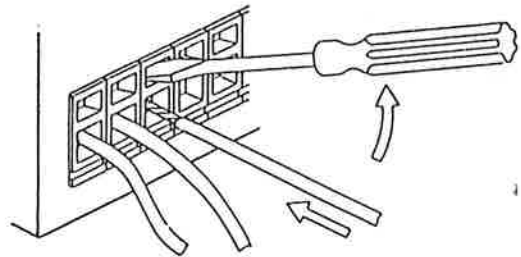
8-1. The following are the cable connection procedures.

8-1-1. Remove the wire cover and take out about 5 - 6mm long bare wire as shown in the right.



8-1-2. Reform or twist the bare wire so as to be easily inserted into the terminal hole.

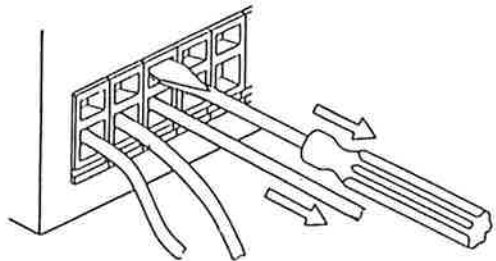
8-1-3. Insert the screw-driver (supplied with TD-300A as Standard Accessory) into the upper hole and then lift it up.



8-1-4. Insert the bare wire into the lower hole.

8-1-5. Pull the screw-driver out from the upper hole.

8-1-6. Make sure if the wire is clamped well and if it does not come out even when it is pulled out with a little force.



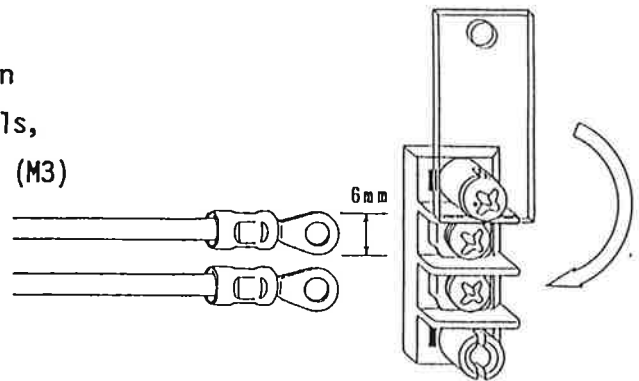
NOTICE

- (1) Diameters of connection cable shall be in the range of 0.2 to 2.5mm². (For the other wire sizes, some treatments are needed.)
- (2) If several wires are connected to one terminal hole, please twist those wires all together and then insert them into the lower hole.

8-2. INPUT MAIN POWER TERMINAL CONNECTION

8-2-1. PREPARATION FOR POWER CABLE

Before connecting the input main power line to the power terminals, arrange and fix a hole terminal (M3) at the end of line so that the connections are firmly made.



8-2-2. AC IN

Terminals for the input main power.

Standard Input Power Supply System is AC 90 - 110V, 50/60Hz.

Upon request, another voltage is also available.

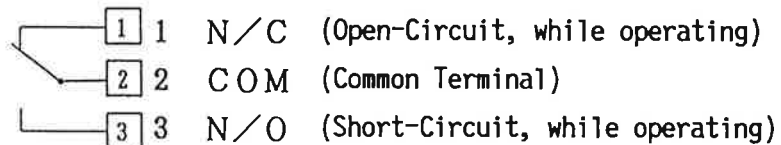
8-3. F, G

Terminals for grounding.

A large wire (e.g. 0.75 mm²) is recommended for the ground cable.

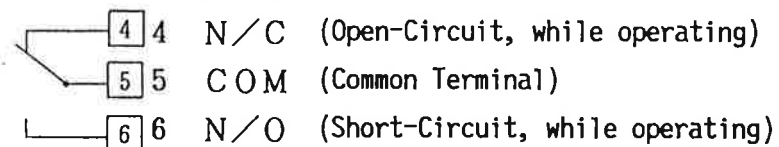
8-4. [1, 2, 3] HI OUT

Terminals for Upper Limit Relay Output



8-5. [4, 5, 6] LO OUT

Terminals for Lower Limit Relay Output

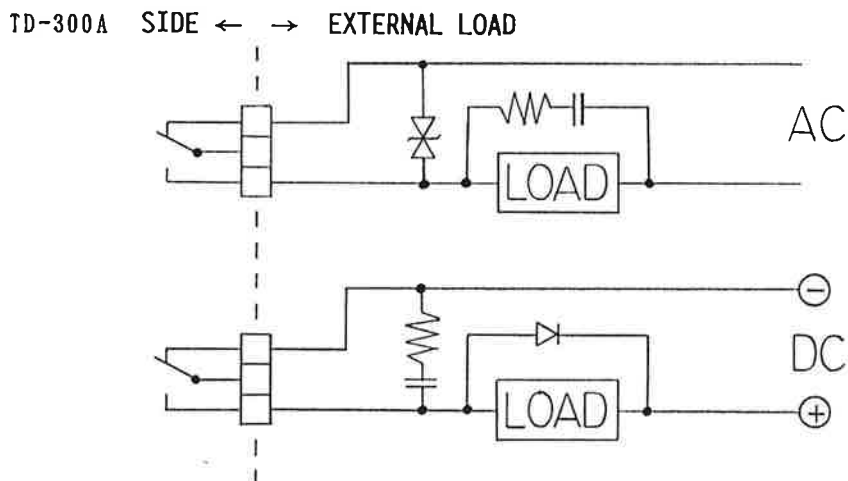


CAUTION

CAUTION TO UPPER AND LOWER LIMIT COMPARATIVE FUNCTIONS

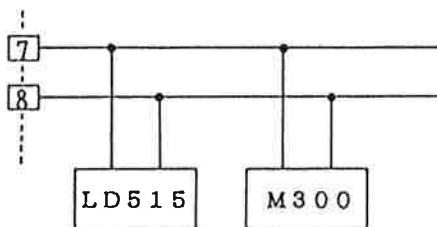
- (1) Observe the resistive load ratings, AC 250V, 0.5A.
Avoid over-voltage or over-current which will cause damages of or will shorten the life of TD-300A .
- (2) Do Not make any Short-Circuits under loaded conditions.
Otherwise, TD-300A will get into troubles.
- (3) Make sure if the load side has Noise-Filters so that TD-300A can get reinforced against noises.
- (4) Shielded cable is not required.
Keep TD-300A away from the power lines or other wires on which noises are superposed.

EXTERNAL LOAD CONNECTION EXAMPLE OF UPPER AND LOWER LIMIT REPLAY



8-6. [7, 8] S I/F SERIAL OUTPUT

Terminal 7 and 8 are of Non-Polarity. External S I/F can be connected in parallel upto 3 units. Shielded Cables are not required, but the cables should be connected separately from AC lines and other lines with noises.

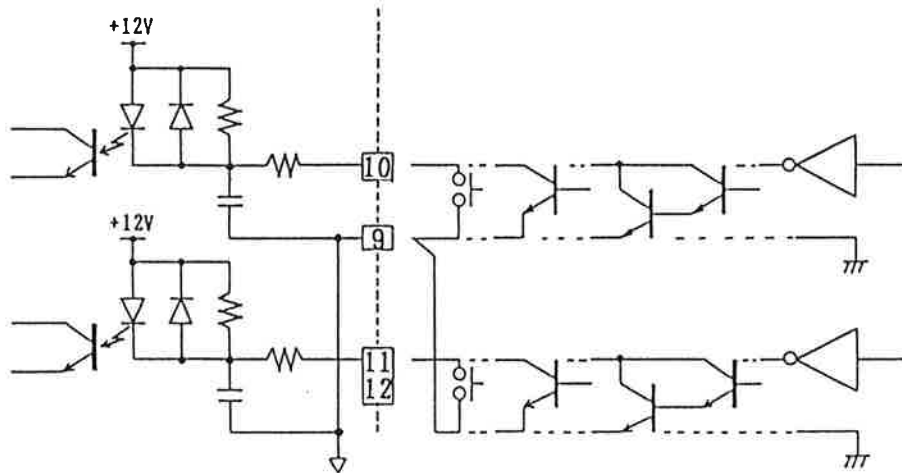


8-7. [9, 10, 11, 12] D/Z, T/H, H/M

(DIGITAL ZERO AND TRACK-HOLD COMMAND INPUT)

The connections are shown below. Terminal 9 is for Common.

Input can be made both for connecting points like Relay and Switch, and for non-connecting points like TTL Open Collector and Transistor.



Shielded Cables are not required, but the cables should be connected separately from AC lines and other lines with noises.

CAUTION

CAUTION FOR D/Z, T/H, H/M EXTERNAL INPUT

- (1) External elements shall withstand 10 mA or more current flowing in circuits.
- (2) Current Leakage of external elements shall be within 100 μ A.
- (3) External elements shall be of 2V or less voltage when Terminal 9-10, 9-11 and 9-12 are in a short-circuit.

8-8. [13 ~ 19] TRANSDUCER INPUT

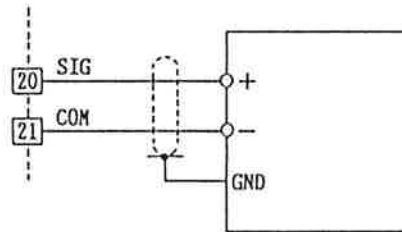
Upto the 4 units of 350 Ω Family Transducers can be connected in parallel with each other. For further details, please refer to SENSOR CONNECTION in " 12 ".

8-9. [2 0, 2 1] VOL OUT

Voltage Output terminals.

Terminal 20 is for signal and

Terminal 21 is for common.



CAUTION

CAUTION TO VOLTAGE OUTPUT

- (1) VOL OUT is not isolated from the internal circuits.
When connecting to an external equipment, the shielded cable should be used and its length should be within 2 or 3 meters.
If a longer cable is used, it might be influenced by noise.
- (2) Do not have it short-circuited for a longer time than one hour.
Otherwise, it will cause troubles.
- (3) Do not apply an external voltage to the Voltage Output Terminals.
Otherwise, it will break TD-300A .

8-10. [2 2] LOCK (CALIBRATION LOCKOUT)

This terminal is not for external interface. (Do not use it for external.)

Please refer to Calibration in "24"

9) TRANSDUCER CONNECTION

Excitation Voltage of TD-300A is DC 10V, or DC 5V, or DC 2.5V which can be selected. Connection can be made either for 4 wire or 6 wire System (Remote Sensing System). Upto 4 units of 350 Ω Family Transducers can be connected in parallel with each other. Here, "Remote Sensing System" means that even if a cable resistance get changed due to a longer cable and/or temperature variation by which a voltage exciting to the transducer becomes varied, the voltage value at the transducer is controlled and stabilized by this system.

9-1. CONNECTION PROCEDURE

9-1-1. SELECTION OF EXCITATION VOLTAGE

Check and see if the label on the case cover of TD-300A case cover shows the same excitation voltage as that of the transducer.

If it is different from the transducer's, change the excitation voltage of TD-300A by selection switch. However, when changing it, do not select a voltage exceeding the recommended value of the transducer.

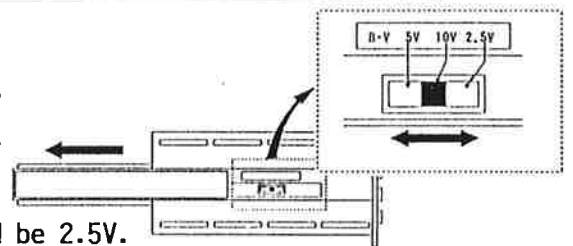
NOTICE

MARKING CORRECTION OF EXCITATION VOLTAGE

In order to avoid any mis-connection, after selecting another excitation voltage, the voltage marked on the label must be corrected to the selected value like shown in the right.

EXCITATION VOLTAGE
(V) 10V 5V
 2.5V

If an excitation voltage of transducer is higher than the range of 10 ~ 12V, it is recommended to select 10V, while 6 ~ 7V, it would be 5V, and if it is 3V, it would be 2.5V.

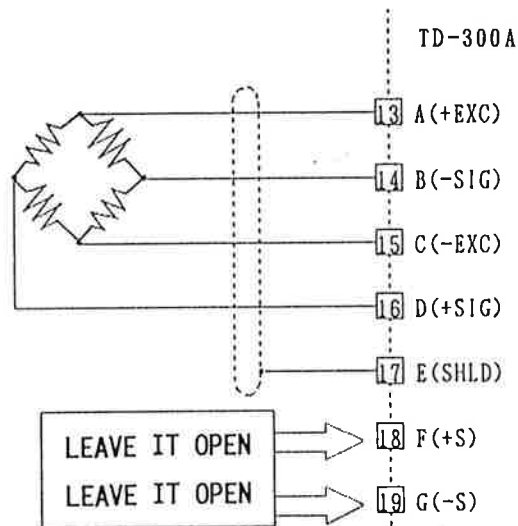


CAUTION

If a higher voltage is excited to the Transducer, it gets hot and drift becomes larger, and then, if it is kept on being excited by a higher voltage, the Transducer will get damaged.

9-1-2. TRANSDUCER CONNECTION

9-1-2-1. 4 WIRE CONNECTION SYSTEM



Terminal 18 (+S) and 13 (+EXC), and Terminal 19 (-S) and 15 (-EXC) are connected respectively in side of TD-300A . Therefore, just leave them open.

CAUTION

After it is used for 6 Wire System, it can be used for 4 Wire too. But, in this case, Terminal 18 (+S) and 13 (+EXC) as well as 19 (-S) and 15 (-EXC) should be connected together respectively. If those two Terminals are not connected, a high voltage (15V or more) will be supplied to the Transducer.

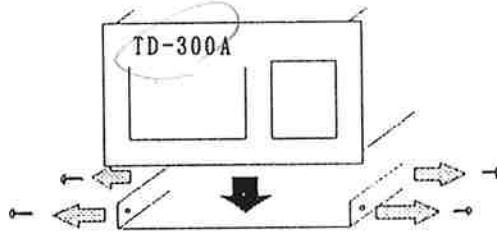
CAUTION

- (1) The connection shall be made with 4 Core Shielded Cable and be kept away from AC Lines and Lines with noises.
- (2) The Shielded Terminal no. 17 is to be connected with a thicker wire (e.g. 0.75mm Dia.) and be grounded.

9-1-2-2. 6 WIRE CONNECTION SYSTEM

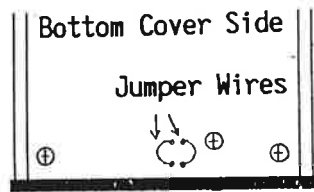
TD-300A is set for the 4 Wire Connection when delivered from our factory. This means that Terminal 18 (+S) and 19 (-S) are connected to Terminal 13 (+EXC) and 15 (-EXC) respectively inside of TD-300A and, therefore, for the 6 Wire Connection, they must be disconnected. After having selected Excitation Voltage of Transducer, disconnect the 2 Jumper Wires on Printed Circuit Board as per the following.

- (1) Remove the bottom cover of TD-300A .



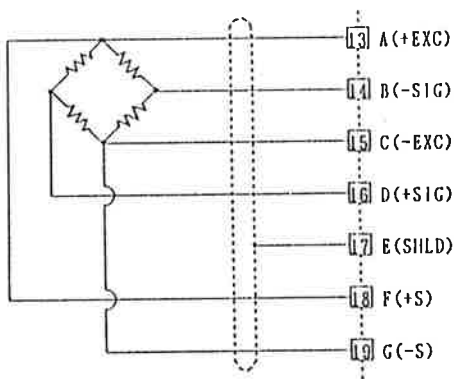
Take out the 4 screws at the bottom cover.

- (2) Cut off the 2 Jumper Wires on the PC-Board by nipper.



Terminal Board Side of Rear Panel

- (3) Put the bottom cover back to TD-300A , and then connect as follows.



CAUTION

- (1) After having changed to the 6 Wire Connection System, if you use it as the 4 Wire Connection System again, the excitation voltage becomes over 15V regardless any selection of voltage.
- (2) Use a shielded 6 core cable and its wiring should be done separately from the lines with many noises and AC lines.
- (3) Use a thick wire like 0.75mm for Terminal 17 (Shielded) and ground it.

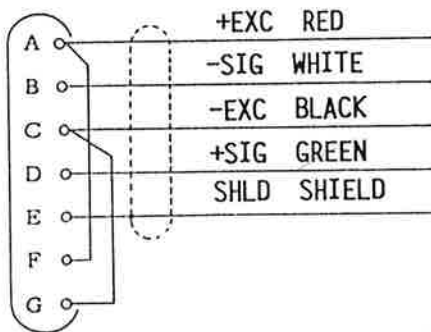
9-2. TRANSDUCER CABLES

Colors of Transducer Cables are subject to its manufacturer and also subject to the 4 Wire and 6 Wire Connection Systems.

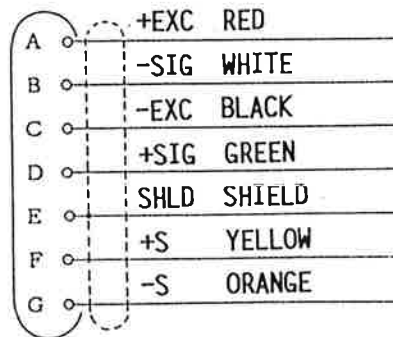
Read thoroughly the operation manuals of transducer and then connect each cable properly. The following are some examples of the color coding.

TRANSDUCER MANUFACTURER	CORD AND SIGNAL NAMES				
	A	B	C	D	E
	+EXC	-SIG	+EXC	+SIG	SHLD
TEAC (TEAC CORP.)	RED	BLACK	BLUE	WHITE	YELLOW
KYOWA (KYOWA DENGYO)	RED	WHITE	BLACK	GREEN	OUTER COVER
SHINKOH (MINEBEA)	RED	BLUE	WHITE	GREEN	OUTER COVER
BLH (MNEBEA)	GREEN	RED	BLACK	WHITE	YELLOW
ORIENTEC	RED	BLUE	WHITE	GREEN	YELLOW
SHOWA (SHOWA SOKKI)	RED	BLACK	GREEN	WHITE	OUTER COVER
TML (TOKYO SOKKI LAB)	RED	GREEN	BLACK	WHITE	OUTER COVER
SOHGOH KEISOH	WHITE	BLACK	GREEN	RED	OUTER COVER

9-3. RELAY CABLE



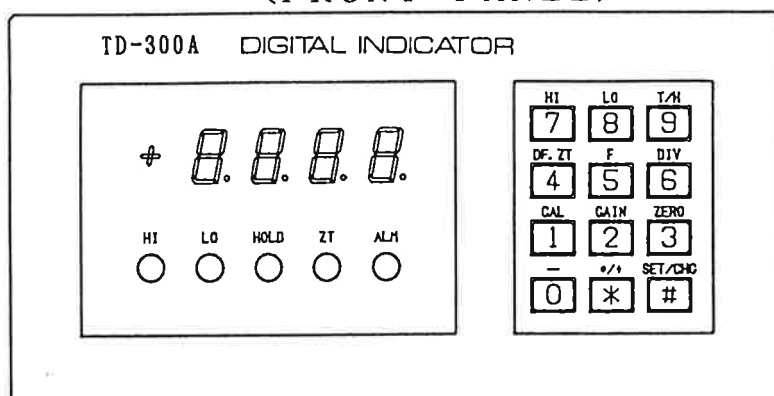
OUR 4 CORE CABLE (CA-2T/2Y)



OUR 6 CORE CABLE (CA-3Y)

10) FUNCTIONAL DESCRIPTION

(FRONT PANEL)



10-1. STATUS INDICATOR UNIT

These LEDs indicate the present conditions of ID-300A under a normal operation. During presetting, LEDs indicate the functions being preset. However, the following only describe under a normal operating conditions.

{HI}

ON, When an indicated value is higher than the upper limit preset value. If Upper/Lower Limit Comparator Option is equipped, Lighting shows the upper limit relay is driving.

{LO}

ON, when an indicated value is lower than the lower limit preset value. If Upper/Lower Limit Comparator Option is equipped, Lighting shows the lower limit relay is driving.

{HOLD}

ON, when an indicated value equals to the hold preset value. There are two kinds of Hold Functions (i.e. SAMPLE-HOLD and PEAK-POINT-HOLD. In both cases, an indicated value shows that it is at the same value as that of External T/H Signal or T/H Key Setting.

{ZT}

ON, when Zero Tracking is working.

{ALM}

ON, when it is under Over-Flow or another Abnormal Condition.

NOTICE

The following are Optional Functions.

- (1) Upper/Lower Limit Comparative Functions
- (2) Peak-Hold Function
- (3) BCD Data Output
- (4) RS-232C Data Output
- (5) Analog Conditioner
- (6) D/A Convertor

10-2. DIGITAL DISPLAY UNIT

Indicated or various kinds of Preset values are to be displayed.

In a normal condition, a value corresponding to Transducer Output is displayed.

When a value is in over-flow, the following is to be displayed.

- $\square F_{L1}$ (OVERFLOW 1 *①) : ADC - OVERFLOW
- $\square F_{L2}$ (OVERFLOW 2 *①) : ADC + OVERFLOW
- $\square F_{L4}$ (OVERFLOW 4 *②) : INDICATOR OVERFLOW (VALUE > 9999)

When presetting, a value corresponding to the preset value is to be displayed.

REMARKS :

*① (OVERFLOW 1 & 2) is as Alarm Indication reporting some troubles of Misconnection and/or Breakage of Transducer, or Disconnection of Cable, or Over-load, or Inferior Contact, etc.

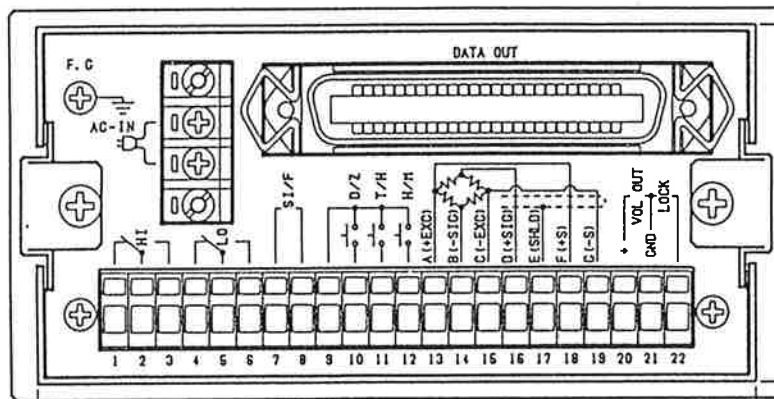
*② (OVERFLOW 4) is for Alarm Indication reporting Missetting at the calibration.

10-3. PRESETTING UNIT

This is Key-Switch Panel for Calibration, Upper/Lower Limit, and other Presettings. Each Key-Switch has a function as follows.

- 0 ... Minus or Figure 0 Input
- * ... Decimal Point, Plus and Cancel of Presetting
- # ... Command to start Presetting Input or to register Preset Value
- 1 ... Equivalent Input Calibration or Figure 1
- 2 ... Actual Load Calibration or Figure 2
- 3 ... Digital Zero or Figure 3
- 4 ... Selection of Digital Filter or Zero Tracking, or Figure 4
- 5 ... Digital Tare Subtraction and Figure 5
- 6 ... Minimum Scale Designation or Figure 6
- 7 ... Upper Limit Presetting or Figure 7
- 8 ... Lower Limit Presetting or Figure 8
- 9 ... Hold Mode Selection or Hold Command, or Figure 9

(REAR PANEL)



10-4. CONNECTION TERMINAL BOARD

AC IN

Input Power Supply Terminal. Standard is for AC 100V.
Upon request, Input Voltage can be modified.

F. G

Ground Terminal. To protect from any damages of electric or electro-static shocks, this terminal should be grounded.

{1 · 2 · 3} HI OUT

Upper Limit Relay Contact Output Terminals

{4 · 5 · 6} LO OUT

Lower Limit Relay Contact Output Terminals

NOTICE

PRECAUTION OF UPPER/LOWER LIMIT COMPARATIVE FUNCTIONS

- (1) Utilize within its ratings (AC 250V, 0.5A at Resistance Loaded condition).
Avoid any Over-Voltage or Over-Current. Otherwise, its life will be shortened and, at the same, it will cause some troubles.
- (2) Avoid any short-circuits under loaded conditions.
Otherwise, it will be broken.
- (3) Connect a Noise-Killer to the load so that it can withstand against noises better.

[7 · 8] S I/F

Serial Data Output Terminals for External Display or Printer, etc.

[9 · 10] D/Z

Digital Zero Input Command. Digital Zero works when switching from Open to Short-Circuit. This will not be effective when Terminal 21 and 22 are in the open condition (Calibration Enable).

[9 · 11 · 12] T/H, H/M

Hold Input Command. There are the 4 hold modes.

For further detail, please refer to "HOLD MODE OPERATION".

[13~19] TRANSDUCER INPUT

Upto The 4 units of Transducer (350 Ohm Family) can be connected in parallel.

[20 · 21] VOL OUT

Analog Output (Voltage Output in proportion to Transducer Input).

Output Voltage Level is about 2V per 1mV/V Input (e.g. about 1V Output at 0.5mV/V Input about 6.4V Output at 3.2mV/V Input).

[21 22] LOCK

Input Terminal to lock out Calibration Operation. When Terminal 21 and 22 are in short-circuit, Calibration is prohibited.

When Terminal 21 and 22 are open, Calibration can be carried out.

After Calibration is over, Terminal 21 and 22 must be short-circuited so as to protect from any mis-operations.

10-5. FUSE

This is Power Fuse (0.5A) for AC IN. Fuse is located at the left hand side when viewed from Rear Panel.

For the change of Fuse, please refer to "HOW TO CHANGE OF FUSE".

10-6. DATA OUT (SPACE FOR OPTIONS)

One of the following Optional Functions can be connected here.

For further detail, please refer to the respective pages.

- (1) BCD DATA OUT (OP-3) Refer to the pages
- (2) RS-232C INTERFACE (OP-4) ... Refer to the pages
- (3) ANALOG CONDITIONER (OP-6) .. Refer to the pages
- (4) D/A CONVERTER (OP-7) Refer to the pages

1 1) KEY-SWITCH OPERATION

● KEY-SWITCH OPERATION BASED ON OBJECT PRIORITY ORDER

Key-Switch has two different operation functions (i.e. Presetting Subject and Figure Input) and is operated in Automatic Priority Order.

11-1. TEN-KEY AS SELECTION SWITCHES

Presetting Subjects can be selected by Ten-Key. Selections can be repeated and revised as many times as necessary. Once # Key is pushed, the selection is finalized and the function is commanded or the pre-setting is registered.

11-2. PRESETTING DATA DISPLAY

If a presetting subject is selected, its preset data are shown in the display panel. At the same time, [HI] LED is flashing to indicate the condition. [LO], [HOLD], [ZT] and [ALM] are shown in the page .

11-3. PRESETTING TO BE STARTED BY # KEY

Push # Key so that you can input a figure as a selecting subject. [HI] LED is changed from flashing to lighting, and MSD (Most Significant Digit) of a displayed figure is flashing.

11-4. TEN-KEY AS FIGURE INPUT SWITCHES

TEN-KEY is turned from Function Keys to Figure Keys. A flashing point is the place where you can input a figure. When a figure is input, a flashing point is shifted to its next digit (i.e. the second largest digit).

If LSD (Least Significant Digit) is input, the largest digit starts flashing again. If wanted, a new figure can be input again for correction.

11-5. REGISTRATION BY # KEY

If a displayed figure is correct and corresponds to your aiming subject, its registration can be made by pushing the # Key regardless a flashing point. Now, a transducer input is to be displayed.

If a new registration is required, start again selecting a presetting of subject.

NOTICE

- (1) Presetting Unit is based on First Priority Object System and therefore, + Key, - Key, Decimal Point, etc. become effective only when it is in order.
- (2) Only when a registration of Upper/Lower Limit Presettings is input, Minus by 0 Key and Plus by * Key become effective.
- (3) Key becomes Decimal Point Function Key only while registering figure for Simulative Calibration and for Real Loaded Calibration. In the other cases, Decimal Point is automatically determined and displayed.

● SUBJECT SELECTION DISPLAY

CONDITION DISPLAY L E D					SELECTION KEY	PRESETTING SUBJECT
HI	LO	HOLD	ZT	ALM		
	○	○	○	○		Self-Check
	○	○	○	●		Transducer Output Registration for Equivalent Input Calibration
	○	○	●	○		Indicated Figure Registration for Calibration
	○	○	●	●		Zero Point and Zero Auto Registration while Calibration
	○	●	○	○		Selection of Digital Filter • Zero Tracking
	○	●	○	●		Digital Tare Subtraction
	○	●	●	○		Minimum Scale Presetting
	○	●	●	●		Upper Limit Presetting
	●	○	○	○		Lower Limit Presetting
	●	○	○	●		Hold Mode Section

○..... LED OFF
 ●..... LED ON
..... LED OO or FLASHING

CAUTION

- (1) Please do not leave more than 12 seconds between the TEN-KEY Inputs.
- (2) If it passes more than 12 seconds, it returns to Transducer Value Display Mode automatically.
- (3) In this case, all input data are cleared and you must start from the beginning again.

1 2) CALIBRATION

12-1. EQUIVALENT INPUT CALIBRATION

What is Equivalent Input Calibration ? Calibration can be done just by registering a rated output of transducer, but not by input of an actual load.

For Example :

Heavy Weight Measurement : 2.001 mV/V - 100.0 kgf
 Pressure Measurement : 2.002 mV/V - 10.00 kgf/ cm²
 Torque Measurement : 2.502 mV/V - 15.00 kgf · m

By registering the above values, Gain will be automatically adjusted and fixed.

12-2. EQUIVALENT INPUT CALIBRATION PROCEDURE

12-2-1. Release LOCK (Terminal 21 and 22) located at the rear panel.

Make Terminal 21 and 22 (LOCK) open.

If LOCK is made by KEY-SWITCH, release it as follows.



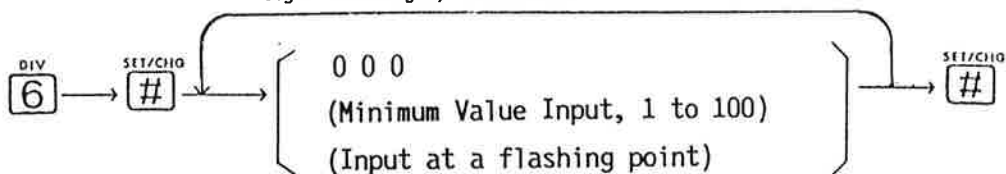
NOTICE

LOCK by Terminal Board and LOCK by KEY-SWITCH are both for the LOCK Function (Double Function). If LOCK is made by the both, you have to release the both LOCKs.

For KEY-SWITCH LOCK, please refer to KEY-SWITCH LOCK FUNCTION in the page 33.

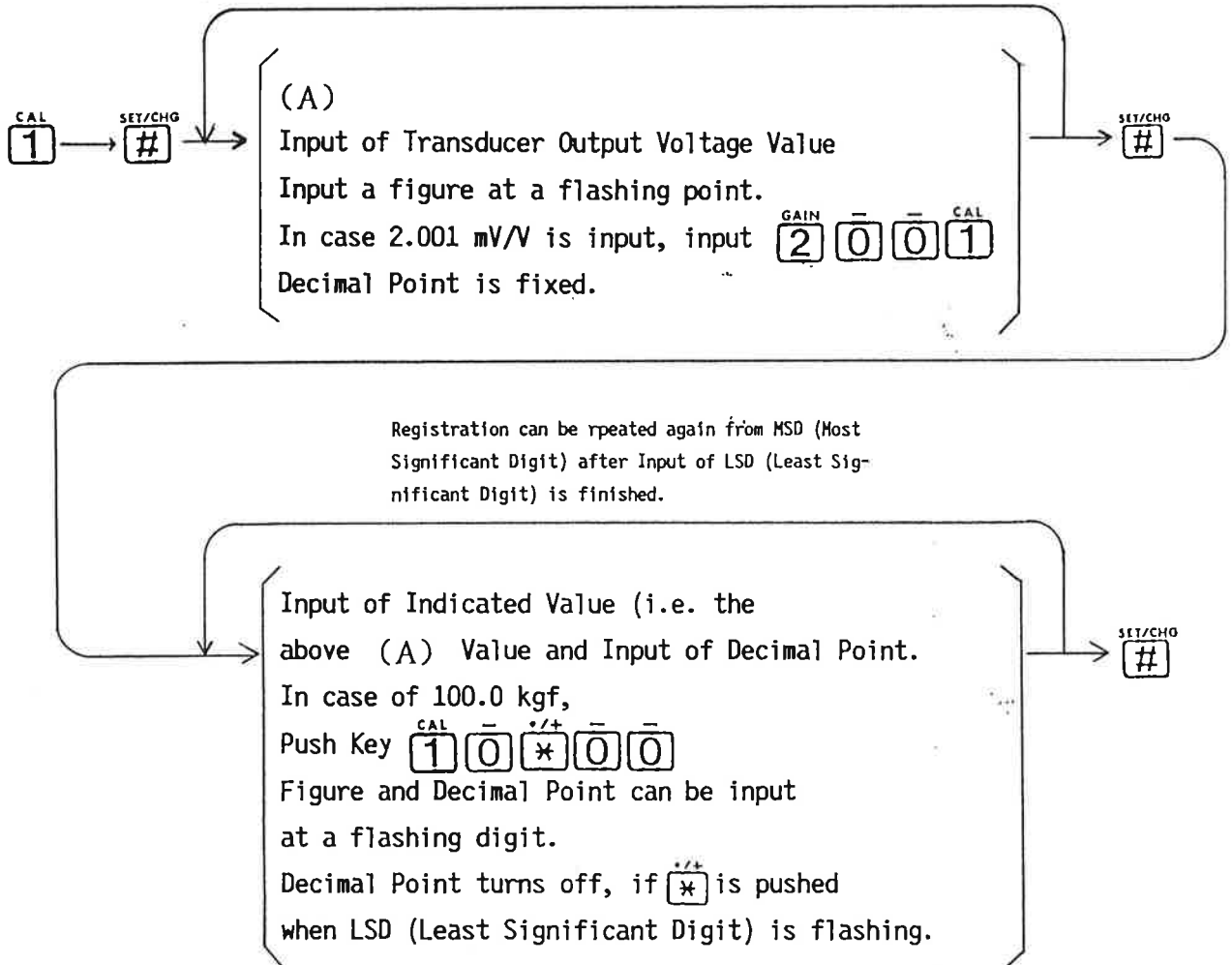
12-2-2. Register the minimum figure for digital value changes (i.e. select a figure among 1 to 100). When TD-300A is delivered to you, 001 was registered for this purpose. If necessary, this registration can be done as follows.

Registration can be repeated after Input of LSD (Least Significant Digit) is finished.



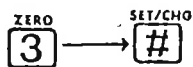
12-2-3. Register Transducer Rated Output

Registration can be repeated again from MSD (Most Significant Digit) after Input of LSD (Least Significant Digit) is finished.



Decimal Point is inserted at the right side of the flashing digit.
 Input Decimal Point (*/+) and then, input a figure at the flashing digit.

12-2-4. Register Zero Point under Non-Loaded (Input Zero) Condition



NOTICE

Zero Point Data registered here are Initial Zero Point Data, but not "DIGITAL ZERO" under a normal operation.

12-2-5. Prohibit Calibration Setting (LOCK)

Connect Terminal 21 and 22 at the rear panel together (i.e. Short-Circuited). Every time when a calibration is over, Terminal 21 and 22 must be connected so as to protect from any mis-operations.

NOTICE

Calibration Value and Zero Point Data are recorded in NOV RAM (Non-Evaporating RAM). Even when Power-Failure, the data will not be extinguished.

12-3. ACTUAL LOAD CALIBRATION

What is Actual Load Calibration ?

When a transducer is loaded actually, its indicated value is converted to a certine figure, which is called as Actual Load Calibration.

12-4. ACTUAL LOAD CALIBRATION PROCEDURE

12-4-1. Release LOCK by disconnecting Terminal 21 and 22 at the rear panel. (Terminal 21 and 22 are open now.)

If LOCK is made by KEY-SWITCH, release it as follows.



NOTICE

LOCK by Terminal Board and LOCK by KEY-SWITCH are both for LOCK Function (Double Function). If LOCK is made by the both, you have to release the both LOCKs.

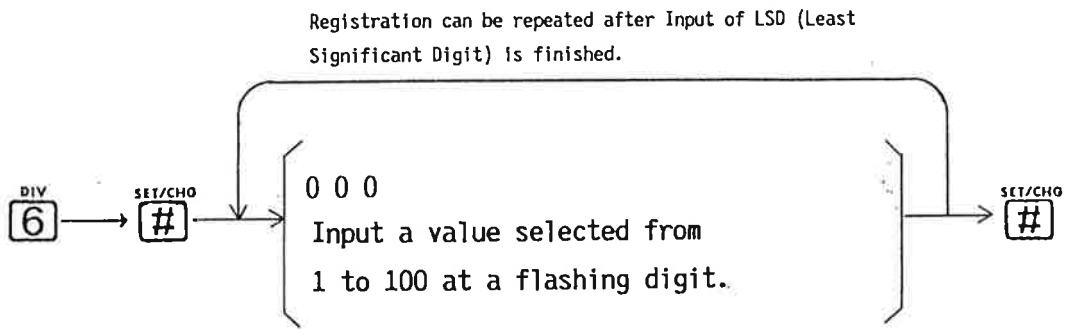
For KEY-SWITCH LOCK, please refer to KEY-SWITCH LOCK FUNCTION in the page 33.

12-4-2. Register Minimum Stepping Value.

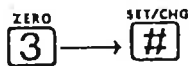
Select a value between 1 to 100 as Minimum Stepping Value.

When delivered from our factory, 001 is registered already. If you use this value, you do not have to register it again.

The following is the registration procedure.



12-4-3. Register Zero Point under Non-Loaded (Input Zero) Condition.



NOTICE

Zero Point Data registered here are Initial Zero Point Data, not Digital Zero under a normal operation.