

TM320

HIGH-SPEED TORQUE MONITOR FOR UTM III/UTM II/UTMV



Suitable torque meter UTM III UTM II UTMV

- High-speed sampling at 16000 times/sec.!!
- Equipped with display connection data(*1) of UTM III and comparison function
- Torque, rotation speed and power(*2) are displayed simultaneously.
- Hold function (Sample, Peak, Bottom, P-P, Average)
- Upper/lower comparators function (ALM HI, HI, OK, LO, ALM LO)
- Equipped with data memory function (Torque, rotation speed, power, the latest 30 items are recorded)
- The unit supplies electric power to UTM III/UTM II/UTMV.

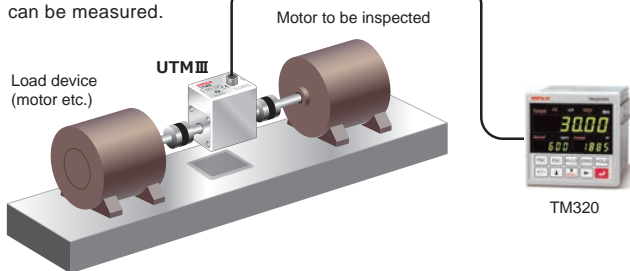
*1 RS-485 interface (torque, rotation speed)

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

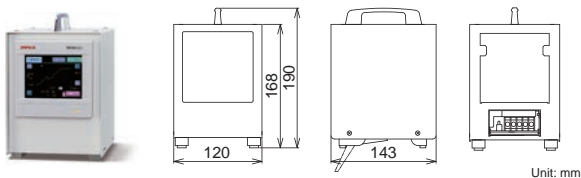
* Please consult us when connecting to UTF II.

■ Application: Quality test of small size motor

Torque and dynamic attribution against rotation speed can be measured.

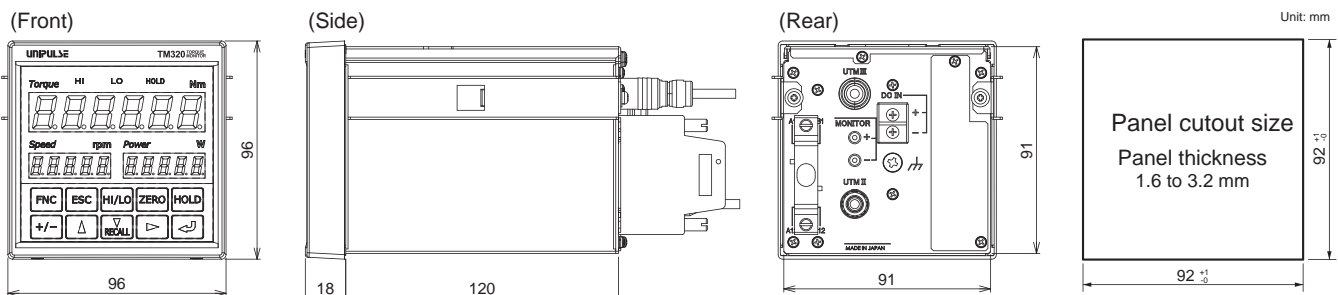


DTC2A: Case for TM320 (with AC power supply & ferrite core)



Unit: mm

External dimension



Specifications

Analog section	Torque sensor input (voltage input)	
	Signal input range	-10 to +10 V (UTM III) Input resistance 1 M Ω or more -5 to +5 V (UTM II/UTMV) Input resistance 1 M Ω or more
Accuracy	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: 16000 times/sec. Resolution: 24 bit (binary) 1/30000 with respect to 10 V
Digital low pass filter	Digital low pass filter	PASS, 3 Hz to 1 kHz
	Voltage output	Input voltage cuff (For test point)
Pulse input for rotation speed (Open collector) (UTM III/UTM II/UTMV)	Pulse input for rotation speed (Open collector) (UTM III/UTM II/UTMV)	
	Maximum input frequency	Based on UTM III/UTM II/UTMV
Minimum input frequency	Minimum input frequency	Select from 15, 10, 5, 3, or 2 rpm (when pulse rate is 4 ppr) Select from 60, 40, 20, 12, or 8 rpm (when pulse rate is 1 ppr)
	Minimum detection pulse width	50 μ s
Circuit configuration	Circuit configuration	No-voltage contact input (minus common) Open collector connectable (Ic = Approx. 10 mA)
Display section	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	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, and 25 times/sec.
Status display	Status display	HI / LO / HOLD
	Hold	Sample, Peak, Bottom, P-P, Average Hold section setting (All section \cdot External signal \cdot External signal+Time \cdot Level+Time)
External I/O section	External input (4)	Hold control / Hold reset / Digital Zero / Record data clear Dry contact input circuit (minus common type), Ic = 10mA or less
	External output (13)	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 / Timing output / Absolute value display 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)
232:	232:	RS-232C communication interface (Option)
	D3V:	D/A converter voltage output (3 ch) (Option)
DAV:	DAV:	D/A converter voltage output (Option)
	USB:	USB interface (Option)
DAI:	DAI:	D/A converter current output (Option) * Only one option can be installed.
	General performance	Power supply voltage DC 24 V \pm 15% Power consumption 8 W typ. Operating conditions Operation: -10 to +50 $^{\circ}$ C Storage: -40 to +80 $^{\circ}$ C Humidity: 85% RH or less (non-condensing)
Dimensions	Dimensions	96(W) x 96(H) x 138(D) mm (Projections excluded)
	Weight	Approx. 1.2 kg
Attachments	Operation manual	1 Unit seal
	External input/output connector	1 Operating tool
Connector for BCD output (with BCO option)	Connector for BCD output (with BCO option)	1 (with D/A converter (3 ch) option)
	Mini screwdriver (with D/A converter option)	1 Ferrite core
Optional accessories	CA372-I/O: Cable with FCN connector at one-end 3 m	CA81-USB: miniUSB-computer USB cable 1.8 m
	CATM321-M: Cable for UTM III connection 2 m	CATM351-M: Cable for UTM III connection 5 m
CATM21-M: Cable for UTM II/UTMV connection 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	CN51: BCD output connector	CN55: FCN series I/O connector (with diagonal cover)
	CN73: D/A converter (3 ch) connector	DTC2A: Case for TM320 (with AC power supply & ferrite core)
CN90: Waterproof plastic connector for UTM II/UTMV	CN90: Waterproof plastic connector for UTM II/UTMV	CN92: UTM III connector
	E04SR211132: Ferrite core	GMP96x96: Rubber packing
TSU03: Lightning surge protector (DC)	TSU03: Lightning surge protector (DC)	
	CE marking certification	EMC directives EN61326-1

* 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

TM320 ☐ ☐

① Standard unit

② Interface

Sign	Interface
Standard	S/I/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