

# TM301

## TORQUE MONITOR FOR UTMII/UTMV

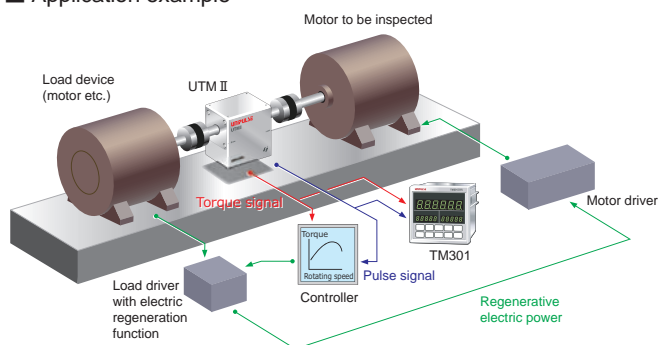


### Suitable torque meter UTM II UTMV

- Torque, rotational speed, and power\* are displayed simultaneously.
- Upper/lower comparators with hold functions.
- Data storage function.  
(Record last 30 measurement data of torque, rotational speed, and power)
- The unit supplies electric power to UTMII /UTMV.
- Easy connection to UTMII /UTMV with the supplied cable.

\* Power (W) =  $2\pi \times \text{Torque (Nm)} \times \text{Rotation speed (rpm)} / 60$

### Application example



### Specifications

Input signals	- Torque sensor input (voltage input)
	Signal input range -5 to +5 V Input resistance 1 M $\Omega$ or more
	Accuracy Non-linearity: Within 0.02% FS $\pm$ 1 digit Zero drift: Within 0.2 mV/ $^{\circ}$ C RTI Gain drift: Within 0.01%/ $^{\circ}$ C
	A/D converter Speed: 300 times/sec Resolution: 24 bit (binary) Effective Resolution: 1/30000 against 5 V
	Analog filter Low-pass filter (-6 dB/oct.) Selectable from 3, 30, 300, and 1 kHz.
	- Analog monitor output: Input voltage return (for tester)
	- Pulse input for rotation speed (open collector input)
	Max. frequency Accordance with UTM II/UTMV
	Min. frequency Select from 15, 10, 5, 3, 2 rpm (when pulse rate is 4 ppr) Select from 60, 40, 20, 12, 8 rpm (when pulse rate is 1 ppr)
	Minimum detection pulse width 50 $\mu$ s
Display	Circuit configuration No-voltage contact input (minus common) Open collector connectable (Ic = Approx. 10 mA)
	Display Main display: Character height 15 mm, Numerical display by 7-segment green LED (5-digit+sign) Sub display: Character height 8 mm, Numerical display by 7-segment green LED (5-digit)
	Indicated value Main display: 5-digit -99999 to +99999, Signs: Minus sign on most significant digit Sub display: 5-digit -19999 to +99999, Signs: Minus sign on most significant digit (No minus sign for rotational speed)
	Decimal point 0, 0.0, 0.00, 0.000 (Only a torque and a power. Rotation speed is nothing)
	Display frequency Select from 3, 6, 13, 25 times/sec.
Hold	Status display HI / LO / HOLD
	Sample, Peak, Bottom, P-P, Average Hold section setting (All section - External signal - External signal+Time - Level+Time)
External input/output	External input (4) Hold control / Hold reset / Digital Zero / Record data clear Dry contact input circuit (minus common type), Ic = 10 mA or less
	External output (12) Torque HI/LO limit comparison (alarm HI $\cdot$ HI $\cdot$ OK $\cdot$ LO $\cdot$ alarm LO) / Rotation speed HI/LO limit comparison (alarm HI $\cdot$ HI $\cdot$ OK $\cdot$ LO $\cdot$ alarm LO) / Hold complete / RUN Open collector output circuit (sink type), Vceo = 30 V (max) Ic = 30 mA (max)
	Interface SIF: 2-wire serial interface BCO: BCD parallel data output interface (Option) * Only one option can be installed. 232: RS-232C communication interface (Option) D3V: D/A converter voltage output (3ch) (Option) DAV: D/A converter voltage output (Option) DAI: D/A converter current output (Option) USB: USB interface (Dedicated PC software can be downloaded) (Option)
General performance	Power supply voltage AC100 to 240 V (+10% -15%) (free power source 50/60 Hz)
	Power consumption 7 W typ.
	Operating conditions Operation: -10 to +40 $^{\circ}$ C Storage: -40 to +80 $^{\circ}$ C Humidity: 85%RH or less (non-condensing)
	Dimension 96(W) $\times$ 96(H) $\times$ 138(D) mm (Projections excluded)
	Weight Approx. 1.0 kg
Attachments	Operation manual x1, Cable for UTM II/UTMV connection 2 mx1, External input/output connector x1, Unit seal x1, AC input cord 3 m (with solderless terminal) x1, Connector for BCD output (with BCD output option) x1, Operating tool (with D/A converter (3 ch) option) x1, Mini screwdriver (with D/A converter option) x1 * The attached AC input cord is intended for 100 V AC power in Japan.
Accessories	CA372-I/O: Cable with FCN connector at one-end 3 m CA81-USB: 1.8 m miniUSB-computer USB cable CAAC2P-B3: AC Supply cord 3 m CAAC3P-CEE77-B2: AC Supply cord (Voltage resistance: 250 V) 2 m CATM21-M: Cable for UTM II/UTMV connection 2 m CATM51-M: Cable for UTM II/UTMV connection 5 m CN34: D-Sub9p connector for RS-232C CN50: FCN series I/O connector (with cover) CN51: BCD output connector CN55: FCN series I/O connector (with diagonal cover) CN73: D/A converter (3 ch) connector CN90: Waterproof plastic connector for UTM II/UTMV connection DTC2-PSL: Case for TM301 GMP96X96: Rubber packing

\* Please note that there are possibilities of individual differences in a color tone on display devices such as LEDs, fluorescent display tubes and LCDs due to manufacturing process or production lots.

### Structure of product code

TM301 ☐

#### ① Standard unit

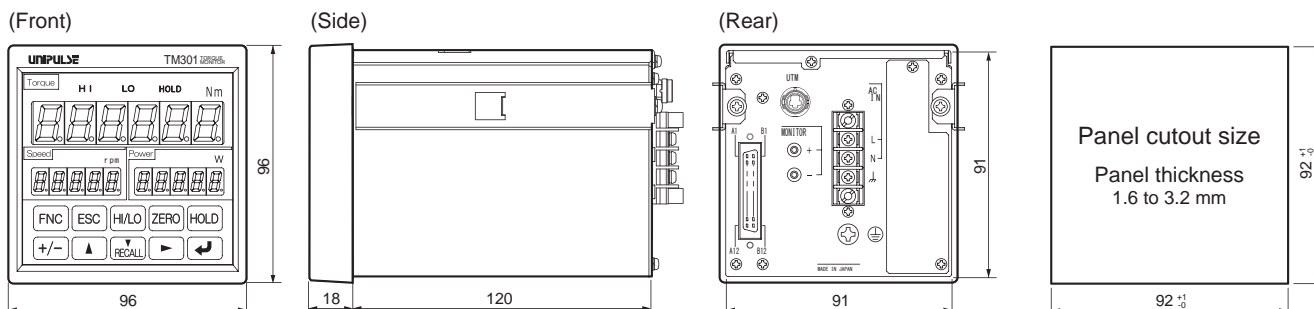
#### ② Interface

Sign	Interfac
Standard	SI/F

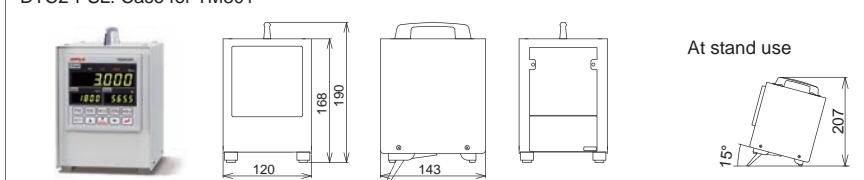
↓ One optional interface can be added in addition to the standard interface.

232	RS-232C
BCO	BCD output (Sink type)
D3V	D/A converter (Voltage output) (3 ch)
DAV	D/A converter (Voltage output)
DAI	D/A converter (Current output)
USB	USB

### External dimension



DTC2-PSL: Case for TM301



Unit: mm