

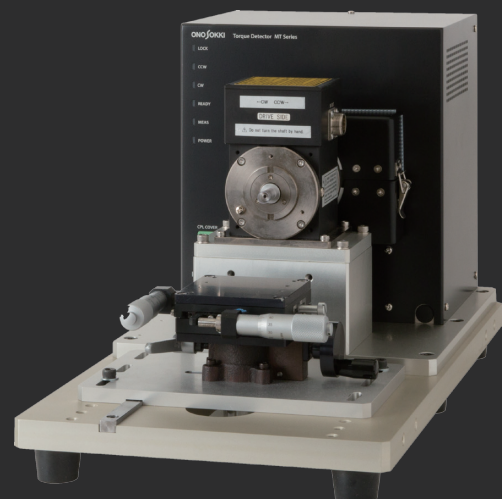
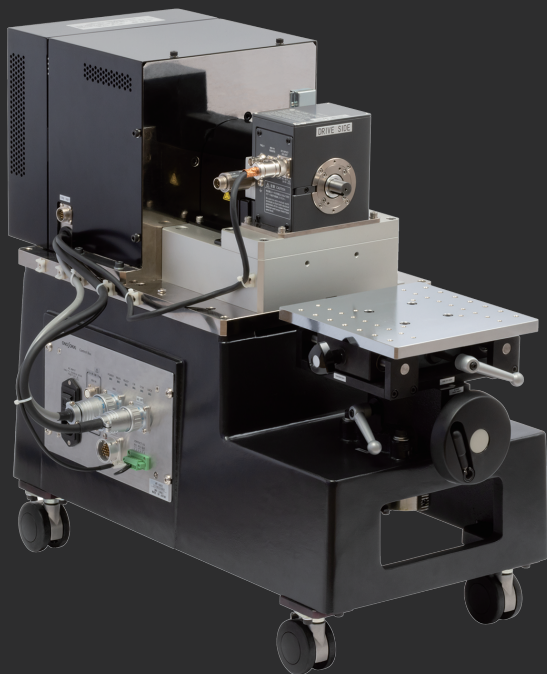
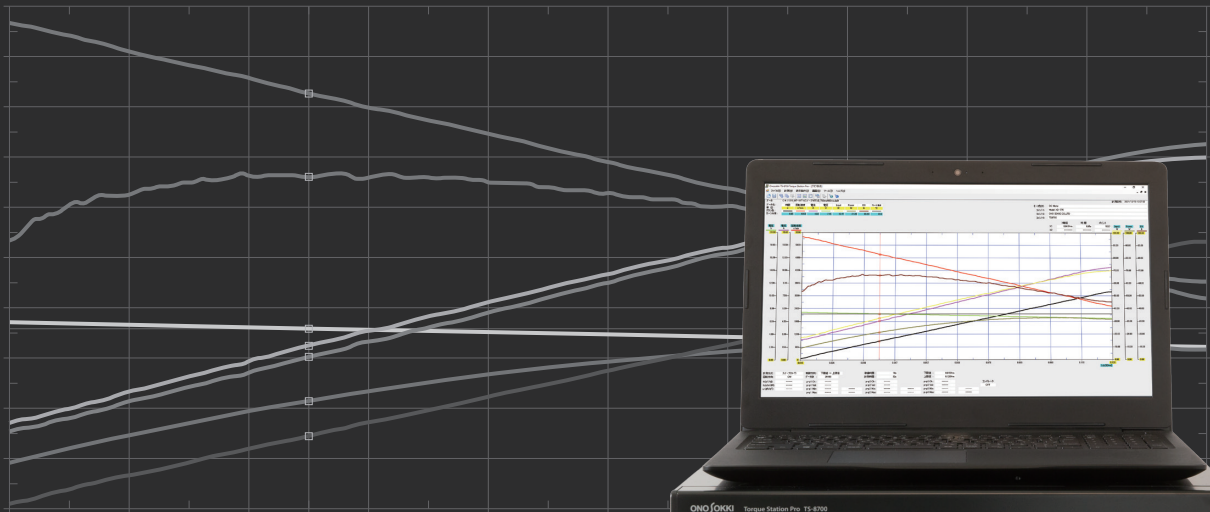
TS-8700 system

ONOSOKKI

For Motor Torque Measure

Torque Station Pro

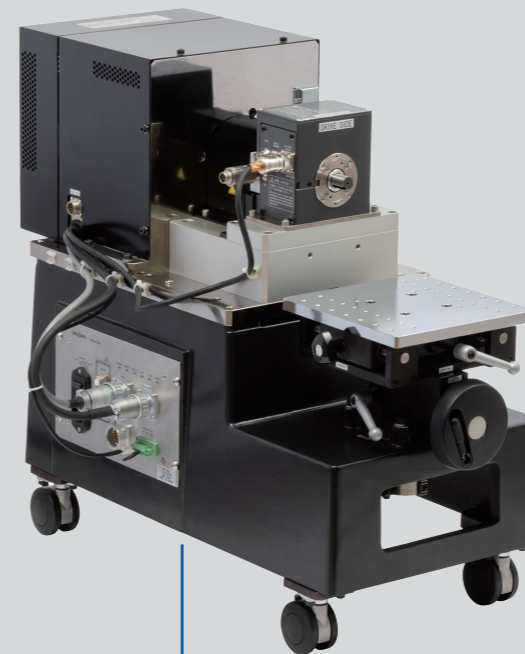
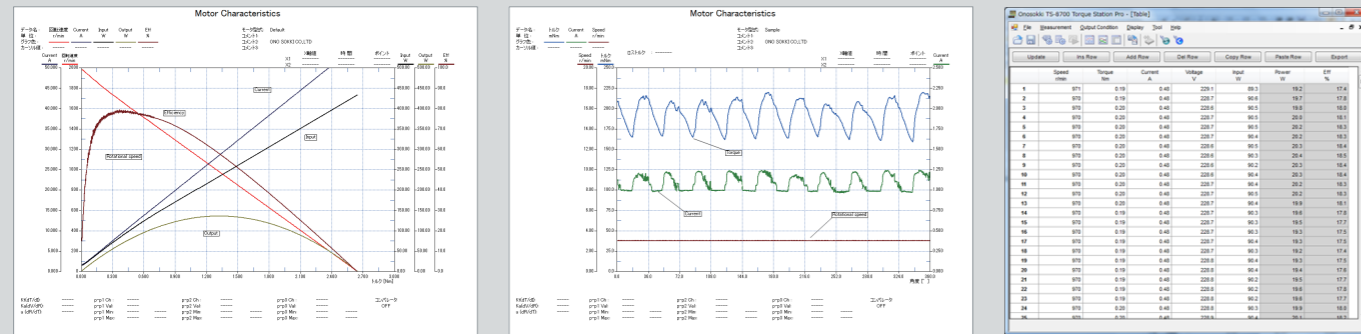
High precision, high response torque measurement system
for motor torque characteristics



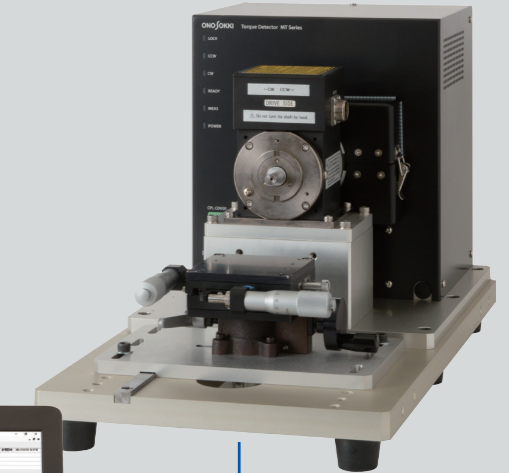
The measurement with High precision, High response and Multi-function for various motor evaluation

The Torque Station Pro TS-8700 and the motor torque detector MT Series have achieved highly accurate torque measurement and high response which are required for motor silence evaluation and measurement efficiency.

The detector with a new compact high-rigidity torque detector RH series (10 N·m/20 N·m) has been added, and the measurement up to a higher frequency range with high accuracy ($\pm 0.05\%$ F.S.) is available. Accurate grasping of events contributes to improve the accuracy of the motor simulation and motor development efficiency.



Motor Torque Detector MT series high accuracy type



Motor Torque Detector MT series high performance type

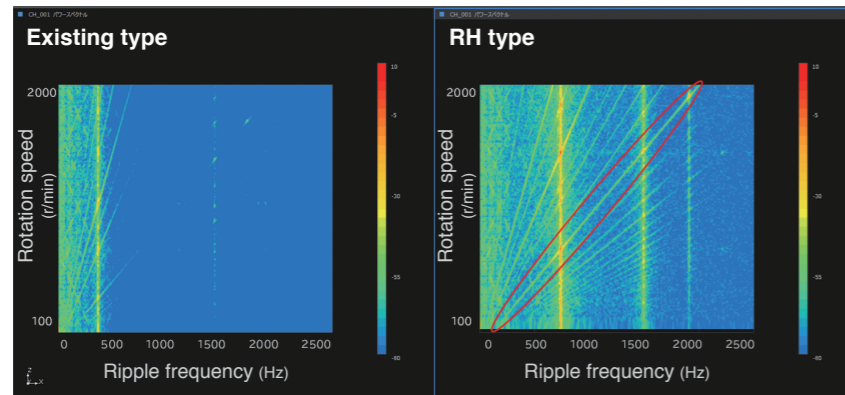


Torque Station Pro TS-8700

High precision/High response

The RH type torque detector (10 N·m/20 N·m) can be mounted. The highly accurate measurement (with TH: $\pm 0.1\%$, with RH: $\pm 0.05\%$) and high-response measurement with up to 5.12 kHz sampling are available.

The RH type torque detector has achieved high accuracy ($\pm 0.05\%$ F.S.) and high rigidity (4.5 times that of our existing models). It enables to measure torque fluctuations of motors in a higher frequency range with higher accuracy.



Example of comparison results (Tracking analysis in the system directly connected with motor)

Rotation angle measurement, rotation angle sampling

The rotation angle and angle sampling are measured by using the pulses from an encoder built-in a target motor. When an encoder is optionally added to the MT-82 T/M series (except certain models) detector for cogging torque/torque ripple measurement, rotation angle and rotation angle sampling can be measured in units of 0.1° .

Temperature measurement, temperature trigger function

8ch temperature measurement with a T-type thermocouple, and temperature trigger function are optionally supported. They allow starting measurement automatically after warm-up operation.

Freely selectable system component

You can flexibly select the devices according to the size of the target object and the installation location, such as desktop type base, floor type stand with casters, XYZ stage, slide base, V block, and L-shaped jig.

Data communication with a power meter

By connecting to the following four specified power meters made by other companies via LAN, the measurement data can be imported digitally.

- WT1800E, WT300E (WTViewerEfree*1 Ver.1.42 or higher used): made by YOKOGAWA ELECTRIC
- PW3390, PW3337 (PW Communicator*2 Ver.1.7.0 or higher used): Made by HIOKI E.E. CORPORATION

*1: WTViewerEfree is registered trademark of YOKOGAWA ELECTRIC.
*2: PW Communicator is a registered trademark of HIOKI E.E. CORPORATION.



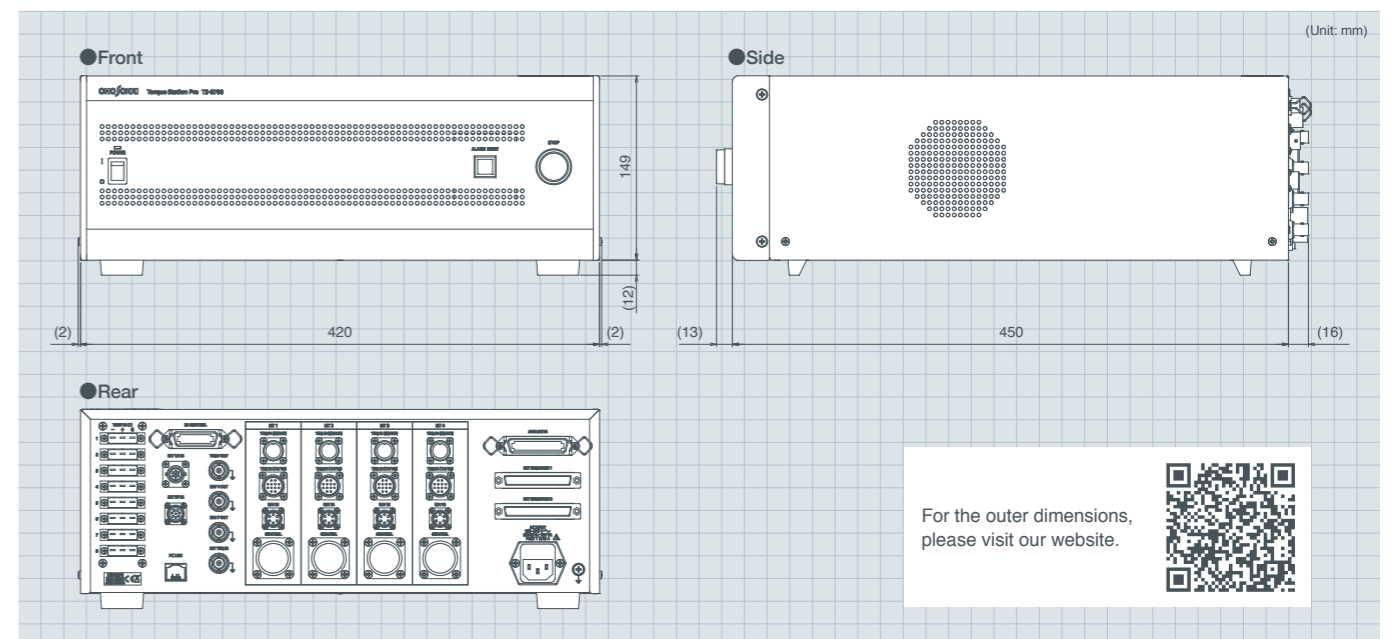
Specification																												
Measurement target	DC motor, AC motor (excluding stepping motor)																											
Measurement parameter	Torque, rotation speed, voltage signal input data, temperature*1, rotation angle*1, power meter digital input*1																											
Torque input	Use signals from Ono Sokki's exclusive detector (MD/SS, TH/RH/TQ*1), external torque analog input*1																											
Rotation input	Use signals from Ono Sokki's MP-981 or RP series detectors																											
Analog input	0 to ±10 V DC, 16 channels, 16 bit A/D Connection cable: customer prepared																											
Temperature input	T-type thermocouple*1 Non-grounded type temperature sensor (T) : prepared by customer																											
Measurement accuracy	<table border="1"> <tr> <td>Torque*2</td> <td>±0.05 %/F.S. (RH*1, TQ*1)</td> </tr> <tr> <td></td> <td>±0.1 %/F.S. (TH-1000/2000)</td> </tr> <tr> <td></td> <td>±0.2 %/F.S. (MD/SS, TH-3000)</td> </tr> <tr> <td>Revolution speed*2</td> <td> <table border="1"> <tr> <td>MT-84M/T/R series, MT-85M/T/R series</td> <td>±0.02 %/F.S. ±1 count</td> </tr> <tr> <td>MT-82T** (excluding MT-82T15, MT-82T25)</td> <td>±0.06 r/min</td> </tr> <tr> <td>MT-82M**, MT-82T15, MT-82T25, MT-82R15, MT-82R25</td> <td>±0.02 r/min</td> </tr> </table> </td> </tr> <tr> <td>Analog</td> <td>Linearity : within ±0.1 %/F.S. (1 second average), Temperature drift : ±0.01 %/F.S./°C</td> </tr> <tr> <td>Temperature</td> <td>Conversion accuracy : within ±[0.5 % of span + 0.5 °C (thermosensitive element accuracy)] Temperature drift : within ±0.2 % of span to the change of 10 °C</td> </tr> </table> <p>*1: Option *2: After N-0 compensation. 1-second averaged value. Excluding the influence of fluctuation component which comes from equipment component, and resonance component including the target.</p>	Torque*2	±0.05 %/F.S. (RH*1, TQ*1)		±0.1 %/F.S. (TH-1000/2000)		±0.2 %/F.S. (MD/SS, TH-3000)	Revolution speed*2	<table border="1"> <tr> <td>MT-84M/T/R series, MT-85M/T/R series</td> <td>±0.02 %/F.S. ±1 count</td> </tr> <tr> <td>MT-82T** (excluding MT-82T15, MT-82T25)</td> <td>±0.06 r/min</td> </tr> <tr> <td>MT-82M**, MT-82T15, MT-82T25, MT-82R15, MT-82R25</td> <td>±0.02 r/min</td> </tr> </table>	MT-84M/T/R series, MT-85M/T/R series	±0.02 %/F.S. ±1 count	MT-82T** (excluding MT-82T15, MT-82T25)	±0.06 r/min	MT-82M**, MT-82T15, MT-82T25, MT-82R15, MT-82R25	±0.02 r/min	Analog	Linearity : within ±0.1 %/F.S. (1 second average), Temperature drift : ±0.01 %/F.S./°C	Temperature	Conversion accuracy : within ±[0.5 % of span + 0.5 °C (thermosensitive element accuracy)] Temperature drift : within ±0.2 % of span to the change of 10 °C									
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Computing equation	4 operations (four arithmetic operations) Calculation items can be defined from input signal, existing computed data																											
Measurement condition setting	Setting of torque detector, rotation detector																											
Control method	Revolution/torque, Measurement mode: Automatic/Manual (can be saved with a file name)																											
Measurement function	<table border="1"> <tr> <td>⊙ Fixed value measurement</td> <td>Time</td> <td>2 to 28,800 seconds</td> </tr> <tr> <td></td> <td>Number of data</td> <td> <ul style="list-style-type: none"> • SS/MD : 512 / 1024 / 2048 / 4096 / 8192 / Sample • TH : 2048 / 4096 / 8192 / 16384 / 32768 / Sample • TH high response (available when TS-0871 option installed) • TQ/RH (available when TS-0882 option installed) : 10240 / 20480 / 40960 / 81920 / 163840 / Sample • EXT TRQ IN (available when TS-0873 option installed) : 512 / 1024 / 2048 / 4096 / 8192 / Sample (Angle Sample: available only when manual operation (N) and the measurement time is limited to 60 seconds or 120 seconds.) </td> </tr> <tr> <td>⊙ Sweep measurement</td> <td>Time</td> <td>Depending on the number of data. 512 : 2 to 1000 seconds 1024 : 4 to 1000 seconds</td> </tr> <tr> <td></td> <td>Number of data</td> <td> <ul style="list-style-type: none"> • SS/MD : 512 / 1024 • TH : 2048 / 4096 • TH high response (available when TS-0871 option installed) • TQ/RH (available when TS-0882 option installed) : 10240 / 20480 • EXT TRQ IN (available when TS-0873 option installed) : 512 / 1024 </td> </tr> <tr> <td>⊙ Step measurement</td> <td>Number of steps</td> <td>2 to 128 : Calculated automatically from the upper/lower limit torque or upper/lower limit rotation speed and step width.</td> </tr> <tr> <td></td> <td>Step time</td> <td>5 to 100 seconds</td> </tr> <tr> <td>⊙ Pattern measurement</td> <td>Number of patterns</td> <td>1 to 128</td> </tr> <tr> <td></td> <td>Number of repeat times</td> <td>1 to 10</td> </tr> <tr> <td></td> <td>Shift time</td> <td>1 to 100 seconds</td> </tr> </table>	⊙ Fixed value measurement	Time	2 to 28,800 seconds		Number of data	<ul style="list-style-type: none"> • SS/MD : 512 / 1024 / 2048 / 4096 / 8192 / Sample • TH : 2048 / 4096 / 8192 / 16384 / 32768 / Sample • TH high response (available when TS-0871 option installed) • TQ/RH (available when TS-0882 option installed) : 10240 / 20480 / 40960 / 81920 / 163840 / Sample • EXT TRQ IN (available when TS-0873 option installed) : 512 / 1024 / 2048 / 4096 / 8192 / Sample (Angle Sample: available only when manual operation (N) and the measurement time is limited to 60 seconds or 120 seconds.) 	⊙ Sweep measurement	Time	Depending on the number of data. 512 : 2 to 1000 seconds 1024 : 4 to 1000 seconds		Number of data	<ul style="list-style-type: none"> • SS/MD : 512 / 1024 • TH : 2048 / 4096 • TH high response (available when TS-0871 option installed) • TQ/RH (available when TS-0882 option installed) : 10240 / 20480 • EXT TRQ IN (available when TS-0873 option installed) : 512 / 1024 	⊙ Step measurement	Number of steps	2 to 128 : Calculated automatically from the upper/lower limit torque or upper/lower limit rotation speed and step width.		Step time	5 to 100 seconds	⊙ Pattern measurement	Number of patterns	1 to 128		Number of repeat times	1 to 10		Shift time	1 to 100 seconds
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Monitor display	Numeric value display : Max. 100 items can be displayed simultaneously																											
Trend display	Time axis display																											
Graph display	<ul style="list-style-type: none"> • Display by specifying X-axis, Y-axis (max. 6 axes) from the measured data • Text display on the graph and saving it (label function) • Graph enlargement/reduction <ul style="list-style-type: none"> • Specifying line color/width • Comment input <ul style="list-style-type: none"> • Cursor function • Peak search function <ul style="list-style-type: none"> • Overlay display (max. 16 files) 																											
Table display	List display of measured value, data edition function																											
Comparator	Upper / lower limit of selected items can be specified, max. 4 points to max. 6 items Display and output of judgment result																											
I/F for MT series detector	2 channels (4 channels as an option)																											
Saving measurement results	Data saved in an exclusive format or text format																											
Operating environment of a PC	PC specification that TS-8700 software can be operated on <ul style="list-style-type: none"> CPU Intel® Core™ i5 or higher (recommended) 4 GB or more of free memory (recommended) HDD / SSD 256 GB or more (recommended) Optical drive: Optical drive that can read CD-R for installation or update OS: Microsoft® Windows® 10 Pro (64-bit), English or Japanese version, Version 1803 or higher Display : 1366 × 768 (full wide XGA) or more LAN port : Ethernet 100BASE-TX <p>* The operation is not guaranteed on all PCs with the above specifications. Please contact us for more details.</p>																											

Power requirement	AC100 to 240 V ±10 %, 50/60 Hz												
Power consumption	Approx.200 VA (AC100 V) or less												
Isolation resistance	10 MΩ or more (rated voltage DC 500 V)												
Withstand voltage	AC 1500 V for 1 minutes												
Temperature/humidity	<table border="1"> <tr> <td>Operating temperature range</td> <td>: +5 to +35 °C</td> </tr> <tr> <td>Operating humidity range</td> <td>: +30 to +80 % RH (with no condensation)</td> </tr> <tr> <td>Storage temperature range</td> <td>: -10 to +55 °C</td> </tr> <tr> <td>Storage humidity range</td> <td>: +30 to +80 % RH (with no condensation)</td> </tr> </table>	Operating temperature range	: +5 to +35 °C	Operating humidity range	: +30 to +80 % RH (with no condensation)	Storage temperature range	: -10 to +55 °C	Storage humidity range	: +30 to +80 % RH (with no condensation)				
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Altitude condition etc.	<table border="1"> <tr> <td>Pollution degree</td> <td>: 2</td> </tr> <tr> <td>Installation category</td> <td>: Category 2, indoor use</td> </tr> <tr> <td>Max. altitude</td> <td>: 2000 m</td> </tr> <tr> <td colspan="2">With no condensation, with no corrosive gas</td> </tr> </table>	Pollution degree	: 2	Installation category	: Category 2, indoor use	Max. altitude	: 2000 m	With no condensation, with no corrosive gas					
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Outer dimensions	420 (W) × 149 (H) × 450 (D) mm or less												
Weight	Approx. 12 kg												
Conforming standard	<table border="1"> <tr> <td>CE marking</td> <td>Low voltage Directive : 2014/35/EU EN61010-1</td> </tr> <tr> <td></td> <td>EMC Directive : 2014/30/EU EN61326-1 class 1 Industrial environment</td> </tr> <tr> <td></td> <td>RoHS Directive : 2011/65/EU EN50581</td> </tr> <tr> <td>FCC</td> <td>CRF47 Part15 Subpart B class A</td> </tr> <tr> <td colspan="2">MT8*M**: CE not supported</td> </tr> <tr> <td colspan="2">MT-0100 series, MT-071 series: RoHS not supported</td> </tr> </table>	CE marking	Low voltage Directive : 2014/35/EU EN61010-1		EMC Directive : 2014/30/EU EN61326-1 class 1 Industrial environment		RoHS Directive : 2011/65/EU EN50581	FCC	CRF47 Part15 Subpart B class A	MT8*M**: CE not supported		MT-0100 series, MT-071 series: RoHS not supported	
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MT-0100 series, MT-071 series: RoHS not supported													
Accessories	AC power cord, application CD-ROM, USB cable (2 m)												

Option

TS-0871	TH highly responsive sampling	Adds the highly responsive sampling function of the TH detector (supports 5120 Hz)
TS-0872	Analog/pulse output	Adds torque/rotation speed analog output, and rotation speed pulse output function.
TS-0873	External torque/analog input	Required when the torque control is used in the analog output of the torque detector.
TS-0874	Additional detector interface	Adds connection for two MT series torque detectors.
TS-0875	Interface for BA-910A	Required when the BA-910 type power amplifier is used.
TS-0876	Temperature measurement/temperature trigger	Required for temperature measurement. <ul style="list-style-type: none"> • Eight connectors (male) for sensor side are provided as standard. • Non-grounded type temperature sensor (T) : prepared by customer
TS-0877	Angle measurement/angle sampling	Adds the angle sampling function of external encoders <ul style="list-style-type: none"> • Cable side connector (R03-PB8M) is provided as standard.
TS-0878	Link to DS-3000	Links to DS-3000 series made by Ono Sokki. <ul style="list-style-type: none"> *LAN hub, LAN cable, a sync signal cable for DS series: prepared by customer
TS-0881	Power meter digital communication	Connects to power meter made by other company via LAN, and loads the measurement values digitally. <ul style="list-style-type: none"> *LAN hub, LAN cable: prepared by customer
TS-0882	Additional TQ/RH detector	It can connect our TQ/RH series torque detectors.

Outer dimensions (full option)

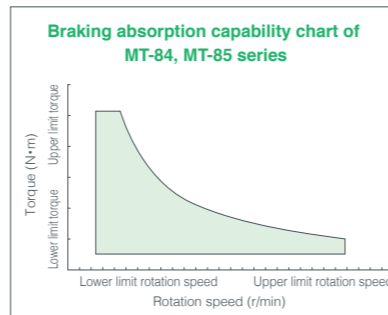
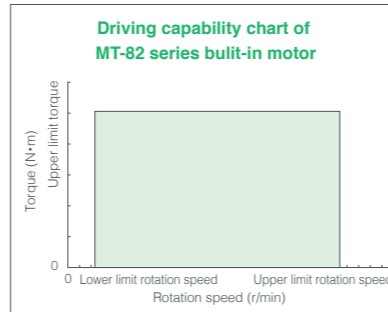


MT series



Common Specifications

Torque detection method	MT-8*M** : Electromagnetic gear type phase difference method MT-8*T** : Electromagnetic induction phase difference method MT-8*R** : Strain gauge detection method
Bearing method	Ball bearing type
Torque measurement accuracy	±0.2 %/F.S. ±0.1 %/F.S. (some models of MT-8*T** (with TH detector)) ±0.05 %/F.S. (MT-8*R**)
Motor power supply	Not included motor power supply
Power requirement	MT-8*M** : AC100V ±10 % 50/60 Hz MT-8*T** : AC100 to 240 V ±10 % 50/60 Hz MT-8*R** : AC100 to 240 V ±10 % 50/60 Hz
Power consumption	MT-8*M** : small capacity: approx. 20 VA or less medium capacity: approx. 38 VA or less MT-8*T** : small capacity: approx. 6 VA or less medium capacity: approx. 7 VA or less MT-8*R** : approx. 44 VA or less
Isolation resistance	10 MΩ or more (rated voltage: DC 500 V)
Withstand voltage	AC 1500 V for 1 minutes
Temperature/humidity	Operating temperature range : +0 to +40 °C Operating humidity range : +30 to +80 %RH (with no condensation) Storage temperature range : -10 to +50 °C Storage humidity range : +30 to +80 %RH (with no condensation)
Altitude condition etc.	Pollution degree : 2 Max. altitude : 2000 m (only for MT-8T/R**) Max. altitude : 1000 m (MT-8M**) With no condensation, with no corrosive gas
Conforming standard	RoHS Directive, CE marking, FCC *CE marking/FCC : MT-8*T** (MT series with TH) only CE marking : Low voltage Directive : 2014/35/EU EN61010-1 EMC Directive : 2014/30/EU EN61326-1 class 1 Industrial environment RoHS Directive : 2011/65/EU EN50581 FCC : CRF47 Part15 Subpart B class A
Braking capability	Can be used within the colored area in the right graph * MT-84/85 series can be used within the following range and within the braking capability W. Braking capability W=Torque N·m × Rotation speed r/min × 0.10472 * The torque below the brake torque loss cannot be controlled in MT-84/85 series. (approx. 5% of torque capacity) ○ In addition to the MT series, the detectors for various rotation speed ranges and torque ranges will be made upon consultation. Please feel free to contact us.

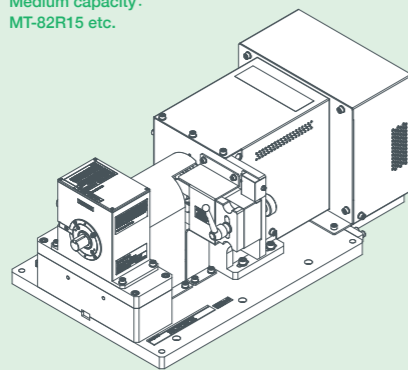
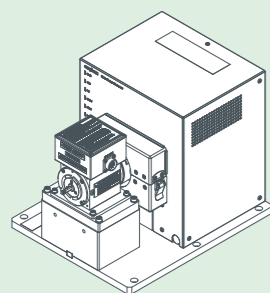


Lineup

MT-82 M/T/R series For torque ripple-cogging torque measurement

Small capacity:
MT-82T53 etc.

Medium capacity:
MT-82R15 etc.



-Suitable for torque ripple measurement in the state of motor excitation, and cogging torque measurement in the state of non-excitation motor.

-Control and measurement are performed at intervals below.

MT-82M**/R** : 0.5 to 5 r/min

MT-82T** : 2 to 15 r/min (excluding some models)

Specifications	
Measurement item	Torque, rotation speed, rotation angle*, current*, voltage*
Weight	Varies depending on the model.

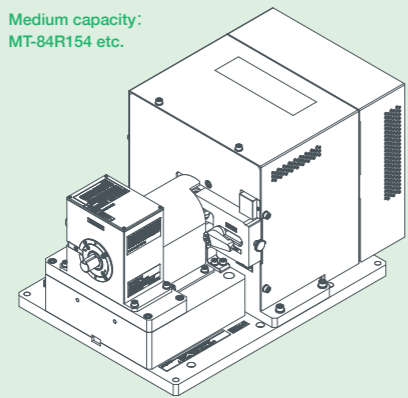
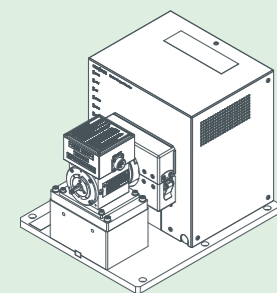
*: option

* It may be affected by the resonance component or the fluctuation component coming from the equipment component. Details of the specification is decided after consultation.

MT-84 M/T/R series TN-TI characteristics measurement with hysteresis brake type

Small capacity:
MT-84T53 etc.

Medium capacity:
MT-84R154 etc.



-Suitable for measurement of high speed rotating motor.

-Rotation speed of the motor and torque characteristics are automatically measured in combination with the TS-8700 Torque Station Pro.

-Controls torque and rotation speed, can be used for AC motor measurement, DC motor measurement.

Specifications	
Measurement item	Torque, rotation speed, current*, voltage*
Weight	Varies depending on the model.

*: option

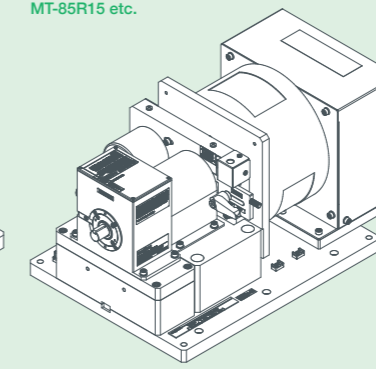
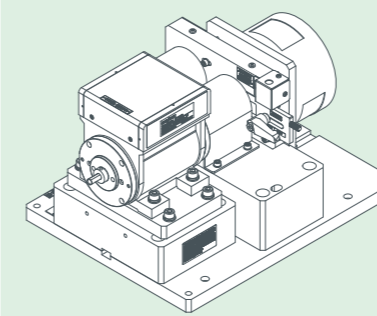
* It cannot be measured in no-load condition due to the idling torque on the brake.

* It may be affected by the resonance component or the fluctuation component coming from the equipment component. Details of the specification is decided after consultation.

MT-85 M/T/R series TN-TI characteristics measurement with powder brake type

Medium capacity:
MT-85T54 etc.

Medium capacity:
MT-85R15 etc.



-Suitable for measurement of large capacity and low speed rotating motor, such as a motor with gear.

-Rotation speed of the motor and torque characteristics are automatically measured in combination with the TS-8700 Torque Station Pro.

Specifications	
Measurement item	Torque, rotation speed, current*, voltage*
Weight	Varies depending on the model.

*: option

* It cannot be measured in no-load condition due to the idling torque on the brake.

* Please consult us for a detector for large torque capacity (made-to-order).

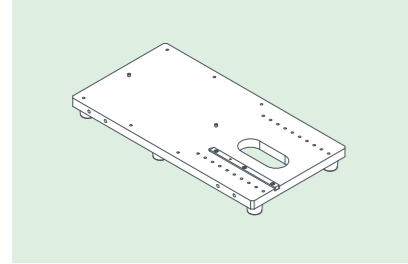
* It may be affected by the resonance component or the fluctuation component coming from the equipment component. Details of the specification is decided after consultation.

Lineup list

Type	Series	ID code	Torque (N·m)	Braking capability (W)	Rotation speed range (r/min)	Torque measurement accuracy (%/F.S.)	
Torque ripple/cogging torque measurement	Standard type with MD/SS (successor of MT- 6200B series)	82M21	0.002	—	0.5 to 5	±0.2	
		82M51	0.005	—	0.5 to 5	±0.2	
		82M12	0.01	—	0.5 to 5	±0.2	
		82M22	0.02	—	0.5 to 5	±0.2	
		82M52	0.05	—	0.5 to 5	±0.2	
		82M13	0.1	—	0.5 to 5	±0.2	
		82M23	0.2	—	0.5 to 5	±0.2	
		82M53	0.5	—	0.5 to 5	±0.2	
		82M14	1	—	0.5 to 5	±0.2	
		82M24	2	—	0.5 to 5	±0.2	
	82M54	5	—	0.5 to 5	±0.2		
	82M15	10	—	0.5 to 5	±0.2		
	82M25	20	—	0.5 to 5	±0.2		
	High performance type with TH (successor of MT-6200B series)	82T52	0.05	—	2 to 15	±0.2	
		82T13	0.1	—	2 to 15	±0.2	
		82T23	0.2	—	2 to 15	±0.2	
		82T53	0.5	—	2 to 15	±0.2	
		82T14	1	—	2 to 15	±0.2	
		82T24	2	—	2 to 15	±0.1	
		82T54	5	—	2 to 15	±0.1	
		82T15	10	—	0.5 to 5	±0.1	
		82T25	20	—	0.5 to 5	±0.1	
		High accuracy type with RH	82R15	10	—	0.5 to 5	±0.05
	82R25		20	—	0.5 to 5	±0.05	
	TN-TI characteristics measurement with hysteresis brake	Standard type with MD/SS (successor of MT- 6400B series)	84M22	0.02	5	100 to 20,000	±0.2
84M52			0.05	8	100 to 20,000	±0.2	
84M13			0.1	12	100 to 20,000	±0.2	
84M23			0.2	23	100 to 15,000	±0.2	
84M53			0.5	75	100 to 12,000	±0.2	
84M14			1	75	100 to 12,000	±0.2	
84M24			2	160	100 to 10,000	±0.2	
84M54			5	200	100 to 10,000	±0.2	
84M15			10	350	100 to 7,000	±0.2	
84M25			20	600	100 to 7,000	±0.2	
High performance type with TH (successor of MT-6400B series)		84T22	0.02	5	100 to 9,000	±0.2	
		84T52	0.05	8	100 to 11,000	±0.2	
		84T13	0.1	12	100 to 20,000	±0.2	
		84T23	0.2	23	100 to 15,000	±0.2	
		84T53	0.5	75	100 to 12,000	±0.2	
		84T14	1	75	100 to 12,000	±0.2	
		84T24	2	160	100 to 10,000	±0.1	
		84T54	5	200	100 to 10,000	±0.1	
		84T15	10	350	100 to 7,000	±0.1	
		84T25	20	600	100 to 7,000	±0.1	
High accuracy type with RH		84R15	10	350	100 to 7,000	±0.05	
		84R25	20	600	100 to 7,000	±0.05	
TN-TI characteristics measurement with powder brake		Standard type with SS (successor of MT- 6500B series)	85M14	1	20	5 to 1,800	±0.2
			85M24	2	50	5 to 1,800	±0.2
			85M54	5	130	5 to 1,800	±0.2
	85M15		10	320	5 to 1,800	±0.2	
	85M25		20	450	5 to 1,800	±0.2	
	High performance type with TH (successor of MT-6500B series)	85T14	1	20	5 to 1,800	±0.1	
		85T24	2	50	5 to 1,800	±0.1	
		85T54	5	130	5 to 1,800	±0.1	
		85T15	10	320	5 to 1,800	±0.1	
		85T25	20	450	5 to 1,800	±0.1	
	High accuracy type with RH	85R15	10	320	5 to 1,800	±0.05	
		85R25	20	450	5 to 1,800	±0.05	

Base・Stand

/B1 XYZ base for small capacity

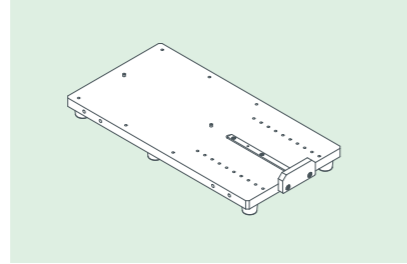


Base to attach a target with XYZ stage (/X1) and V block (/V1). Used for small capacity torque measurement, desktop type.

Applicable MT series

82T52 to 82T14	84T22 to 84T14
82M21 to 82M53	84M22 to 84M14

/B2 L-shaped base for small capacity

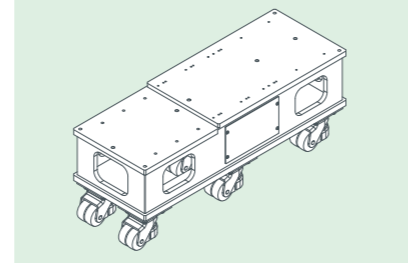


Base to attach a target with L-shaped jig (/L1). Used for small capacity torque measurement, desktop type.

Applicable MT series

82T52 to 82T14	84T22 to 84T14
82M21 to 82M53	84M22 to 84M14

/B4 Large stand with casters for medium & large capacity

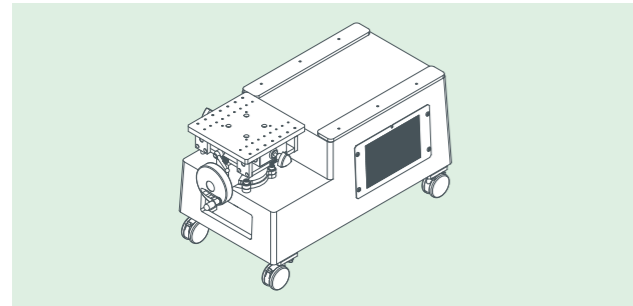


Stand to measure medium and large capacity torque with slide base (/S3) and L-shaped jig (/L2). MT series torque detector will be mounted on the stand.

Applicable MT series

82T24 to 82T25	85M14 to 85M25
82M14 to 82M25	82R15, 82R25
84T24 to 84T25	84R15, 84R25
84M24 to 84M25	85R15, 85R25
85T14 to 85T25	

/B3a Stand with XYZ stage and casters for medium & large capacity



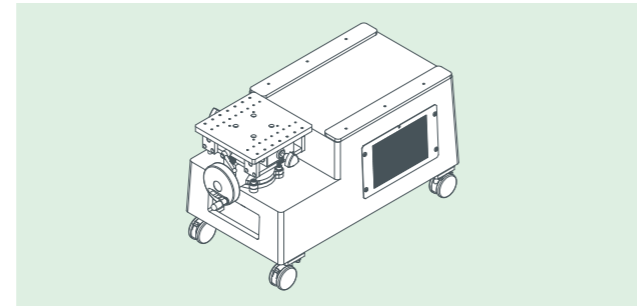
Stand to attach a target with XYZ stage +V block (/V2 or /V3). Used for medium capacity torque measurement, stand type.

Table surface	200 mm
X (Rotation axis perpendicular horizontal direction)	±10 mm
Y (Rotation axis horizontal back and forth direction)	±20 mm
Z (Vertical direction)	70 mm
Load capacity	5 kg

Applicable MT series

82T24 to 82T25	85M14 to 85M25
82M14 to 82M25	82R15, 82R25
84T24 to 84T15	84R15, 84R25
84M24 to 84M15	85R15, 85R25
85T14 to 85T25	

/B3b Stand with XYZ stage and casters for small capacity + center height adjustment plate + blinding plate



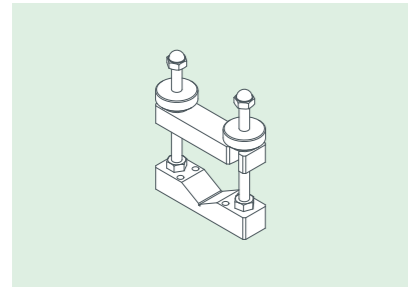
Stand to measure small capacity torque with V block (/V2 or /V3). MT series torque detector will be mounted on the stand. Specification of the stand, XYZ stage is same as /B3a.

Applicable MT series

82T52 to 82T14	84T22 to 84T14
82M21 to 82M53	84M22 to 84M14

V block

/V1 V block A for small capacity φ30 to 60



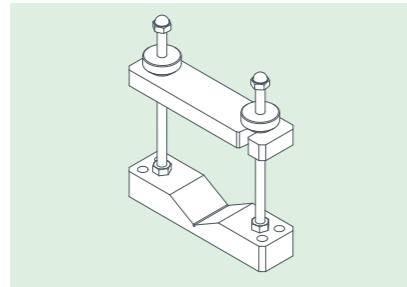
V block used when mounting a target using XYZ stage (/X1), for small capacity torque measurement, desktop type.

Outer diameter range of a target	φ30 to 60
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Applicable MT series

82T52 to 82T14	84T22 to 84T14
82M21 to 82M53	84M22 to 84M14

/V2 V block B for medium capacity φ60 to 120



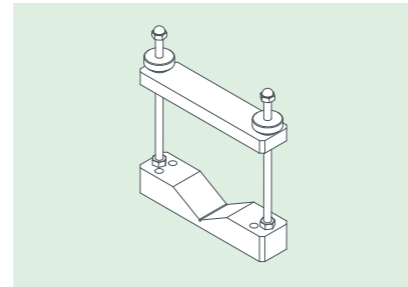
V block used when mounting a target using a stand with XYZ stage and casters (/B3a or /B3b).

Outer diameter range of a target	φ60 to 120
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Applicable MT series

Same as /B3a and /B3b

/V3 V block C for medium capacity φ100 to 150



V block used when mounting a target using a stand with XYZ stage and casters (/B3a or /B3b).

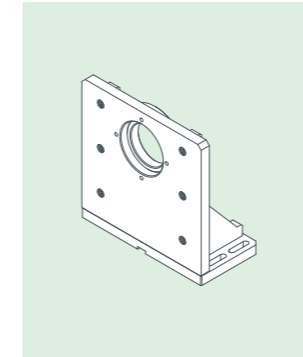
Outer diameter range of a target	φ100 to 150
---	-------------

Applicable MT series

Same as /B3a and /B3b

L-shaped jig

/L1 L-shaped jig for small capacity



Used with L-shaped base (/B2). It helps reproducible centering, when testing the same model many times etc. The target is attached via the surface plate provided as standard.

*Processing to a surface plate can be done by Ono Sokki (Fee quote required). This is for small capacity, desktop type.

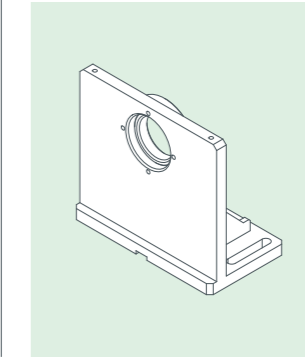
L-shaped inner diameter of in-low section	φ50H7
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Center height	130 mm
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Applicable MT series

82T52 to 82T14	84T22 to 84T14
82M21 to 82M53	84M22 to 84M14

/L2 L-shaped jig for medium & large capacity



Used with Large stand with casters (/B4) and slide base (/S3) to measure medium or large capacity torque. It helps reproducible centering, when testing the same model many times etc. The target is attached via the surface plate provided as standard.

*Processing to a surface plate can be done by Ono Sokki (Fee quote required). This is for medium & large capacity, stand type.

L-shaped inner diameter of in-low section	φ62H7
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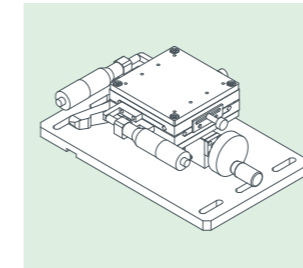
Center height	140 mm
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Applicable MT series

82T24 to 82T25	85M14 to 85M25
82M14 to 82M25	82R15, 82R25
84T24 to 84T25	84R15, 84R25
84M24 to 84M25	85R15, 85R25
85T14 to 85T25	

XYZ stage・Slide base

/X1 XYZ stage for small capacity



XYZ stage to support measurement of small torque capacity, desktop type.

Table surface	80 mm
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X (Rotation axis perpendicular horizontal direction)	±12.5 mm
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Y (Rotation axis horizontal back and forth direction)	±12.5 mm
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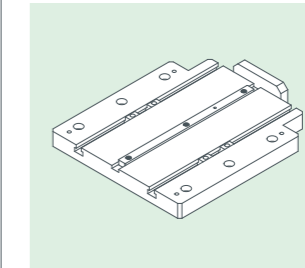
Z (Vertical direction)	45 mm
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Load capacity	3 kg
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Applicable MT series

82T52 to 82T14	84T22 to 84T14
82M21 to 82M53	84M22 to 84M14

/S3 Slide base for L-shaped jig for medium & large capacity



Slide base used for the measurement using L-shaped jig (/L2) on the large stand with casters (/B4).

Sliding amount of L-shaped metal fixture : 330 mm (Length from end to end. Actual sliding amount depends on the L-shaped metal fixture to be placed.)

Others

/E1 Encoder

Detectors for torque ripple and cogging torque (except for some torque detectors). Rotation angle measurement and angle sampling can be performed in 0.1 degree steps.

* Rotation speed range : from lower limit speed of the MT detector to 5 r/min. Angle measurement (angle sampling) may not be performed under resonance. In that case, the rotation speed should be changed.

/L3 Cable length 3 m

Cable for between MT and TS

Torque signal cable	3 m
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Rotation signal cable	3 m
-----------------------	-----

Control cable	3 m
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AC power cable for MT	1.9 m
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/L5 Cable length 5 m

Cable for between MT and TS

Torque signal cable	5 m
---------------------	-----

Rotation signal cable	5 m
-----------------------	-----

Control cable	5 m
---------------	-----

AC power cable for MT	1.9 m
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/LX Cable length X m (made to order)

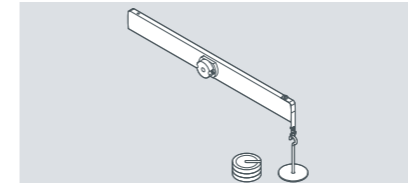
Made-to-order cable with the length a customer requests. The length supported depends on the torque capacity. Please consult us for more details. Not applicable to CE marking

/GY Cable length Y m (made to order:worldwide type cable)

Made-to-order cable with the length a customer requests. (for overseas specification) The length supported depends on the torque capacity. Depending on the required power supply standard, it may not be supported. Please consult us for more details. Not applicable to CE marking

Options (corresponding to each product)

MT-0100 series (calibrator for quick checking at site)

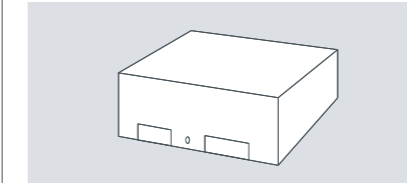


Calibration set to check the torque value at site. Calibration for detector range: from 50 mN·m to 20 N·m

Calibration accuracy	±0.5 %; detectors for 50 mN·m to 200 mN·m
	±0.4 %; detectors for 500 mN·m to 20 N·m

*We provide the product brochure for the MT-0100 series, please request if needed.
*The weight of the MT-0100 series is not supported RoHS.

MT-071 series (for current voltage measurement)

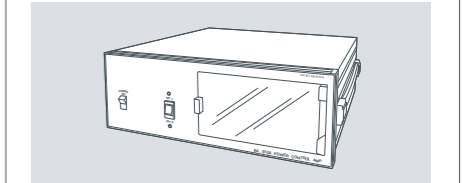


For DC measurement. Used to set between a motor and a power supply device.

Voltage	50 V
MT-0712	for 30 A
MT-0713	for 50 A
MT-0715	for 100 A
MT-0717	for 200 A
Made to order	for 2 A / 10 A

*MT-071 series: not supported RoHS

Brake Control Amplifier



Required when large capacity type made-to-order detector is used. TS-0875 (option) is required to attach to the TS-8700.

Combination table TS/MT series

Legend symbol

- Can be combined
- × Cannot be combined
- △¹ The interlock function for the cover of the moving part of MT8* cannot be used.
- △² The interlock function for the cover of the moving part of TS-8700 cannot be used.*¹
- No need for combination

*¹ Please connect to EXT SEQUENCE1.
* If you would like to mount the RH detector, the modification of TS-8700 will be required.

Type	Series	ID code	TS-8700	TS-8700 + Brake control amplifier	TS-7700/B	TS-7700/B + BA-910A	TS-7100 + BA-910A
Torque ripple/cogging torque measurement	Standard type with MD/SS (successor of MT-6200B series)	82M**	○	—	△ ¹	—	×
	High performance type with TH (successor of MT-6200B series)	82T**	○	—	×	—	×
	High accuracy type with RH	82R**	○	—	×	—	×
TN, TI characteristics measurement with hysteresis brake	Standard type with MD/SS (successor of MT-6400B series)	84M**	○	—	△ ¹	—	×
	High performance type with TH (successor of MT-6400B series)	84T**	○	—	×	—	×
	High accuracy type with RH	84R**	○	—	×	—	×
TN, TI characteristics measurement with powder brake	Standard type with SS (successor of MT-6500B series)	85M**	○	—	△ ¹	—	×
		Custom order (50 N·m)	×	○	×	△ ¹	×
		Custom order (100 N·m)	×	○	×	—	×
	High performance type with TH (successor of MT-6500B series)	85T**	○	—	×	—	×
		Custom order (50 N·m)	×	○	×	—	×
		Custom order (100 N·m)	×	○	×	—	×
High accuracy type with RH	85R**	○	—	×	—	×	
Torque ripple/cogging torque measurement	MT-6200 MT-6200A MT-6200B	62**	△ ²	—	○	—	○
TN, TI characteristics measurement	MT-6400 MT-6400A MT-6400B	64**	△ ²	—	○	—	○
		6514 6524 6554	△ ²	—	○	—	○
	MT-6500 MT-6500B	6515 6525 6555 6516 6526	×	△ ²	×	○	○

For further detailed information, please visit our website.

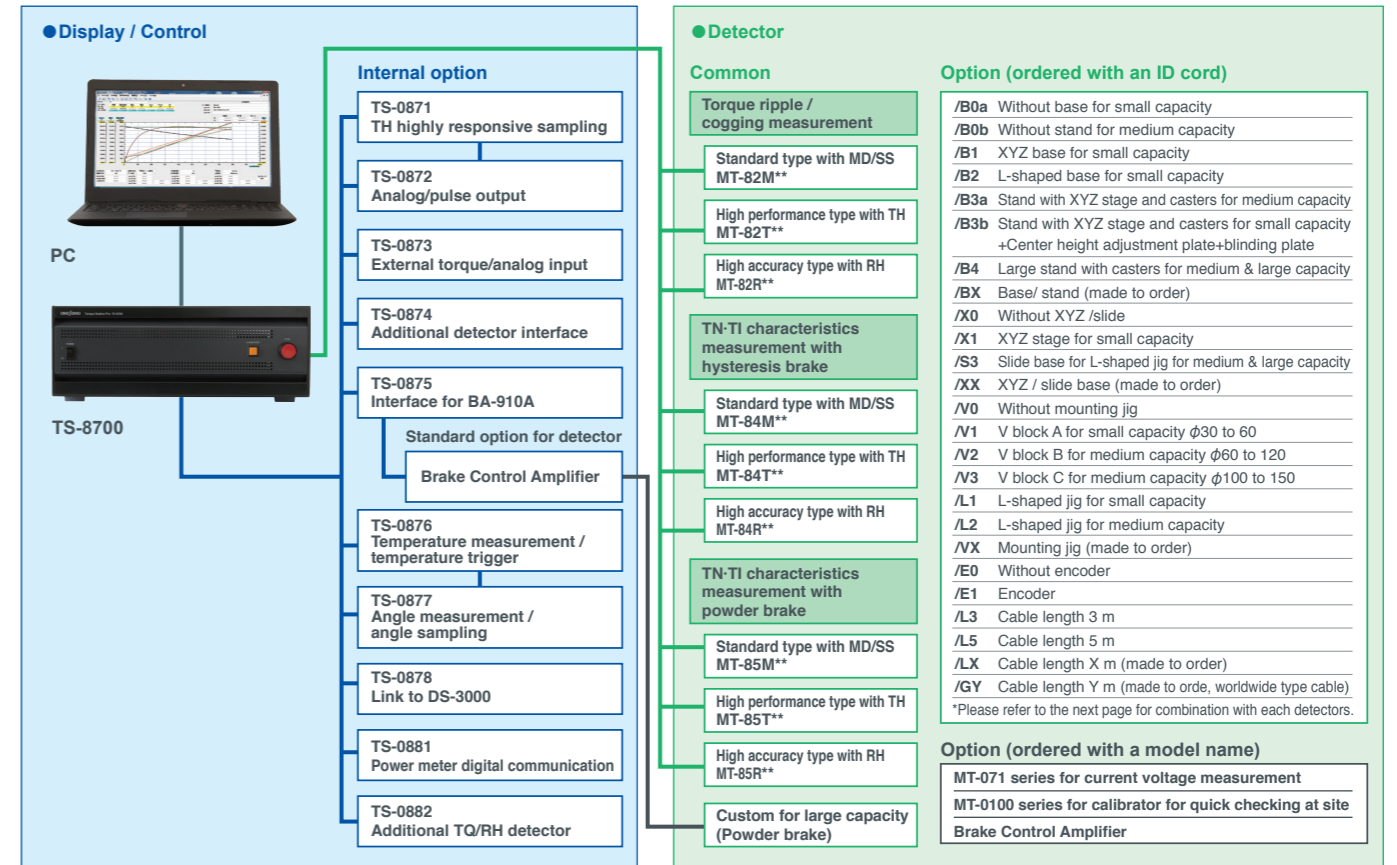
TS-8700 series



MT-8x series

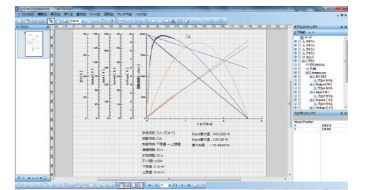
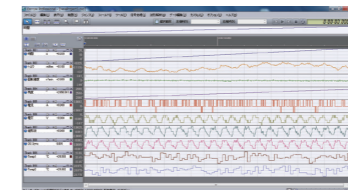


TS8700 System configuration



TS System configuration

DS data (.orf) can be saved in the same folder as TS data.
OS-2000 series can merge both data.



DS-3000 series Multi-channel data station

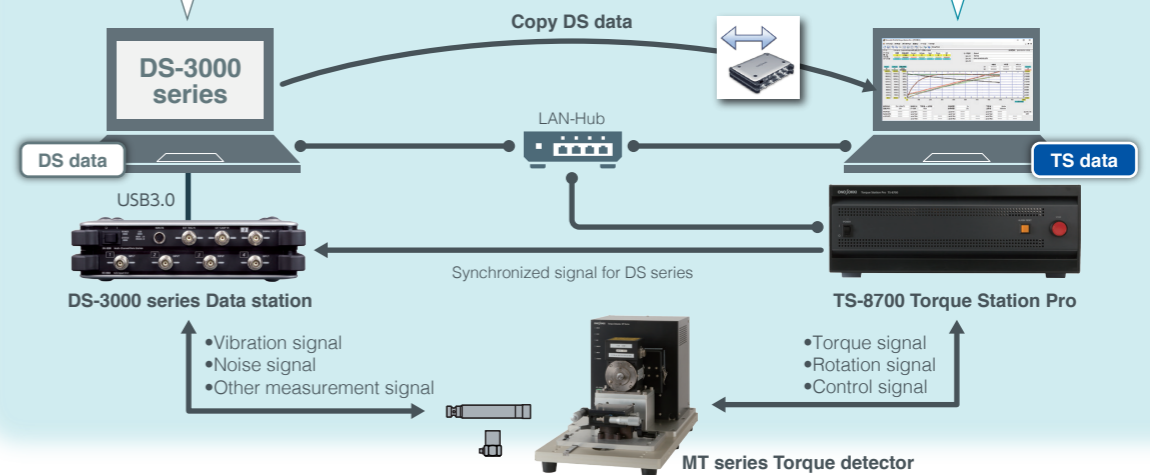
DS-3000 series multi-channel Data Station can perform real-time analysis of noise and vibration generated from various products such as vehicles, railroads, home appliances and environmental equipment including wind power generators. It is important for the on-site measurement to have immediate results such as "you can immediately show the analysis screen" and "you can easily check the measurement conditions" during the limited time. The DS-3000 series enables to meet those needs with the system that has both the hardware equipped with high-speed processing speed and the site-friendly software.

OS-2000 series Time-series data analysis software

The OS-2000 series can easily handle the large-capacity time-series data, and greatly help to reduce the labor and time of analysis. This software allows freely, flexible edit and analysis of huge time-series data that cannot be handled by Excel. The OS-2000 series supports the original format of other company's recorder as well as general-purpose formats of CSV and WAVE.

OC-1300 series Multi-functioned graph creating software

The OC-1300 series can create multi-axis graphs, 3D/4D graphs and color map graphs quickly and freely as you want. This software is a graphing tool that allows anyone quickly and easily to create beautiful reports. Three types of lineup (basic, standard and professional) are available.



Combination table of ID code option

Type	Series	ID code	Base / stand	XYZ / slide	Mounting jig	Angle encoder	Cable length
Torque ripple/cogging torque measurement	Standard type with MD/SS (successor of MT-6200B series)	82M21 82M52	/B0a	/X0	/V0	/E0	/L3 to /LX/GY
		82M51 82M13	/B1	/X0,/X1	/V0,/V1		
		82M12 82M23	/B2	/X0	/V0,/L1		
		82M22 82M53	/B3b	attached to /B3b	/V0,/V2,/V3		
		82M14 82M15	/B0b	/X0	/V0		
		82M24 82M25	/B3a	attached to /B3a	/V0,/V2,/V3		
	High performance type with TH (successor of MT-6200B series)	82T52 82T53	/B0a	/X0	/V0	/E0,/E1	/L3 to /LX/GY
		82T13 82T14	/B1	/X0,/X1	/V0,/V1		
		82T23	/B2	/X0	/V0,/L1		
			/B3b	attached to /B3b	/V0,/V2,/V3		
		82T24 82T25	/B0b	/X0	/V0		
		82T54 82T15	/B3a	attached to /B3a	/V0,/V2,/V3		
High accuracy type with RH	82R15 82R25	/B4	/X0,/S3	/V0,/L2	/E0	/L3 to /LX/GY	
		/B0b	/X0	/V0			
		/B3a	attached to /B3a	/V0,/V2,/V3			
TN-TI characteristics measurement with hysteresis brake	Standard type with MD/SS (successor of MT-6400B series)	84M22 84M23	/B0a	/X0	/V0	/E0	/L3 to /LX/GY
		84M52 84M53	/B1	/X0,/X1	/V0,/V1		
		84M13	/B2	/X0	/V0,/L1		
			/B3b	attached to /B3b	/V0,/V2,/V3		
		84M14 84M15	/B0b	/X0	/V0		
		84M24 84M54	/B3a	attached to /B3a	/V0,/V2,/V3		
	High performance type with TH (successor of MT-6400B series)	84T22 84T23	/B0a	/X0	/V0	/E0	/L3 to /LX/GY
		84T52 84T53	/B1	/X0,/X1	/V0,/V1		
		84T13 84T14	/B2	/X0	/V0,/L1		
			/B3b	attached to /B3b	/V0,/V2,/V3		
		84T24	/B0b	/X0	/V0		
		84T54 84T15	/B3a	attached to /B3a	/V0,/V2,/V3		
High accuracy type with RH	84R15	/B4	/X0,/S3	/V0,/L2	/E0	/L3 to /LX/GY	
		/B0b	/X0	/V0			
		/B3a	attached to /B3a	/V0,/V2,/V3			
TN-TI characteristics measurement with powder brake	Standard type with SS (successor of MT-6500B series)	85M14 85M15	/B0b	/X0	/V0	/E0	/L3 to /LX/GY
		85M24 85M25	/B3a	attached to /B3a	/V0,/V2,/V3		
		85M54	/B4	/X0,/S3	/V0,/L2		
	High performance type with TH (successor of MT-6500B series)	85T14 85T15	/B0b	/X0	/V0	/E0	/L3 to /LX/GY
		85T24 85T25	/B3a	attached to /B3a	/V0,/V2,/V3		
		85T54	/B4	/X0,/S3	/V0,/L2		
	High accuracy type with RH	85R15 85R25	/B0b	/X0	/V0	/E0	/L3 to /LX/GY
			/B3a	attached to /B3a	/V0,/V2,/V3		
			/B4	/X0,/S3	/V0,/L2		

MT series ID code

Example: **MT-82 M 21/B1/X1/V1/E1/L3**

1 2 3 4 5 6 7 8

1 Purpose/Brake type

2 : MT-82M/T/R

Detector for Torque ripple / cogging torque
DC geared motor drive

4 : MT-84M/T/R

Detector with hysteresis brake for small & medium torque high revolution
TN, TI measurement

5 : MT-85M/T/R

Detector with powder brake for medium & large torque low revolution
TN, TI measurement

2 Detector type

M: Standard type with MD/SS

T: High-performance type with TH

R: High accuracy/response type with RH

3 Torque capacity

21 : 2 mN·m

51 : 5 mN·m

12 : 10 mN·m

22 : 20 mN·m

52 : 50 mN·m

13 : 100 mN·m

23 : 200 mN·m

53 : 500 mN·m

14 : 1 N·m

24 : 2 N·m

54 : 5 N·m

15 : 10 N·m

25 : 20 N·m

4 Base / stand

/B0a : without base for small capacity

/B0b : without stand for medium capacity

separate control box

*The cable length between MT and control box: 1 m

/B1 : XYZ base for small capacity

/B2 : L-shaped base for small capacity

/B3a : Stand with XYZ stage and caster for medium capacity

/B3b : Stand with XYZ stage and caster for small capacity

+center height adjustment plate

+ blinding plate

/B4 : Large stand with caster for medium & large capacity

/BX : made to order base/stand

5 XYZ / Slide base

/X0 : without XYZ / slide

/X1 : XYZ stage for small capacity (equivalent to MT-0094)

/S3 : Slide base for L-shaped jig for medium & large capacity (when using L-shaped jig / L2 on a Large stand with caster / B4)

/XX : made to order XYZ / slide base

6 Mounting jig

/V0 : without mounting jig

/V1 : V block A for small capacity

φ30 to 60

/V2 : V block B for medium capacity

φ60 to 120

/V3 : V block C for medium capacity

φ100 to 150

/L1 : L-shaped jig 1 for small capacity

/L2 : L-shaped jig 2 for medium & large capacity

/VX : mounting jig (made to order)

7 Encoder

/E0 : without encoder

/E1 : with encoder MT-82M/T

(Available only for the types with TH and with SS)

8 Cable length

/L3 : cable length 3 m

/L5 : cable length 5 m

/LX : cable length X m (made-to-order)

/GY : cable length Y m (made-to-order)

*LX, /GY: not conforming to CE and FCC

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