Innovation in Motion
TSUBAKI

TSUBAKI
Small-Size Gear Motors
IoT Series

What you can do with a gear motor integrated into a single unit

You may think that there is no issue with just retrofitting sensors, but there are many advantages to integrating sensors and gear motors into a single unit.

When you retrofit a gear motor with sensors

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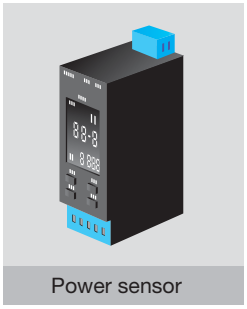


Power sensor

Vibration sensor

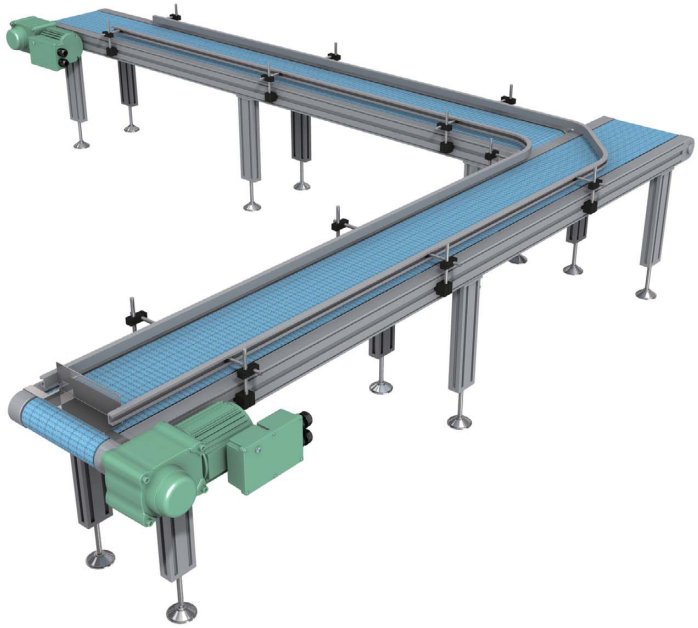
Temperature sensor

- You must wire one sensor at a time and secure a power supply for the sensors.
- You also need a peripheral device to control the motor with the output data.
- If you want to trigger an alarm when a setting is exceeded, you will need additional components.
- Configuration methods differ depending on the manufacturer of the components used.
- It is difficult to configure settings that take into account the efficiency of the motor and gears.

Example use

Conveyor belt

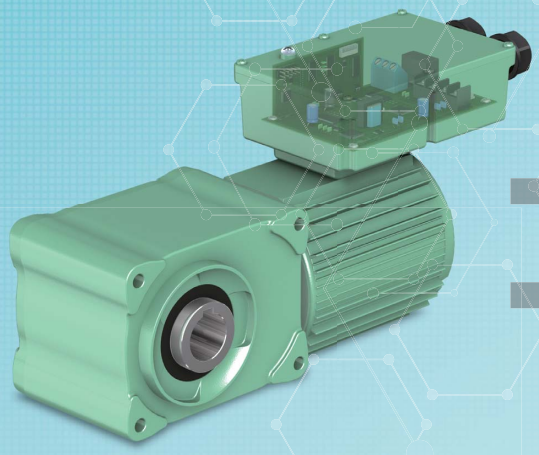
When used for drive units that convey processed parts or food containers



Key points

- ☐ Power monitoring enables highly accurate load monitoring.
- ☐ Compatible with inverter drives to enable stable detection accuracy at any speed.
- ☐ Lower limit detection enables detection of chain breakage.
- ☐ Abnormalities can be detected quickly, and alarms can be triggered.
- ☐ In the event of an abnormality, various data are automatically saved on the circuit board, enabling an easy analysis of the causes.
- ☐ The communication function allows the motor to be connected to various devices.
- ☐ Parameters can be easily changed.

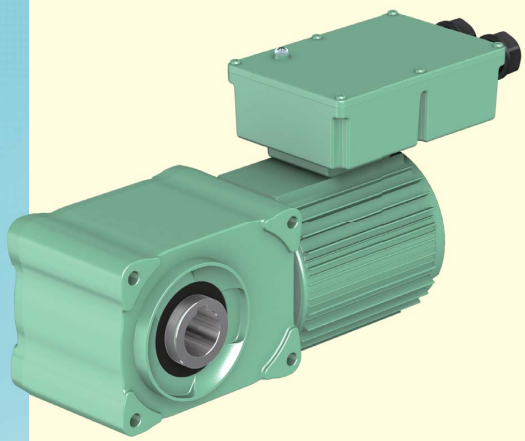
and sensors



Motor capacity
0.1 kW–1.5 kW

Series
Hypoid motors
Gear motors

If you use an IoT Series Small-Size Gear Motor



Because the power, temperature, and vibration sensors are built-in...

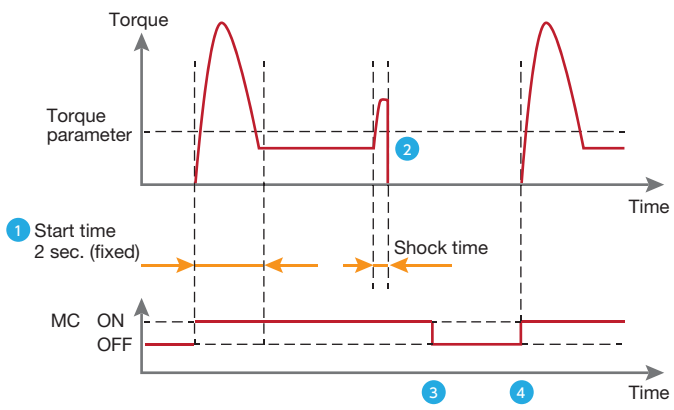
- The sensors are contained in an integrated unit, eliminating the need to wire sensors individually.
- The circuit board runs on a 24 V DC power supply, which enables communication even after the motor has stopped.
- Motor capacity and reduction ratios are input to the circuit board, which enables display and configuration with actual torque.
- Threshold values that take efficiency into account can be easily set.
- Even more accurate torque calculations are possible with temperature sensor compensation.
- The relay output function allows an alarm to be triggered when a parameter is exceeded.
- Dedicated software allows parameters to be changed as needed.

Operation instructions

Up to four different settings can be configured in advance. Setting 1*, the factory setting, sets the rated value for upper limit detection at 100%, while Setting 2 sets it at 120%, Setting 3 sets it at 80%, and Setting 4 sets it at 150%.

*Setting 1 is the default setting when shipped. To change to Settings 2 to 4, use the DIP switches in the terminal box. Temperature and vibration sensors are shipped in the OFF position.

■ Operation mode



1 Start time

Set to prevent the relay from operating due to the motor's inrush current. During this time, overload detection cannot be carried out.

2 Overload trip

The relay will trip when each parameter is exceeded for longer than the shock time.

3 Eliminating cause of overload trip

When eliminating the cause of the trip, be sure to turn off the power. The motor may restart due to a momentary power outage.

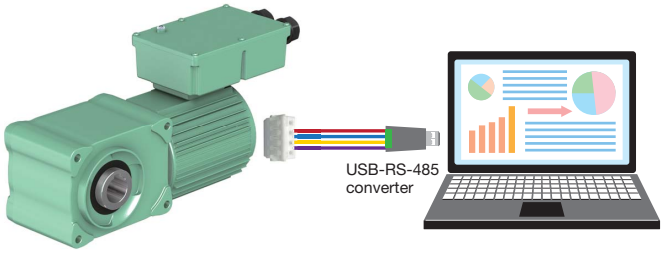
4 Recovery from overload

Turn the power back on (turn on MC). The gear motor restarts.

By connecting the motor to a communication device, you can monitor operating conditions and record data.

Note: Display screen is subject to change with version upgrades.

IoT Series Small-Size Gear Motors are equipped with a communications function. You can use the PC software to display waveforms, record operating data, and perform other tasks.

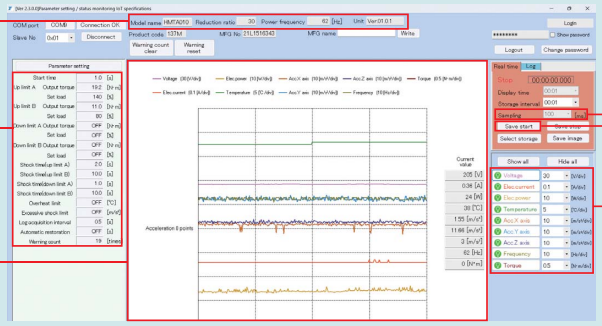


Note: We offer an RS-485 cable as an optional accessory (p.6).
If you need a USB-RS-485 converter, please purchase an off-the-shelf product.

PC software can be downloaded from the Tsubaki website.
https://tt-net.tsubakimoto.co.jp/tecs/pdct/gen/pdct_gen_1ggm.asp

Display waveforms in real-time

Configuration software screen



The specifications of the connected gear motor are displayed here.

Parameter setting buttons

Currently set parameters are displayed here.

Waveform display

Current values are displayed as waveforms.

Sampling time

The frequency of data updates can be set here.

“Save start” button

Start waveform save operation.

“Show all/Hide all” buttons

Show or hide items and set calibrations.

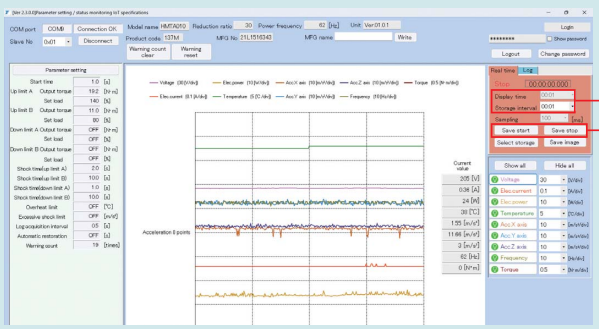
Note: Please refer to the software instruction manual for details.

A wide range of data can be recorded during operation

You can record data on power, temperature, and vibration (X, Y, and Z axes).
You can set measurement times to automatically save data at each measurement time interval.

Operation

Configuration software screen



Display time/Storage interval settings

Value can be set from one minute to 24 hours.

“Save start” button

“Save stop” button

Click on “Save start” to save data in a CSV file* to the specified location at each set time interval.

Note: Please refer to the software instruction manual for details.

*What is a CSV file?

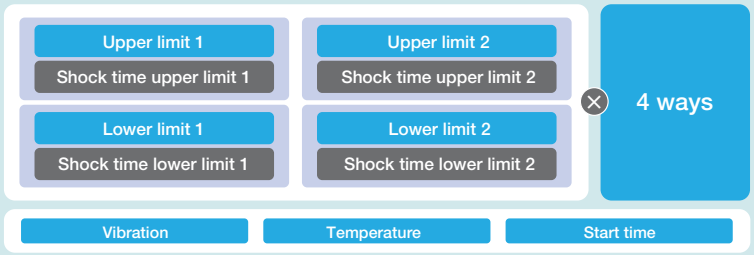
CSV stands for comma-separated values. It is a text file that stores multiple data items separated by commas. The format can be opened by various kinds of software.

You can set various parameters that are best suited to the equipment

By entering your password and logging in, you can configure a total of six different settings for power, temperature, and vibration.

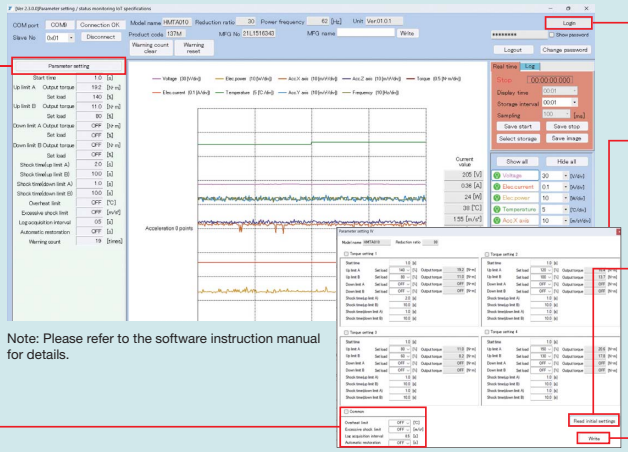
Setting parameters

Up to four different settings can be configured, and the parameters can be changed just by flipping the DIP switches in the terminal box. Please refer to the software instruction manual for the possible setting ranges.



Note: Only one setting is available for temperature and vibration.

Configuration software screen



Write/read value display

Click the “Parameter setting” button to switch to the settings screen.

Abnormal stoppage settings

You can set the log interval for data to be automatically saved in the event of an abnormal stoppage.

Note: Please refer to the software instruction manual for details.

Login button

You can change the parameters by entering your password and logging in.

Parameter settings screen

You can do batch management of the four different types of parameters.

“Read initial settings” button

Recalls the factory default settings.

“Write” button

Click this button to write the checked items.

System requirements

OS	Windows 7 SP1 or later
CPU/memory	Based on the recommended system environment of your OS
Hard disk space	1 GB or more free space
Memory	2 GB or more
Required software	.NET Framework 4.5.2 or later

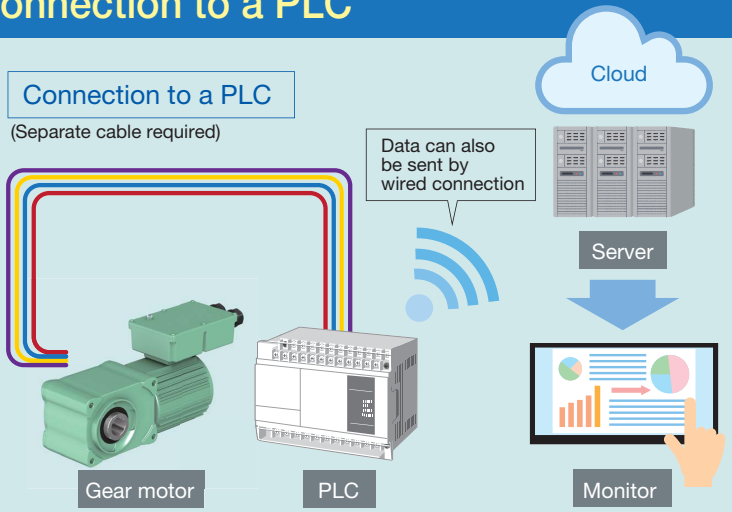
.NET Framework can be downloaded from this site: https://dotnet.microsoft.com/en-us/download/dotnet-framework

Example of Remote Monitoring

Connection to a PLC

The gear motor can be integrated into the existing system by connecting it to the PLC (sequencer) used at the customer site.

To change parameters, you must connect the gear motor to a PC using the dedicated monitoring software (free of charge).



Features of IoT Series Small-Size Gear Motors

IoT Series Small-Size Gear Motors can monitor power, temperature, and vibration, making it possible to detect abnormalities under various conditions.

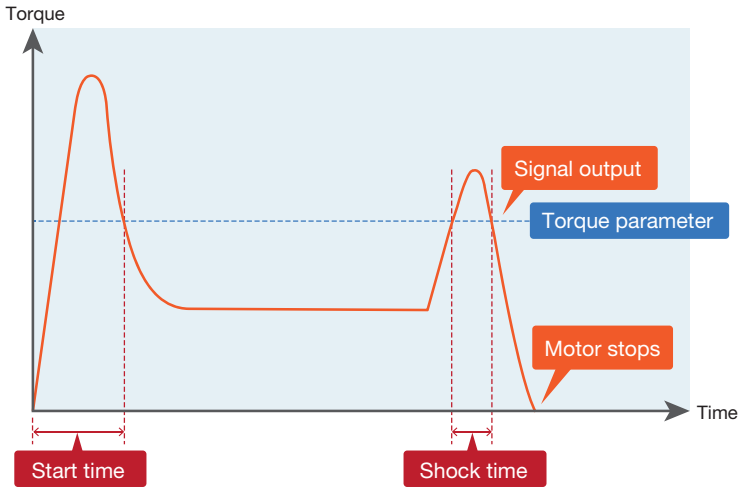
IoT Series Small-Size Gear Motors monitor power, temperature, and vibration, and they generate a signal if any abnormalities are detected.
The dedicated PC software can be used to change operational parameters and to monitor and record data, while the communication function enables connections to a variety of devices.

Stoppage patterns

Stoppage due to momentary load

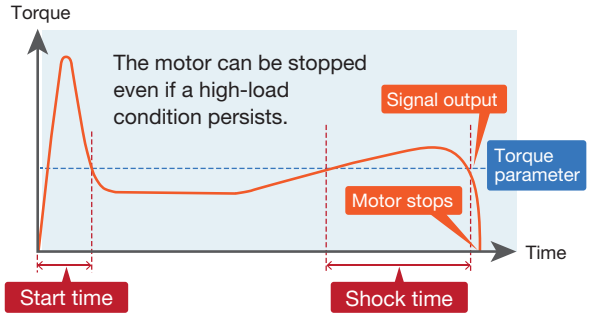
You can prevent equipment damage due to abnormal load by setting a shorter shock time.

The sensor can quickly detect a sudden increase in load, and the motor can be stopped using the output signal.



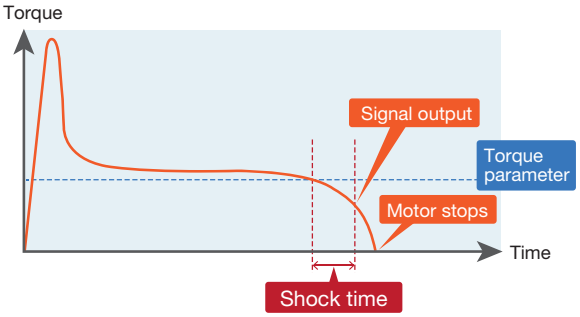
Stoppage due to long-term load

By lengthening the shock time and monitoring both load and temperature, this can be used as a high-precision thermal overload relay.



Stoppage due to lower limit detection

Detects when the load has lightened due to chain breakage or other cause and outputs a signal.



Operational status can be monitored with LEDs

Operational status		LED
Power off		×
Normal (blue)		○
Signal output (red)	Upper power limit A	☆(1)
	Upper power limit B	☆(2)
	Lower power limit A	☆(3)
	Lower power limit B	☆(4)
	Over-shock	☆(5)
	Overheat	☆(6)

The LEDs can be checked from the lid of the terminal box, and the number of blinks during an error indicates the cause of the stoppage.

○: Light on ×: Light off
☆(): Blinking
Number of blinks in parentheses

The blinking cycle is as follows during protective shutdown.
Blinking → Off (1s) → Blinking → Off (1s) → Blinking...

Communication specifications

Protocol	Modbus-RTU
Transmission line connection	RS-485
Communication speed	9600 bps
Start bit length	1 bit
Data bit length	8 bits
Stop bit length	1 bit
Parity bit	Even
Endianness	LSB
Slave address	1-16 (0x01-0x10)

Equipped with a signal output function

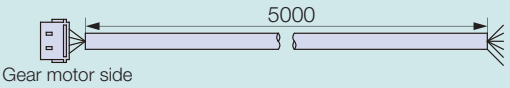
A signal is output when a parameter is exceeded, and an alarm can be triggered.

Contact specifications	Transistor output (24 V DC)

Communication cable

Please purchase the separately sold cable.

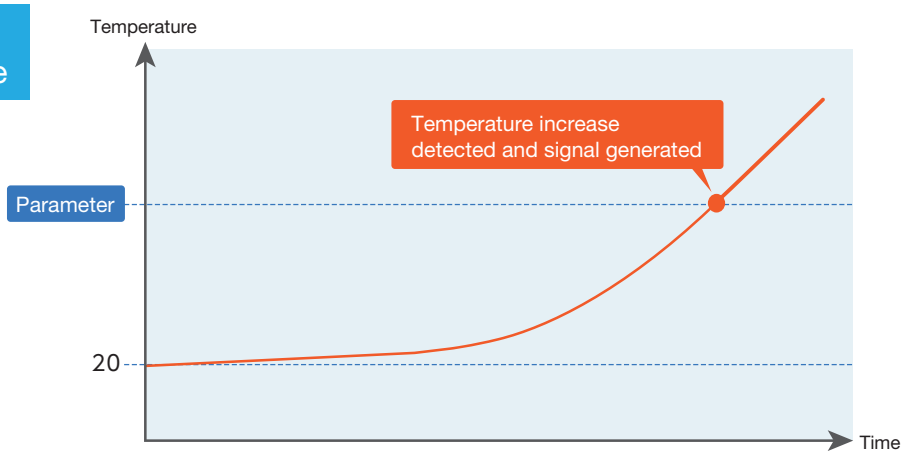
Model no.	Cable length
M-S05	5 m



Note: You will need a separate converter to connect the gear motor to a PC.

Stoppage due to temperature increase

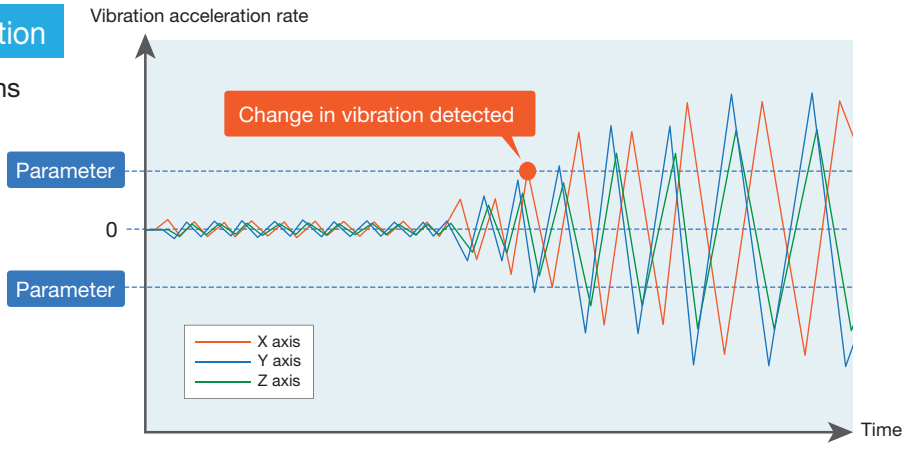
Detects heat generated by continuous high-load operation and outputs a signal.



Stoppage due to vibration

Detects abnormal vibrations and outputs a signal.

Vibration is monitored on each of the three axes (X, Y, and Z), and if an abnormality is detected in any of the axes, the motor will stop.



Features of IoT Series Small-Size Gear Motors

Automatic recording of abnormalities

Automatic data recording function when a signal is output

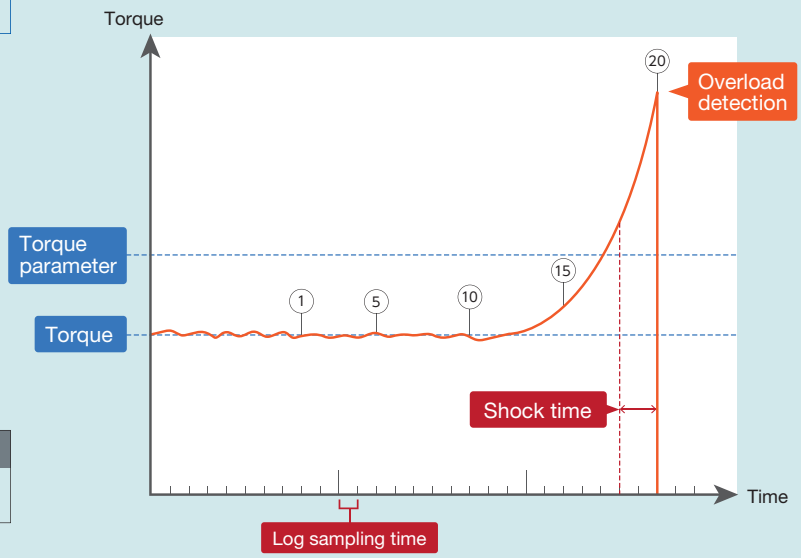
Various data before a signal is output is recorded three times in the gear motor body.

When a parameter is exceeded, 20 pieces of data are automatically recorded three times at set intervals going back from the time of signal output to determine what kind of load, temperature, or vibration caused the stoppage.

Example: If the interval is set at 0.5s

→0.5×20=10s

Various data from 10s before the signal output is recorded, and this data can be retrieved in CSV file format by connecting the motor to a PC.



Note: Data from the fourth timepoint onward will be overwritten starting with the oldest data.

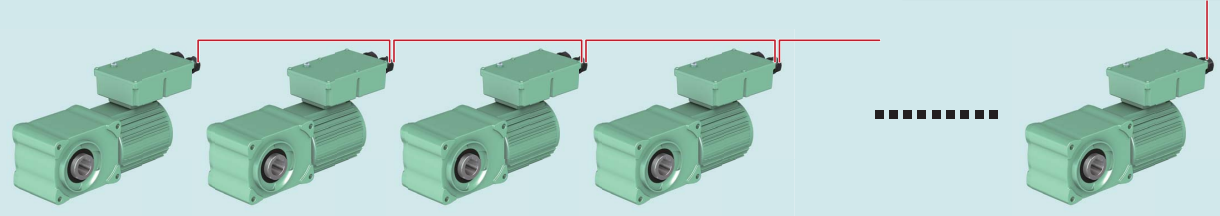
Batch monitoring of multiple units

Up to 16 units can be connected together

When gear motors are connected, up to 16 units can be monitored with a single software application.

RS-485 communication enables batch monitoring of up to 16 units.
Please refer to p.6 for communications specifications.

Note: For long cables, contact a Tsubaki representative.



CE compliant

Products exported to Europe must bear CE marking to show that they satisfy the safety requirements of applicable EC directives.

Relevant directives and regulations

Directive	Low Voltage Directive 2014/35/EU
Regulations	EN 60034-1 (regulations for rotating electrical machines)

The IoT Series is also available with a self-shutoff function.

Item	IoT Series	IoT Series (with self-shutoff)
Detected items	Power, current, voltage, torque, acceleration (X/Y/Z axes), temperature (inside terminal box)	
Inverter drive	Available	Not available
Self-shutoff	No (Can be stopped using the relay)	Yes (Automatically stops when a parameter is exceeded)
Communication	Modbus RTU RS-485; up to 16 units can be monitored	

Supported range of each series

IoT Series Small-Size Gear Motor

Series	Capacity	Reduction ratio
Hypoid motor	0.1/0.2/0.4/0.75 kW	1/10–1/480
	1.5 kW	1/10–1/200
Gear motor	0.1/0.2/0.4/0.75/1.5 kW	1/5–1/200

IoT Series Small-Size Gear Motor (with self-shutoff)

Series	Capacity	Reduction ratio
Hypoid motor (mini)	40/60/90 W, 0.1/0.2/0.4 kW	1/40–1/1200
Gear motor	0.1/0.2/0.4 kW	1/5–1/200

Note: For specific reduction ratios, please refer to the *Tsubaki Gear Motors 40 W–5.5 kW* catalog.

Standard specifications

		IoT Series Small-Size Gear Motor	IoT Series Small-Size Gear Motor (with self-shutoff)
Motor	Output	Three-phase: 0.1/0.2/0.4/0.75/1.5 kW	Three-phase: 40/60/90 W; 0.1/0.2/0.4 kW
		Non-brake type, brake type	Non-brake type
	Power supply	0.1–1.5 kW, 200/200/220 V, 50/60/60 Hz	40 W–0.4 kW, 200/200/220 V, 50/60/60 Hz
	Number of poles	4	
	Protection	0.1 kW: Totally enclosed type (IP44) 0.2–1.5 kW: Totally enclosed external fan type (IP44)	40–90 W: Totally enclosed type (IP30); 0.1 kW: Totally enclosed type (IP44) 0.2–0.4 kW: Totally enclosed external fan type (IP44)
	Cooling	0.1 kW: Self-cooled type (IC410); 0.2–1.5 kW: Self-managed type (IC411)	40 W–0.1 kW: Self-cooled type (IC410); 0.2–0.4 kW: Self-managed type (IC411)
	Startup	–	
	Rating	S1 (continuous)	
	Insulation	0.1–0.4 kW–120(E), 0.75 kW–155(F), 1.5 kW–130(B)	40 W–0.4 kW–120(E)
Reducer	Reduction ratio	See “Supported range of each series” above.	
	Lubrication	Grease	
	Start end keyway	New JIS key (JIS B1301-1976): Output shaft key attached (Ordinary-class keyway, except hollow shaft type)	
	Output shaft end	Tapped (except hollow shaft type)	
Ambient conditions	Installation place	Indoor not exposed to dust or water	
	Temperature	0℃–40℃	
	Humidity	85% or less (no condensation)	
	Altitude	1,000 m or less	
	Atmosphere	Free from corrosive gases, explosive gases, and steam	
	Mounting direction	No limitations on mounting angles: horizontal, vertical, or inclined	
	Vibration	4.9 m/s^2 {0.5 G} or less (20–50 Hz)	
Paint color		Munsell 2.5G 6/3	

Hypoid motor model numbering

HMTA010-22L10LSM□□□□□
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

HMTR150-55H200BSM□□□□□
① ② ③ ④ ⑤ ⑦ ⑧ ⑨

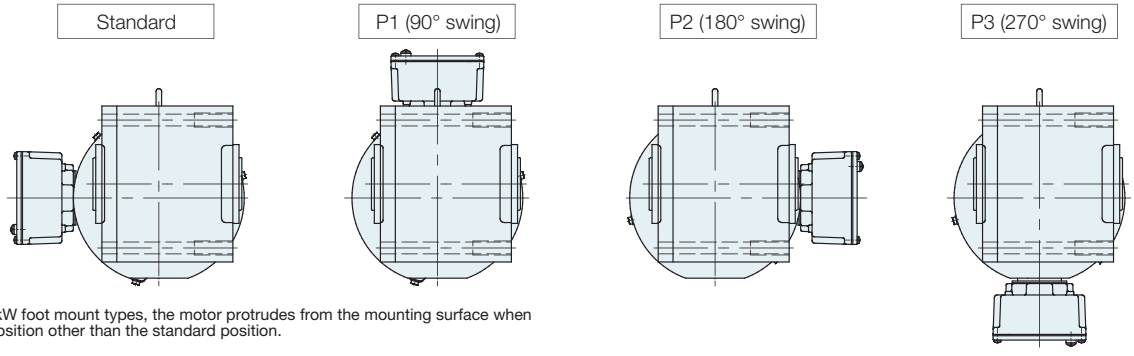
① Product series name	HMTA	Standard motor 0.1–0.4 kW
	HMTR	IE3 motor 0.75–1.5 kW
② Motor capacity (example)	010	Three-phase 0.1 kW
	150	Three-phase 1.5 kW
③ Frame number (example)	22	Frame number 22
	55	Frame number 55
④ Mounting type	L	Foot mount
	U	Face mount
	H	Hollow shaft
⑤ Reduction ratio	200	1/200
	10	1/10
⑥ Shaft arrangement	L	Output shaft located to the left as viewed from the motor side
	T	Output shaft located on both sides
	R	Output shaft located to the right as viewed from the motor side
	S	Output shaft located on one side (face side: for face mount type only)
	No code	Hollow shaft type
⑦ Specification code	No code	Without B or BE
	B	Brake type
	BE	Encoder type with brake
	K	POWER-LOCK type (for hollow shaft type with standard shaft hole diameter only)
	SM	IoT Series
	BSM	IoT Series with brake
	SC	IoT Series with self-shutoff

⑧ Option code A (order of priority)	Z	Inverter motor type (0.1–0.4 kW only)
	V	400 V class
	N	200 V class Europe
	VN	400 V class Europe
	G1	No.1 grease
⑨ Option code B (former supplementary code)	P1	Terminal box position 90° swing
	P2	Terminal box position 180° swing
	P3	Terminal box position 270° swing
	Y1	AC external operation
	Y2	DC external wiring
	Y3	AC external operation + DC external wiring
	C0	Paint color: Light gray (Munsell N7.5)
	C1	Paint color: Light silver metallic
	C2	Paint color: Ivory white
	C3	Paint color: Dark silver metallic
	S1	Hollow shaft hole diameter ϕ20
	S2	Hollow shaft hole diameter ϕ25
	S3	Hollow shaft hole diameter ϕ30
	S4	Hollow shaft hole diameter ϕ35
	S5	Hollow shaft hole diameter ϕ40
	S6	Hollow shaft hole diameter ϕ45
	S7	Hollow shaft hole diameter ϕ50

Note: Brake wiring cannot be changed after purchase, so please indicate the wiring configuration when you place your order. Please refer to pp.11–12 for wiring.

Terminal box positions

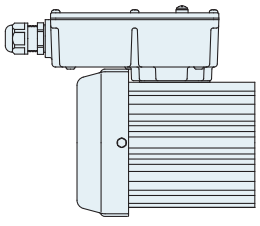
0.1–1.5 kW



Note: On the 0.75 kW and 1.5 kW foot mount types, the motor protrudes from the mounting surface when the terminal box is at a position other than the standard position.

Terminal box outlet direction

Unless otherwise indicated, the terminal box outlet direction is as shown on the right. Please contact a Tsubaki representative if you would like to change the outlet direction.



Gear motor model numbering

GMTA010-18L50SM□□□□□
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

GMTR150-38L20BSM□□□□
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Product series name	GMTA	Standard motor 0.1–0.4 kW
	GMTR	IE3 motor 0.75–1.5 kW
② Motor capacity (example)	010	Three-phase 0.1 kW
	150	Three-phase 1.5 kW
③ Frame number (example)	38	Frame number 38
④ Mounting type	L	Foot mount
	U	Face mount
	F	Flange mount
⑤ Reduction ratio	20	1/20
⑥ Specification code	No code	Without B or BE
	B	Brake type
	BE	Encoder type with brake
	SM	IoT Series
	BSM	IoT Series with brake
	SC	IoT Series with self-shutoff

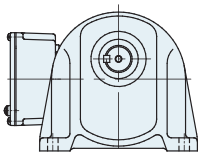
⑦ Option code A (order of priority)	Z	Inverter motor type (0.1–0.4 kW only)
	V	400 V class
	N	200 V class Europe
	VN	400 V class Europe
	G1	No.1 grease
⑧ Option code B (former supplementary code)	P1	Terminal box position 90° swing (1.5 kW only)
	P2	Terminal box position 180° swing (1.5 kW only)
	P3	Terminal box position 270° swing (1.5 kW only)
	P5	Terminal box position 120° swing (0.1–0.75 kW only)
	P6	Terminal box position 240° swing (0.1 –0.75 kW only)
	Y1	AC external operation
	Y2	DC external wiring
	Y3	AC external operation + DC external wiring
	C0	Paint color: Light gray (Munsell N7.5)
	C1	Paint color: Light silver metallic
	C2	Paint color: Ivory white
	C3	Paint color: Dark silver metallic

Note: Brake wiring cannot be changed after purchase, so please indicate the wiring configuration when you place your order. Please refer to pp.11–12 for wiring.

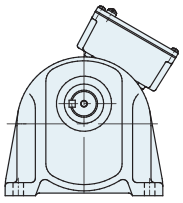
Terminal box positions

0.1–0.75 kW

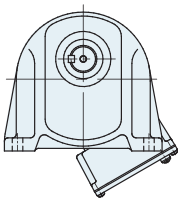
Standard



P5 (120° swing)

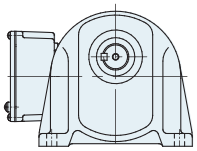


P6 (240° swing)

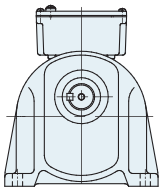


1.5 kW

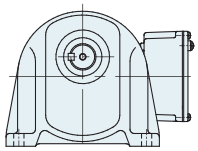
Standard



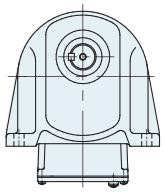
P1 (90° swing)



P2 (180° swing)



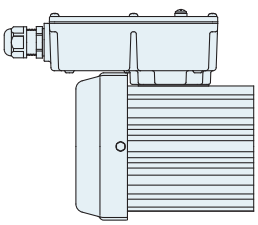
P3 (270° swing)



Note 1: The above diagrams are typical examples. The position of the terminal box will vary depending on the model number. Please confirm dimensions.
Note 2: On the 0.75 kW, 1/5–1/25 foot mount types, the motor protrudes from the mounting surface in the P5 position.
Note 3: The P6 position may not be possible for the 0.1 kW and 0.2 kW foot mount types.

Terminal box outlet direction

Unless otherwise indicated, the terminal box outlet direction is as shown on the right. Please contact a Tsubaki representative if you would like to change the outlet direction.

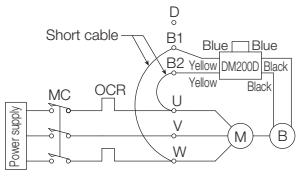
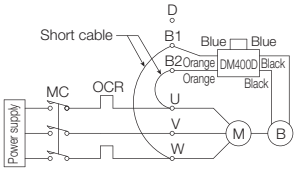
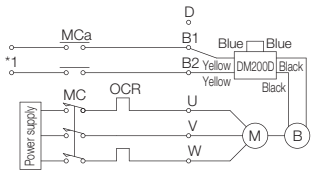
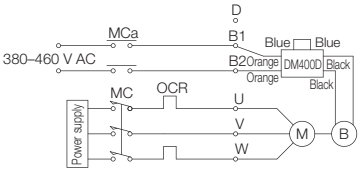


Brake-Equipped Motor and Brake-Equipped Inverter Motor Connection

Brake wiring cannot be changed after you purchase an IoT Series Small-Size Gear Motor. You must provide instructions on brake wiring when you place your order. Since response time will vary depending on the wiring configuration, please select the configuration for your intended use based on the figures below.

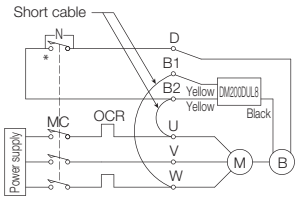
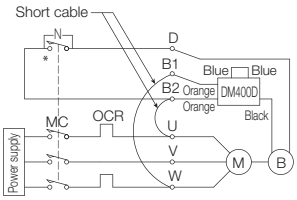
1. Wiring for a brake-equipped standard motor

Unless otherwise specified, standard motor brakes are shipped with AC internal wiring. If you want to change to AC external operation, please remove the short cable. If you would like AC external operation at the time of shipment, add option code "**Y1**" to the model number.

	Application	0.1–1.5 kW (200 V class)	0.1–1.5 kW (400 V class)
AC internal wiring	• Normal use • Standard specifications		
AC external operation	• General inverter drive • When operating the brake separately Note: • For the auxiliary relay (MCa), use one with a contact capacity of 200 V AC, 7 A (resistance load) or higher. • For the 400 V class, use an auxiliary relay with a contact voltage of 400–440 V AC and an inductive load of 1 A or higher.	 Supply voltage to the brake at the point marked with *1 should be 200–254 V AC for 0.1 kW and 0.2 kW, 200–220 V AC for 0.4 kW and 0.75 kW, and 200–230 V AC for 1.5 kW.	

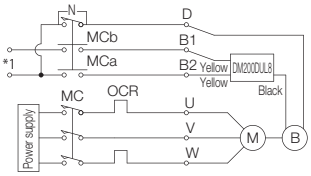
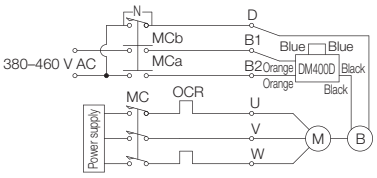
DC external wiring (Option code: Y2)

Wiring cannot be changed from AC internal wiring after purchase, so please indicate the wiring configuration when you place your order.

	Application	0.1–1.5 kW (200 V class)	0.1–1.5 kW (400 V class)
DC external wiring	• For lifts and other applications that require stopping accuracy Note: • When an MC auxiliary contact point or auxiliary relay is used for * (in the diagram), use a contact capacity of 200 V AC, 10 A (resistance load) or higher. • For the 400 V class, connect in a series of two or three relays with a contact voltage of 400–440 V AC and an inductive load of 1 A or higher.		

AC external operation + DC external wiring (Option code: Y3)

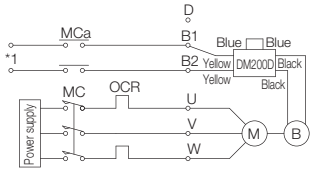
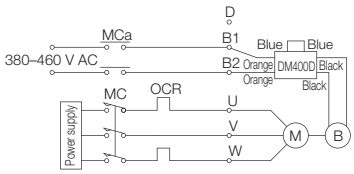
Wiring cannot be changed from AC internal wiring after purchase, so please indicate the wiring configuration when you place your order.

	Application	0.1–1.5 kW (200 V class)	0.1–1.5 kW (400 V class)
AC external operation + DC external wiring	• For lifts and other applications that require stopping accuracy Note: Use the following contact capacities: MCa: 200 V AC, 7 A (resistance load) or higher MCb: 200 V AC, 10 A (resistance load) or higher • For the 400 V class, connect one MCa unit and two or three MCb units in series with a contact voltage of 400–440 V AC and an inductive load of 1 A or higher.	 Supply voltage to the brake at the point marked with *1 should be 200–254 V AC for 0.1 kW and 0.2 kW, 200–220 V AC for 0.4 kW and 0.75 kW, and 200–230 V AC for 1.5 kW.	

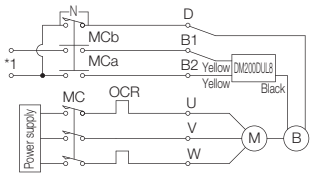
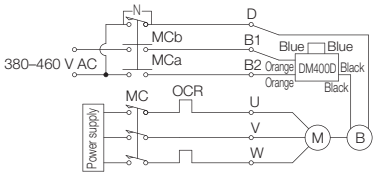
2. Wiring for a brake-equipped inverter motor

Unless otherwise specified, inverter motor brakes are shipped with AC external operation.

AC external operation (Option code: **Z**)

	Application	0.1–0.4 kW (200 V class)	0.1–0.4 kW (400 V class)
AC external operation	• General inverter drive • When operating the brake separately Note: • For the auxiliary relay (MCa), use one with a contact capacity of 200 V AC, 7 A (resistance load) or higher. • For the 400 V class, use an auxiliary relay with a contact voltage of 400–440 V AC and an inductive load of 1 A or higher.	 Supply voltage to the brake at the point marked with *1 should be 200–254 V AC for 0.1 kW and 0.2 kW, 200–220 V AC for 0.4 kW and 0.75 kW, and 200–230 V AC for 1.5 kW.	

AC external operation + DC external wiring (Option code: **ZY3**)

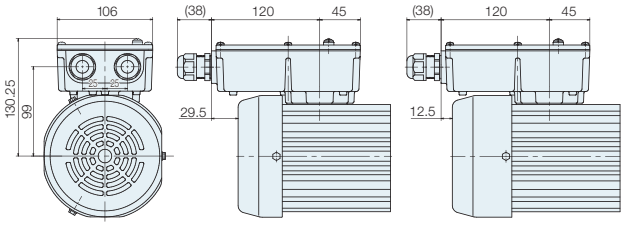
	Application	0.1–0.4 kW (200 V class)	0.1–0.4 kW (400 V class)
AC external operation + DC external wiring	• For lifts and other applications that require stopping accuracy Note: Use the following contact capacities: MCa: 200 V AC, 7 A (resistance load) or higher MCb: 200 V AC, 10 A (resistance load) or higher. • For the 400 V class, use an auxiliary relay with a contact voltage of 400–440 V AC and an inductive load of 1 A or higher.	 Supply voltage to the brake at the point marked with *1 should be 200–254 V AC for 0.1 kW and 0.2 kW, 200–220 V AC for 0.4 kW and 0.75 kW, and 200–230 V AC for 1.5 kW.	

M: Motor B: Brake MC: Electromagnetic contactor MCa/MCb: Auxiliary relay OCR: Overcurrent relay
DM200D, DM200DUL8, DM400D: DC module -N-: Protective element (varistor)

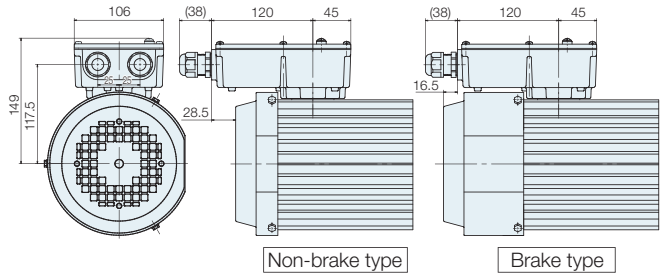
Note 1: Brake voltage is 90 V DC (180 V DC) (when 200 V AC [400 V AC] is input to DC module).
2: For DC external wiring, connect a varistor between the terminals. Select a 470 V (820 V) varistor voltage.
3: For DC external wiring, connect terminals D and B2 to create a contact.
4: Brake power must be drawn from the inverter's primary power supply, and brake operation must be synchronized with motor on/off.
5: Please refer to the inverter instruction manual as the inverter must be interlocked to engage and disengage the MCa.
Note: Values in parentheses are for the 400 V class motor.

Terminal box dimensions
(All other dimensions are the standard except for the terminal box)

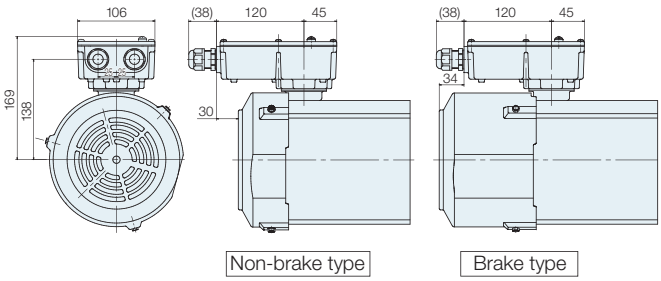
● 0.1–0.4 kW



● 0.75 kW



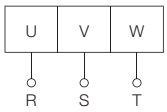
● 1.5 kW



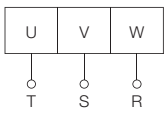
Connection and rotation direction

1. Wiring

Three-phase motor (0.1–1.5 kW)



A



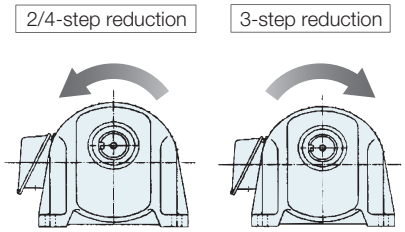
B

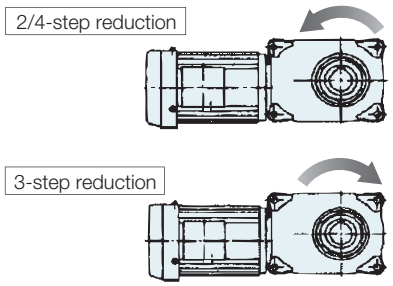
Note: Please refer to the *Tsubaki Gear Motors 40 W–5.5 kW* catalog for instructions.

2. Direction of rotation

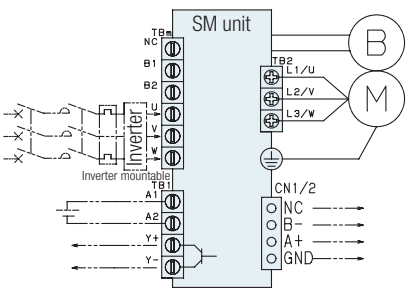
The arrows in the following drawings indicate the direction of rotation as viewed from the output shaft in connection A. In connection B, the motor rotates in the opposite direction.

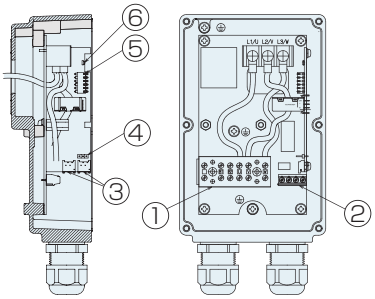
Gear motor	Hypoid motor
2/4-step reduction, 3-step reduction	2/4-step reduction, 3-step reduction





Wiring diagram and terminal box schematic





① ····· TBm
② ····· TB1
③ ····· CN1/CN2
④ ····· JP101
⑤ ····· SW101
⑥ ····· LED

Safety Guide and Warranty

⚠ WARNING

Death or serious injury may result from product misuse due to not following the instructions.

- When carrying out an operation test or making a periodic inspection, make sure to verify that it functions properly as a protection device.
- Follow the instruction manual when carrying out megger testing because most electrical devices have certain requirements for megger testing.
- Check the operation of the device periodically so that it can be sure to function properly when overloaded occurs.
- Comply with the 2-1-1 General Standards of the Japanese Ordinance on Industrial Safety and Health or the rules and regulations concerning occupational safety and health in your region/country.
- When performing maintenance or inspections:
  1) Wear proper work clothes and protective equipment (safety devices, gloves, shoes, etc.). To avoid an accident, make sure to perform maintenance and inspections in an appropriate environment.
  2) Make sure the power is switched off, and the machine has stopped completely before carrying out maintenance and inspections. Take the necessary measures to ensure the power is not turned back on.
  3) Follow the instruction manual.
  4) Wire according to the technical standards of electrical installation and company regulations. Take note of the cautions in this manual, which explain installation direction, clearance and environmental conditions. Make sure to ground the device to prevent electrical shock and to improve noise resistance.
- When using with lifting equipment, install a suitable protection device for safety purposes, otherwise an accident resulting in death, serious injury or damage to the equipment may occur due to a falling accident.

⚠ CAUTION

Minor or moderate injury, as well as damage to the product may result from product misuse due to not following the instructions.

- Consumable parts (tantalum electrolytic capacitors, relays, etc.) are built-in the products. Using the manual, periodically check the functions and operation of the device. If it is not functioning properly, contact the distributor for repair.
- Do not use the device in a corrosive gas environment. Sulphidizing gases (SO_2, H_2S) can especially corrode the copper and copper alloy used on PCBs and parts, and cause a malfunction.
- Read the instruction manual carefully, and use the product properly. In case the instruction manual is not available, request one from the distributor where you purchased the product, or our sales office with the product name and model number.
- Deliver this instruction manual to the final customer who uses the product.

Warranty

Tsubakimoto Chain Co.: hereinafter referred to as “Seller”; Customer: hereinafter referred to as “Buyer”; Goods sold or supplied by Seller to Buyer: hereinafter referred to as “Goods”

1. Warranty period without charge

Effective 18 months from the date of shipment or 12 months from the first use of Goods, including the installation of the Goods to the first use of Goods, including the installation of the Goods to the Buyer's equipment or machine—whichever comes first.

2. Warranty coverage

Should any damage or problem with the Goods arise within the warranty period, given that the Goods were operated and maintained according to the instructions provided in the manual the Seller will repair and replace at no charge once the Goods are returned to the Seller.
This warranty does not include the following:

1) Any costs related to removal of Goods from the Buyer’s equipment or machine to repair or replace parts.
2) Cost to transport Buyer’s equipment or machines to the Buyer’s repair shop.
3) Costs to reimburse any profit loss due to any repair or damage and consequential losses caused by the Buyer.

3. Warranty with charge

Seller will charge for any investigation and repair of Goods caused by:

1) Improper installation by failing to follow the instruction manual.
2) Insufficient maintenance or improper operation by the Buyer.
3) Incorrect installation of the Goods to other equipment or machines.
4) Any modifications or alterations of Goods by the Buyer.
5) Any repair by engineers other than the Seller or those designated by the Seller.
6) Operation in an environment not specified in the manual.
7) Force Majeure or forces beyond the Seller’s control such as natural disasters and injustices inflicted by a third party.
8) Secondary damage or problems incurred by the Buyer’s equipment or machines.
9) Defective parts supplied or specified by the Buyer.
10) Incorrect wiring or parameter settings by the Buyer.
11) The end of life cycle of the Goods under normal usage.
12) Losses or damages not liable to the Seller.

4. Dispatch service

The service to dispatch a Seller’s engineer to investigate, adjust or trial test the Seller’s Goods is at the Buyer’s expense.

⚠ CAUTION

The contents of this catalog are mainly to aid in product selection.
Read the instruction manual thoroughly before using the product in order to use it properly.

TSUBAKIMOTO CHAIN CO.

Japan	Tsubakimoto Chain Co.	https://tsubakimoto.com/

Global Group Companies

AMERICAS

United States	U.S. Tsubaki Power Transmission, LLC	https://www.ustsubaki.com/
Brazil	Tsubaki Brasil Equipamentos Industriais Ltda.	https://tsubaki.ind.br/
Canada	Tsubaki of Canada Limited	https://tsubaki.ca/

EUROPE

Netherlands	Tsubakimoto Europe B.V.	https://tsubaki.eu/
France	Kabelschlepp France S.A.R.L.	https://tsubaki-kabelschlepp.com/fr-fr/
Germany	Tsubaki Deutschland GmbH	https://tsubaki.de/
	Tsubaki Kabelschlepp GmbH	https://tsubaki-kabelschlepp.com/de-de/
Italy	Kabelschlepp Italia S.R.L.	https://tsubaki-kabelschlepp.com/it-it/
Spain	Tsubaki Ibérica Power Transmission S.L.	https://tsubaki.es/
United Kingdom	Tsubakimoto UK Ltd.	https://tsubaki.eu/
Slovakia	Kabelschlepp-Systemtechnik, spol. s.r.o.	https://tsubaki-kabelschlepp.com/sk-sk/
Poland	Kabelschlepp Sp. z o.o.	https://kabelschlepp.pl/

INDIAN OCEAN RIM

Singapore	Tsubakimoto Singapore Pte. Ltd.	https://tsubaki.sg/
Australia	Tsubaki Australia Pty. Limited	https://tsubaki.com.au/
India	Tsubaki India Power Transmission Private Limited	https://en.tsubaki.in/
Indonesia	PT. Tsubaki Indonesia Trading	https://tsubaki.id/
Malaysia	Tsubaki Power Transmission (Malaysia) Sdn. Bhd.	https://en.tsubaki.my/
New Zealand	Tsubaki Australia Pty. Limited - New Zealand Branch	https://tsubaki.com.au/
Philippines	Tsubakimoto Philippines Corporation	https://en.tsubaki.ph/
Thailand	Tsubakimoto (Thailand) Co., Ltd.	https://tsubaki.co.th/
Vietnam	Tsubakimoto Vietnam Co., Ltd.	https://tsubaki.net.vn/

EAST ASIA

Republic of Korea	Tsubakimoto Korea Co., Ltd.	https://tsubakimoto-tck.co.kr/
Taiwan	Taiwan Tsubakimoto Trading Co., Ltd.	https://tsubakimoto.tw/

CHINA

China	Tsubakimoto Chain (Shanghai) Co., Ltd.	https://www.tsubaki-sh.cn/

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Catalog No. 985M005