

## SPECIFICATIONS

Digital Indicator for Tension meter

TMD-100

Spec. No. EN382100-D

1/6

### 1. General

This book is the specifications of a digital indicator for the tension meter.

### 2. Specifications

#### 2-1. Specifications for analog

- Bridge power supply DC10 V $\pm$ 0.3 V within 30 mA (Changeable to DC2.5 V) with remote sensing
- Applicable transducers One unit of strain gage applied transducers (350 ohm) (2 ch input for each one piece)
- Input range Full scale setting is possible with the input range from 0.2 mV/V to 3.1 mV/V. (When the bridge power supply at DC10 V)
- Zero point adjustment range  $-1.9$  mV/V to  $1.9$  mV/V
- Non-linearity 0.01 %F.S.
- Temperature coefficient
  - Zero point  $\pm 0.2$  micro-V/ $^{\circ}$ C  
(Input conversion, at full scale setting at the input from 0.3 mV/V to 3.1 mV/V)
  - Sensitivity  $\pm 0.0015$  %F.S./ $^{\circ}$ C  
(Input conversion, at full scale setting at the input from 0.3 mV/V to 3.1 mV/V)
- Input noise  $\pm 0.3$  micro-Vp-p or less (at the default value of digital filter and stabilized filter)
- Input filter 10 Hz (With the setting of "0" for digital filter and stabilized filter)
- A/D sampling rate 100 times/s (Changeable to 4 times/s or 20 times/s)
- CHECK Approx. 0.3 mV/V  
(It can be set by 0.1 mV/V in the range from approx. 0.1 mV/V to 3.0 mV/V)  
> The extension cable should be applied with P/N.CAB-501 (6 cores) of MINEBEA's standard cable.  
> Not applicable when the zener barrier is used.

#### 2-2. Specifications for digital

- Load display Four systems of WS, DS, ADD, and DIFF
  - Display range  $-19\ 999$  to  $99\ 999$
  - Display increment 1 (Changeable to 2, 5 or 10)
  - Display unit Red coloured 7 segment LED Character height : 14 mm
  - Over display "–OL" at minus over, "OL" at plus over
- Condition display HEALTHY, CHECK, DS DOWN, WS DOWN
- Display times 20 times/s (Changeable to 4 times/s)
- Display of decimal point Changeable to no display,  $10^1$ ,  $10^2$ ,  $10^3$  or  $10^4$ .

## SPECIFICATIONS

TMD-100

Spec. No. EN382100-D

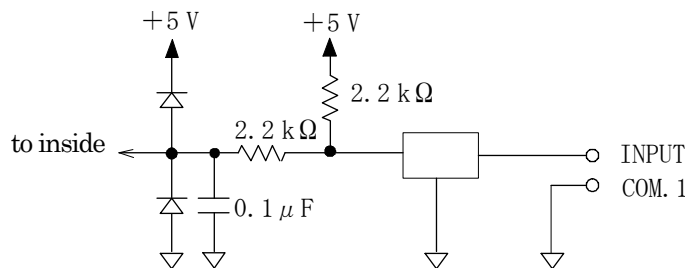
2/6

### 2-3. Function of sheet key switch of the front panel

“FUNC”	Changeover of function mode
“ENTER/SHIFT”	Entry key / Shift key
“▶ /CHECK”	Carry the digit to right / Turn on the check value by pressing together with shift key at one time
“◀ /ZERO”	Carry the digit to left / Set the zero by pressing together with shift key at one time.
“▼/DS_DOWN”	Decrement the set value / DS DOWN by pressing together with the shift key at one time.
“▲/WS_DOWN”	Increment the set value / WS DOWN by pressing together with the shift key at one time.

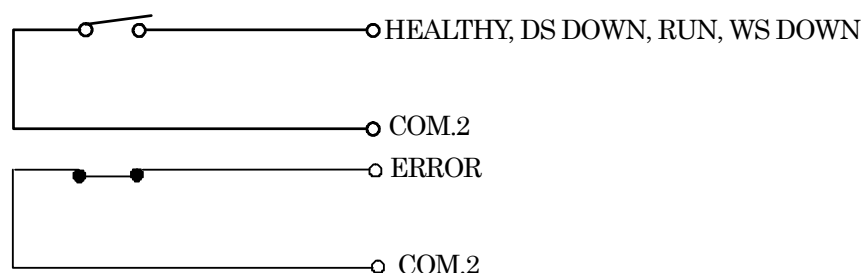
### 2-4. External control function

- ZERO Same as ZERO key.
- LOCK Prohibit the key operation
- DS DOWN DS DOWN
- WS DOWN WS DOWN
- DS & WS DOWN DS & WS DOWN  
> Above are the level input, and effective during the input with the short of more than 50 ms.



### 2-5. Contact output signal

- HEALTHY When the power is turning on.
- ERROR When the various error is occurred.
- DS DOWN In the DS DOWN
- WS DOWN In the WS DOWN
- RUN Under the operation (ON in the measurement mode)  
> Contact specification AC250V 1A (Resistance Load)  
> 'b' contact at the ERROR only, and the other is 'a' contact



## SPECIFICATIONS

TMD-100

Spec. No. EN382100-D

3/6

### 2-6. Analog output (4ch)

- Specifications

Output	Select from DC0 V to 10 V, DC0 V to 5 V, DC0 V to 1 V, DC±10 V, DC±5 V or DC±1 V load resistance 5 k-ohm or more, or DC4 mA to 20 mA load resistance 510 ohm or less (Changeable by DIP switch : Set at the shipment from the factory by specification.)
Non-linearity	0.05 %F.S.
Resolution	Approx.1/24 000
Output times	100 time/s, 20 times/s or 4 times/s (Synchronous with A/D sampling rate.)

### 2-7. Various function

- Allocation of analog output  
Each output allocation is set. (Selection from WS, DS, ADD or DIFF)
- Output setting at DS/WS DOWN  
Set the output value when both DS and WS are DOWN
- Scaling of analog output  
The coefficient of each output channel is set.

### 3. General specifications

- Operating temperature/humidity range
 

Temperature	-10 °C to 50 °C
Humidity	85 %RH or less (Non condensing)
- Power supply
 

Power supply voltage	AC100 V to AC240 V (Allowable variable range AC85 V to AC264 V)
Power supply frequency	50/60 Hz
Power consumption	25 VA (Without option, at AC100 V)
- Outline dimensions (W×H×D)  
200 mm×150 mm×200 mm (Excludes protruding parts.)
- Weight  
Approx.4.4 kg (Without any options.)  
> Please consider reinforcing when building it in in the board.

### 4. Accessories

- Instruction manual 1 piece
- Midget fuse 3 A 1 piece
- Short bar between A-F and C-G 4 pieces

## SPECIFICATIONS

TMD-100

Spec. No. EN382100-D

4/6

### 5. Options

#### 5-1. Analog output

- P/N. TMD100-AOUT-4 (at increase 4ch)  
TMD100-AOUT-8 (at increase 8ch)
  - Specifications
    - Output Select from DC0 V to 10 V, DC0 V to 5 V, DC0 V to 1 V, DC±10 V, DC±5 V or DC±1 V Load resistance 5 k-ohm or more, or DC4mA to 20 mA Load resistance 510 ohm or less  
(Changeable by DIP switch : Set by specification at the shipment from the factory.)
    - Non-linearity 0.05%F.S.
    - Resolution Approx.1/24 000
    - Output times 100 time/s, 20 times/s or 4 times/s (Synchronous with A/D sampling rate.)
- > Total numbers of output is selectable from 8 ch or 12 ch.

### 6. Configuration of the terminal

Name of terminal	Usage	Name of terminal	Usage
A1 (Bridge power supply +)	WS side load cell	ZERO	External control input
D1 (Amplifier input +)		LOCK	
F1 (Sensing +)		DS-DOWN	
B1 (Amplifier input -)		WS-DOWN	
G1 (Sensing -)		DS&WS-DOWN	External input common
E1 (Shield)		COM.1	
C1 (Bridge power supply -)		HEALTHY	Contact output
N.C.	No use	ERROR	
A2 (Bridge power supply +)	DS side load cell	DS-DOWN	
D2 (Amplifier input +)		WS-DOWN	
F2 (Sensing +)		RUN	
B2 (Amplifier input -)		COM.2	Contact output common
G2 (Sensing -)			
E2 (Shield)			
C2 (Bridge power supply -)			

## SPECIFICATIONS

TMD-100

Spec. No. EN382100-D

5/6

Name of terminal	Usage	Name of terminal	Usage
1 +	1ch analog output +	7 +	7ch analog output +
1 -	1ch analog output -	7 -	7ch analog output -
1 F.G.	1ch analog output F.G.	7 F.G.	7ch analog output F.G.
2 +	2ch analog output +	8 +	8ch analog output +
2 -	2ch analog output -	8 -	8ch analog output -
2 F.G.	2ch analog output F.G.	8 F.G.	8ch analog output F.G.
3 +	3ch analog output +	9 +	9ch analog output +
3 -	3ch analog output -	9 -	9ch analog output -
3 F.G.	3ch analog output F.G.	9 F.G.	9ch analog output F.G.
4 +	4ch analog output +	10 +	10ch analog output +
4 -	4ch analog output -	10 -	10ch analog output -
4 F.G.	4ch analog output F.G.	10 F.G.	10ch analog output F.G.
5 +	5ch analog output +	11 +	11ch analog output +
5 -	5ch analog output -	11 -	11ch analog output -
5 F.G.	5ch analog output F.G.	11 F.G.	11ch analog output F.G.
6 +	6ch analog output +	12 +	12ch analog output +
6 -	6ch analog output -	12 -	12ch analog output -
6 F.G.	6ch analog output F.G.	12 F.G.	12ch analog output F.G.

> The following terminals from five channels becomes effective when the option goods are installed.

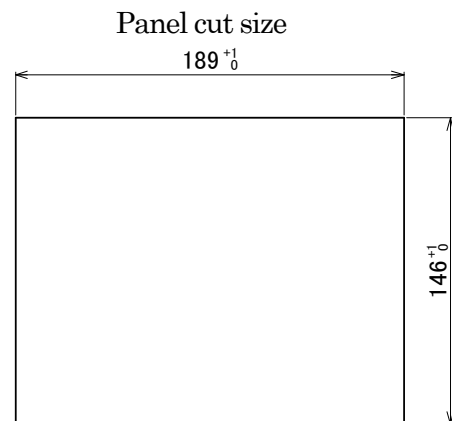
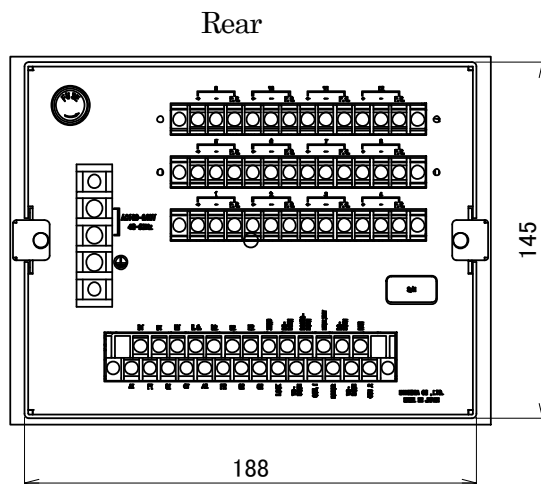
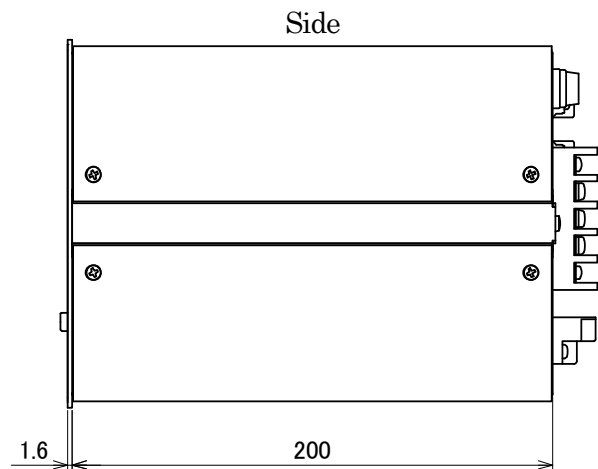
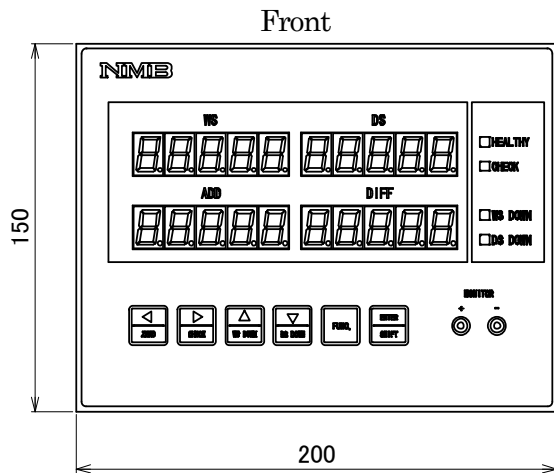
## SPECIFICATIONS

TMD-100

Spec. No. EN382100-D

6/6

### 7. Outline dimensions



Unit : mm

※Specifications and outline dimensions and so on which have printed may subject to change for the purpose of improvement without notice.