TM320

HIGH-SPEED TORQUE MONITOR FOR UTMⅢ/UTMⅡ/UTMV



DIN 96 RoHS2

Suitable torque meter

UTMⅢ UTMⅡ UTMV

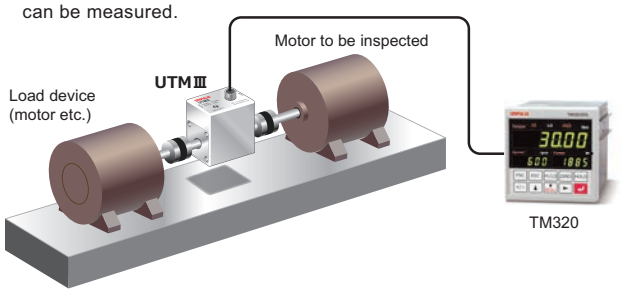
- High-speed sampling at 16000 times/sec.
- Equipped with display and comparison function for connection data*1 of UTMⅢ
- Torque, rotation speed and power(*2) are displayed simultaneously.
- Hold function (Sample, Peak, Bottom, P-P, Average)
- Upper/lower comparators function (ALM HI, HI, OK, LO, ALM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

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

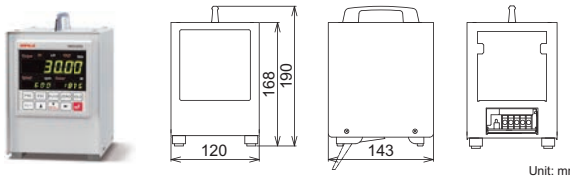
*2 Power (W) = 2π × Torque (N m) × Rotation speed (rpm) / 60

■ 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)



Specifications

Analog section	- Torque sensor input (voltage input)	
	Signal input range	-10 to +10 V (UTMⅢ) Input resistance 1 MΩ or more
		-5 to +5 V (UTMⅡ/UTMV) Input resistance 1 MΩ or more
	Accuracy	Non-linearity: Within 0.02% FS±1 digit
		Zero drift: Within 0.2 mV/℃ RTI
		Gain drift: Within 0.01%/℃
	A/D converter	Speed: 16000 times/sec.
		Resolution: 24 bit (binary) 1/30000 with respect to 10 V
	Digital low pass filter	PASS, 3 Hz to 1 kHz
	- Voltage monitor output	Linked to the output voltage of the torque meter
	- Pulse input for rotation speed (Open collector) (UTMⅢ/UTMⅡ/UTMV)	
	Maximum input rotation speed	Conforming to the maximum rotation speed of UTMⅢ/UTMⅡ/UTMV
	Minimum input rotation speed	Selectable from 15, 10, 5, 3, or 2 rpm (when pulse rate is 4 ppr)
	Minimum detection pulse width	50 μs
	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	0, 0.0, 0.00, 0.000 (Only a torque and a power. Not available for rotation speed)
	Display frequency	Selectable from 3, 6, 13, and 25 times/sec.
	Status display	HI / LO / HOLD
Hold	Sample, Peak, Bottom, P-P, Average	
	Hold section setting (All section・External signal・External signal+Time・Level+Time)	
External I/O section	External input (4 points)	Hold control / Hold reset / Digital Zero / Record data clear
		Dry contact input circuit (minus common type), Ic = 10 mA or less
	External output (13 points)	Torque HI/LO limit comparison (alarm HI・HI・OK・LO・alarm LO) /
		Rotation speed HI/LO limit comparison (alarm HI・HI・OK・LO・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)	
	D3V: D/A converter voltage output (3 ch) (Option)	
	DAV: D/A converter voltage output (Option)	
	DAI: D/A converter current output (Option)	
	232: RS-232C communication interface (Option)	
	USB: USB interface (Option)	* Only one option can be installed.
General performance	Power supply voltage	DC 24 V±15%
	Power consumption	8 W typ.
	Operating conditions	Operation temperature: -10 to +50℃ Storage temperature: -40 to +80℃
		Humidity: 85% RH or less (non-condensing)
	Dimension	96(W) × 96(H) × 138(D) mm (Not including projections)
	Weight	Approx. 1.2 kg
Attachments	Operation manual····· 1	Unit seal····· 1
	External input/output connector····· 1	Operating tool
	Connector for BCD output (with BCO option)····· 1	(with D/A converter (3 ch) option)····· 1
	Mini screwdriver (with D/A converter option)····· 1	Ferrite core····· 1
Optional accessories	CA372-I/O: Cable with FCN connector at one-end 3 m	CATM351-M: Cable for UTMⅢ connection 5 m
	CATM321-M: Cable for UTMⅢ connection 2 m	CATM51-M: Cable for UTMⅡ/UTMV connection 5 m
	CATM21-M: Cable for UTMⅡ/UTMV connection 2 m	CN50: FCN series I/O connector (with cover)
	CN34: D-Sub9p connector for RS-232C	(Same as the attachment)
	CN51: BCD output connector	CN55: FCN series I/O connector (with diagonal cover)
	CN73: D/A converter (3 ch) connector	DTC2A: Case for TM320
	CN90: Waterproof plastic connector for UTMⅡ/UTMV	(with AC power supply & ferrite core)
	E04SR211132: Ferrite core (Same as the attachment)	CN96: UTMⅢ connector
	CA81-USB: USB cable (TypeA-Bmini) 1.8 m	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

TM320 ☐
① ②

① Standard unit

② Interface

Sign	Interface
Standard	SI/F

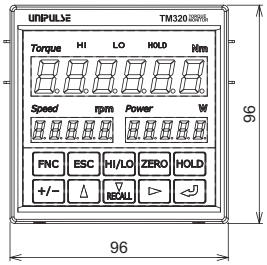
↓ One optional interface can be added in addition to the standard interface.

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
232	RS-232C
USB	USB

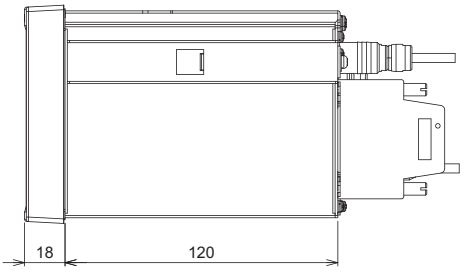
External dimension

Unit: mm

(Front)



(Side)



(Rear)

