

Sanki will guide you to the great success!

取扱説明書

INSTRUCTION MANUAL

super Hi-TEX INVERTER
ROBOT GUIDER

SUT-M · SUT-A

Sanki

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HI-TEX ROBOT GUIDER STANDARD TYPE

(UT-MS, UT-AS)

CONTENTS

Preface	-----	1
1. Specification	-----	2~ 3
2. Installation & Wiring	-----	4~ 5
3. Setting of Individual Function	-----	6
4. Selection of Function in the Application	-----	7
5. Confirmation	-----	8
6. Adjustment	-----	9~10
7. Operation	-----	10
8. Maintenance	-----	11
9. Consumption Goods	-----	11

Preface

We, with all staff, appreciate very much your kind purchasing of our products **Sanki "Hi-Tex Robot Guider"**.

Now, in order to have your clear understanding on the feature and capability of our above products in your application, we must explain how to operate and maintain it properly. We therefore, wish you to read throughly the following instruction before start the operation of **Sanki "Hi-Tex Robot Guider"**. We would be pleased to hear from you if you have any obscure point or when you had trouble.

1. Specification:

1). Hi-Tex Robot Guider(UT-MS) Standard Type

- a).Applicable Fabrics: Knitted, woven and non-woven fabrics in all range.
Operation Speed: 0 - 180 meter/minute
Applicable Fabric Width: 0.7 - 4.0 meter and or more than that width
Condition of Fabrics: Dry and Wet(moisture content less than 80%)
Control System: DC Motor Control System
Motor for Controlling: 30W x 2 DC Motor
Stretching Power Setting Motor: 3 kg.cm x 2 Torque Motor
Input: 200 V/220 V - 50/60 Hz
Detecting Method: Contactless Detection(photo sensor)
Main Material Quality: Aluminum Light Alloy, Stainless Steel
Weight(head unit): 40 kgs x 2
- b).Exclusive Slide Frame: Material in use - SS for Standard Type, SUS for Special Type
Slide Driven System: Chain Drive
Power for Auto-Centering and Auto-Gripping: 120W DC Motor
- c).Control Panel: 1,240 m/m height x 620 m/m width x 290 m/m thickness - one unit
- d).Accessories:
- e).Painting: Mansel 2.5G4115
- f).Optional Specification:
Function of Running Center Changing
One Side Base Guiding Function

2). Hi-Tex Robot Guider(UT-AS) Pneumatic Standard Type

- a).Applicable Fabrics: Same as UT-MS Type
Running Speed: 0 - 120 meter/minute
Applicable Fabric Width: Same as UT-MS Type
Condition of Fabric: Same as UT-MS Type
Control System: Pneumatic
Actuator for Controlling: Bellowphragm Cylinder
Operative Pressure: 0.5 - 1.5 kg/cm²
Stretching Power Setting Motor: Same as UT-MS

Type

Input: Same as UT-MS Type

Detecting Method: Same as UT-MS Type

Air Consumption: 20 liter/minute

Main Material Quality: Same as UT-MS Type

Weight: Same as UT-MS Type

b).Exclusive Slide Frame: Same as UT-MS Type

c). Control Panel: 720 m/m height x 500 m/m width
x 200 m/m thickness

d).Accessories: Air Regulator attached with Filter
1 set
Air Hose

e).Painting: Same as UT-MS Type

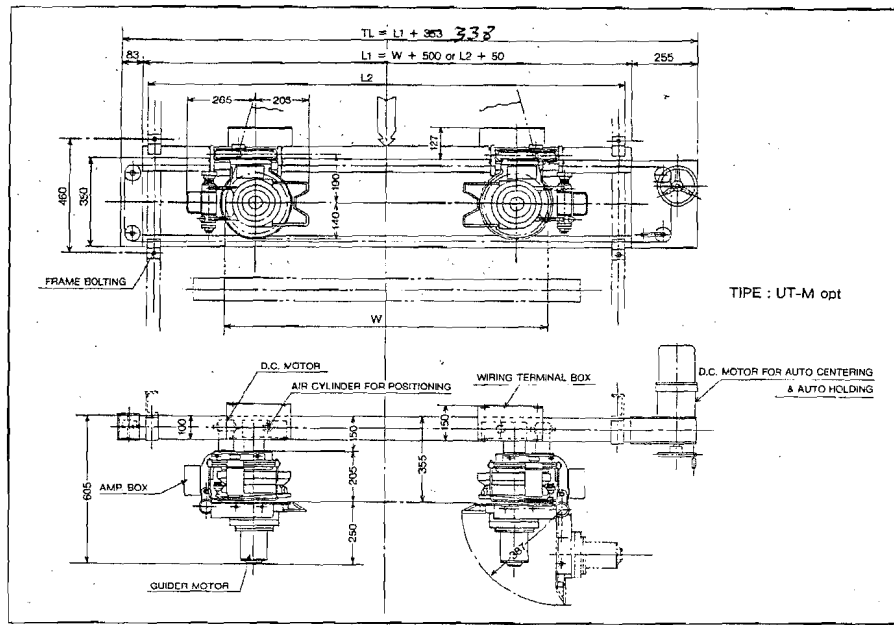
f).Optional Specification: Same as UT-MS Type,

2. Installation and Wiring:

1). Installation

System consists both guider head units of right and left, and slide frame. Its configuration and dimension is illustrated as below. The direction of unit installation can be coped with any one of forward, backward or horizontal running but if it is allowable, horizontal running should be avoided from the view point of the operation. Prior to the unit installation, fix the slide frame for fitting of unit machine on the supporter in place. In this case, terminal box face on the rail should be placed upside and guider seating face must open at the front. Use the attached exclusive tools for fitting of unit machine. After fitting the slide frame on the supporter, install the head unit on the slide block fixed on the slide frame. Guider head unit produced symmetrically should be placed the amplifier-side out and front upper control sensor portion to the fabric running direction upper reach and install on fabric running line in crosswise direction symmetrically.

Next, explanation is given for the position and relation of guide roll to be fitted on the front and backward of the guider. The distance between intake side guide roll and guider differs from the purpose of use but in case of general application, it is important that the distance must keep more than 1 meter so as to have intake side fabric can easily move from side to side on the roll face. In order that, do not apply excessive stretching power at intake side. As an particular example, distance of about 400 m/m between the rolls is applying for the guide of knitted fabrics. Place the outlet side roll to the guider as close as possible. (as general example, distance is 300 - 400 m/m) It is no doubt that the position of front and backward roll must be placed on the fabric running line with roll face.



2). Electrical Wiring

After completion of the guider installation, start the wiring but the following caution must thoroughly read once before the wiring work and perform it in accordance with the wiring diagram as per attached separately.

Caution for the Wiring:

- 1). In case of metal tube wiring, perform it separately from the power source and control panel.
- 2). Perform the wiring distant from the other high level noise power source wire.
- 3). Do not confuse the wiring since mixed wire touching and or short circuit of output wiring should cause for the damage of internal instrument and therefore, check throughly the wiring before throwing of electricity.
- 4). Do not install the control panel at where the occurrence of dust, corrosive gas, dew fall and near by exothermic object.
- 5). Keep the wiring distance of between control panel and guider within 20 meter.
- 6). Perform No.3 classified earthing for the earth terminal E of control panel.

3. Setting of Individual Function

1). Low Torque Volume(inner guider disc)

When operating at the process of control for gripping to hold the fabric, it is the volume for setting of torque when fabric intake revolving disc just detached the fabric. Generally, setting should be made slightly lower than fabric running speed.

2). Catching Torque Volume

It is the volume to set necessary torque for catching the fabric with guider. Generally, setting should be made faster than fabric running speed.(just about the same as basic torque or more than that)

3). Basic Torque Volume

It is the setting volume to keep smoothly the guiding condition during the operation. When the lack of fabric stretching power at guider intake side brought unstable phenomenon(slackening of fabric), tighten up the basic torque to stabilize the stretching power at fabric selvage but please be careful that too high stretching may be arisen tensionless status after guiding process which should cause for the slackening.

4. Selection of the Function in Use

1). Auto-Centering

- (a). Set the select knob on the panel board at auto-centering.
- (b). Turn on the snap switch to the auto position, then the function of auto-centering and automatic gripping should work on.
- (c). Turn on the snap switch to the manual position and operate the width changing switch for wider or narrower so that the setting of width can be made freely.

2). Center Slide(changing of the center)

Switch the select switch knob on the panel board to the center slide. Then, turn the snap knob of center sliding to the desirable direction so that both sides simultaneously moves to the operating direction in parallel which enable to change the position of fabric running center.

3). One Side Selvage Guiding

Setting of one side selvage guiding select switch knob can be fixed the one side(left) selvage guider stationarily against the other side(right) only follows the guiding with fabric selvage.

4). Determination of the Type and Reduction Gear Ratio by Line Speed

When ordering, please inform us of your maximum running speed and normal working speed. The following types machine are available:

For Low Speed(less than 60 meter/minute)

For Middle Speed(60 - 100 meter/minute)

For High Speed(100 - 180 meter/minute)

5. Confirmation

After installation, wiring and recognition on the setting of each function, please confirm the following points.

- 1). Check whether both(right and left) guiders are being installed symmetrically in opposition.

Note: Install without any inclination.

- 2). Check whether wiring is performed properly.
- 3). Check whether revolving direction of torque motor is proper.

Note: Depress the push handle of head unit to open the casing of fabric intake revolving disc. Next, turn on the operation power source switch located on the control panel and set the torque motor select switch for single operation so that revolving disc can be run solely. The direction of revolving disc should be counter-clockwise for right hand side and clockwise for left hand side in case of normal running (in the open condition of revolving disc casing) and vice versa for reverse running.

- 4). Balance of Torque on Both Sides Guider

Adjustment is performed by the volume set of panel board but generally, it is unnecessary to touch since the adjustment is performed beforehand.

6. Adjustment

1). Adjustment of Grip Position at Selvage

Set the selvage detection sensor(outer sensor fixed on guider unit lower portion) at the position corresponding to the outer diameter of the brush ring. However, in case of knitted fabrics, it is necessary to adjust depending on the setting of fabric width.

2). Adjustment of Fabric Stretching Power

Move the position of rod connector fitted on the reverse side of slide block for the detector(located on upper front) to control. Namely, moving of the position toward slide block outside is weaken the stretching power and moving vice versa is strengthen of it.

Note: The stretching power of this guider can be adjusted to the far greater degree than traditional guider but excessive gripping and or stretching power should cause for the fabric damage. Before your application, adequate setting is made preliminarily by us but depending on the sort of fabrics, it is necessary to re-adjust. Especially, in case of applying the delicate fabric such as easy occurrence of course distortion, care should be taken and if any help for the adjustment is needed, please contact with us.

3). Adjustment of Automatic Grip

Adjust the position of automatic grip sensor(inner sensor) paralleled the fabric width detection sensor but pay your attention that extreme inner position will become impossible to grip and excessive outer position will become unstable the centering.(As one of practical example, setting is made at 30 m/m inside from the outer sensor.)

Note: We preliminarily set this position before the delivery.

Therefore, no adjustment is necessary except for the application of special fabrics.

4). Adjustment of Detective Sensitivity(attached instruction sheet separately)

Aforementioned each sensor is used optoelectronic sensor (MQ-W20A). With adjustment screw(yellow) fitted on each sensor, its sensitivity can be adjusted.

5). Speed Adjustment of Guiding Control

Adjust the speed with the volume (located on the panel board) of DC motor (30W) for guiding control. It is already set by us but it may be necessary to adjust a little depending on the changing of setting the line speed.

6). Air Purge of Sensor Portion

In order to protect the detecting sensor from any dust or water drip etc., nozzle to constantly deliver the air is fitted at the front of the above sensor when the machine is in operation. However, the air supply should be the better to take from separate air source such as blower etc. if possible since the air from power compressor may cause for the sensor trouble that it is possible to stain the sensor surface by air drain ejection which results in no working.

7. Operation

After you completely understood the above individual function, adjustment and setting, start the operation as following sequence:

- 1). Turn on the electric source select switch.
- 2). Set the torque motor select switch at the position of combination. (simultaneous starting as line range)
- 3). Close the revolving disc casing to grip the fabric.
- 4). Set the selection of function at auto-centering and turn on the fabric setting switch at AUTO.

Now, by these setting for the operation, machine runs in connection with the operation switch of line range.

8. Maintenance

1). Greasing

Greasing nipple is fitted on the tip of adjustment pin for the gripping power control aside guider head unit casing. Greasing of once a month at continuous running status is necessary.

2). Both types of UT-MS and UT-AS are not water proof nor chemicals proof and further, installation at too high humidity and or steam vapour producing area should be avoided if ever possible.

3). Adherence of too much dust should cause for the trouble and therefore, cleaning must be done occasionally.

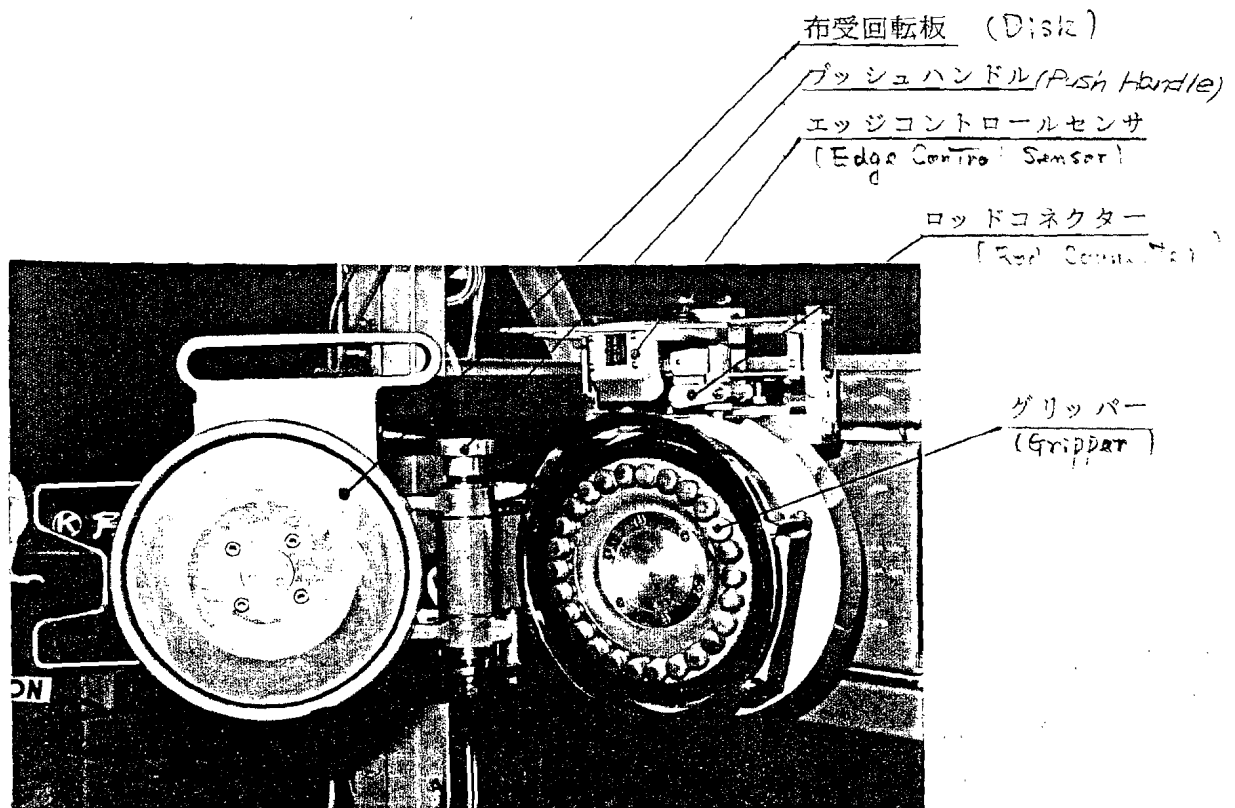
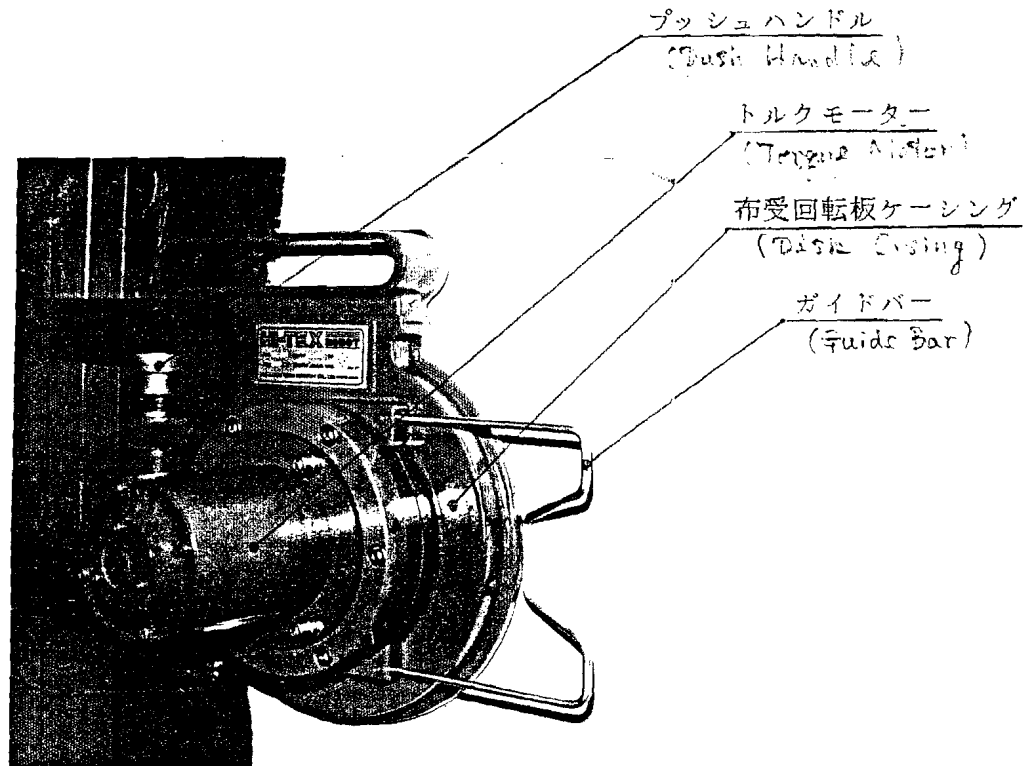
9. Consumption Goods

1). The surface seat to grip the fabric on the revolving disc is made of urethane rubber. Therefore, replace it with new surface seat when gripping power dropped down or become improper condition due to its worn out.

2). The tip of gripper to hold the fabric againse revolving disc for fabric gripping is made of SUS as standard but urethane rubber is also available as special type. Therefore, replace it with new tip when gripping power dropped down or fabric found weft deviation.

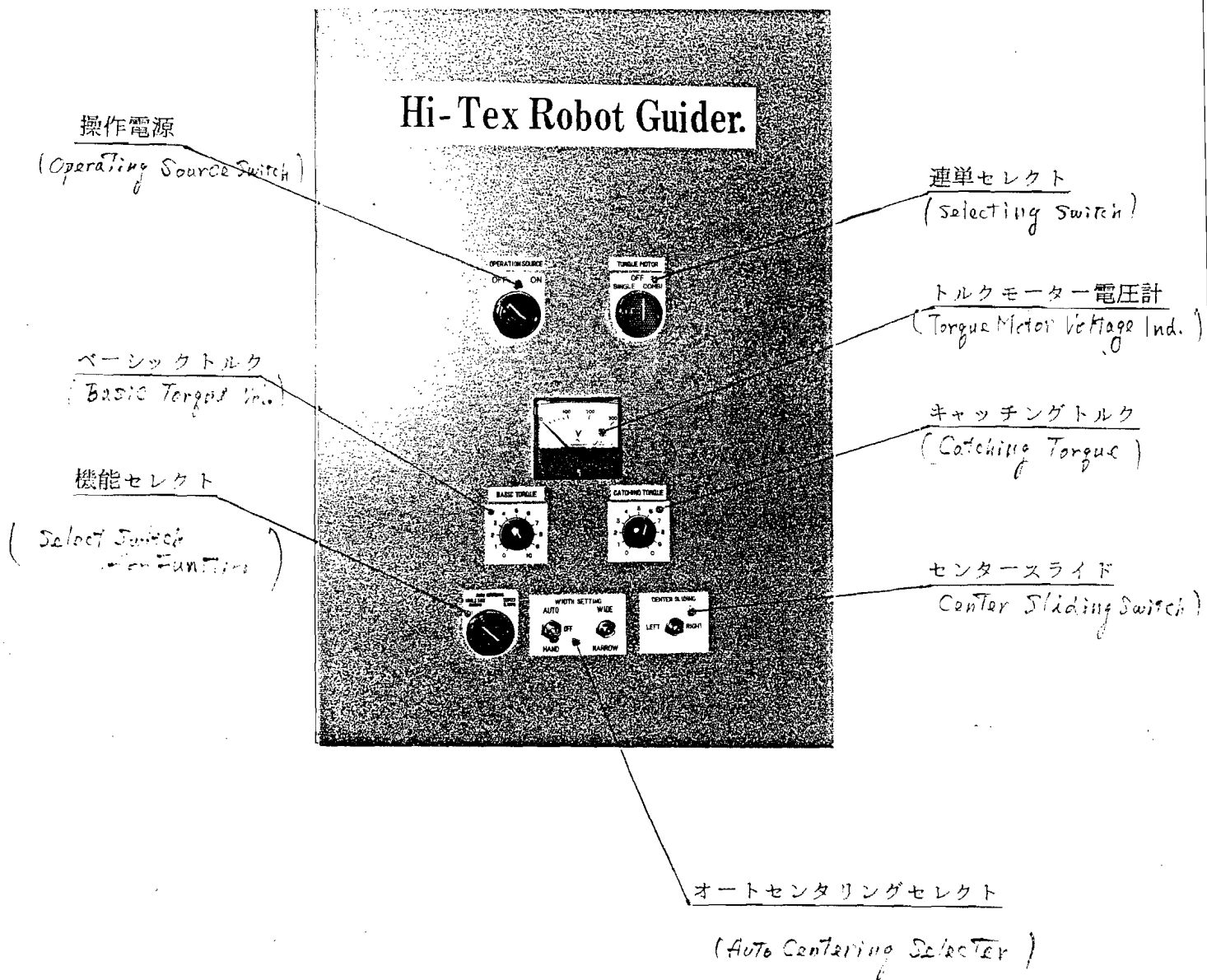
各部の名称

Name of Individual Parts



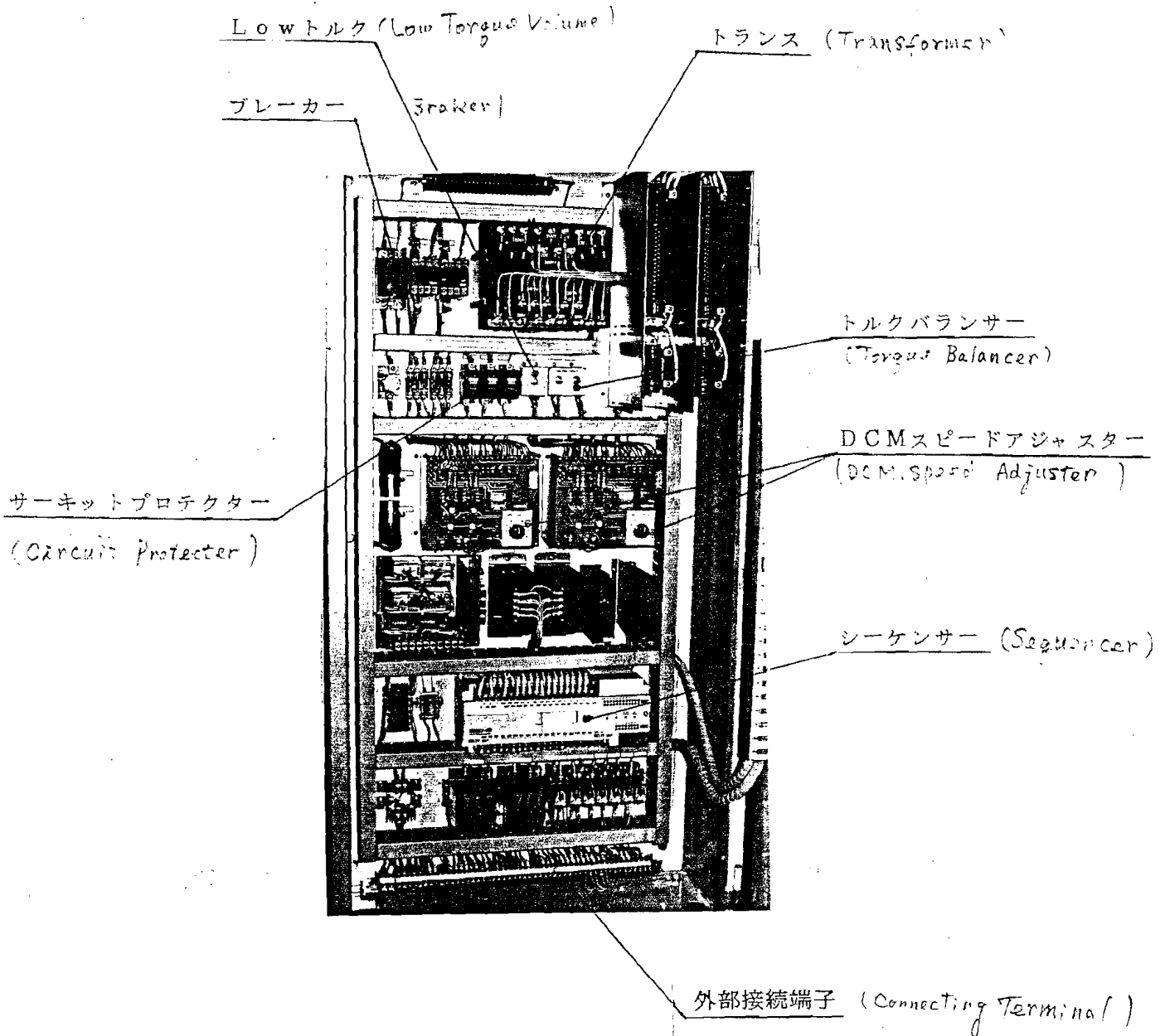
操作盤面名称

Name of Individual Point on the Control Panel Board



操作盤内名称

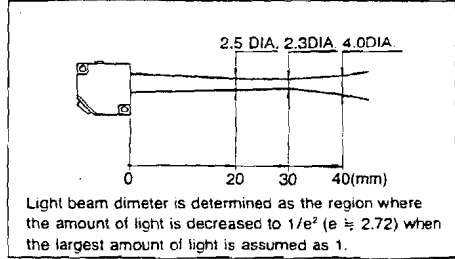
Name of Individual Point of Inside Control Panel



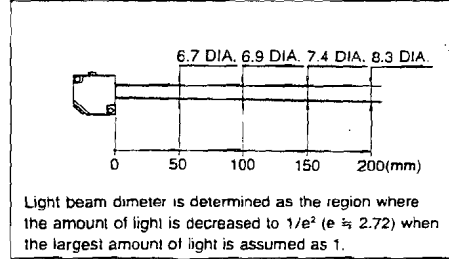
詳細は別図参照の事

4. Light projector beam diameter characteristic

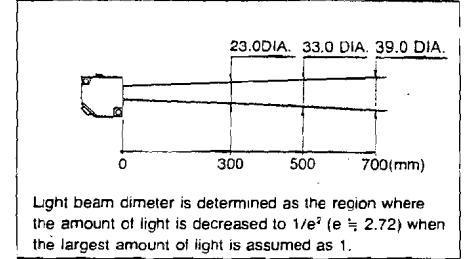
MQ-W3A photoelectric switch (area reflection type 3 cm)



MQ-W20A photoelectric switch (area reflection type 20 cm)

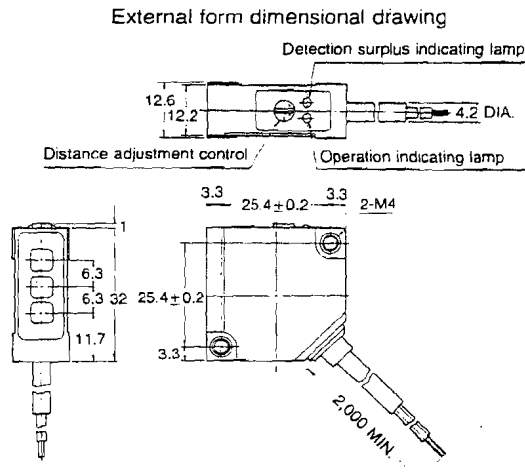
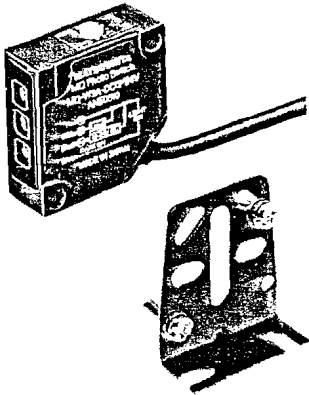


MQ-W70A photoelectric switch (area reflection type 70 cm)

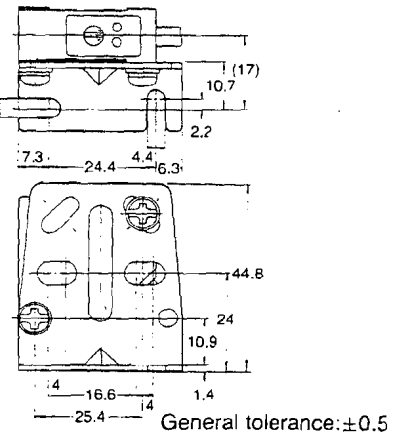


DIMENSIONS mm

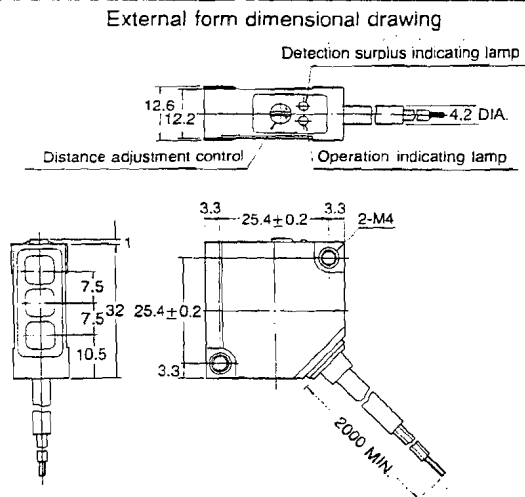
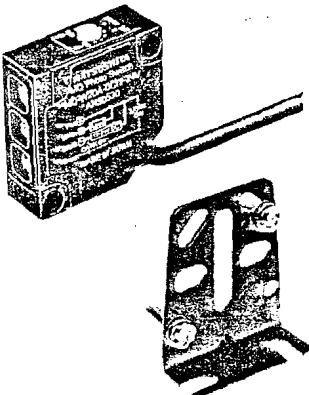
1. MQ-W3A (area reflection type)



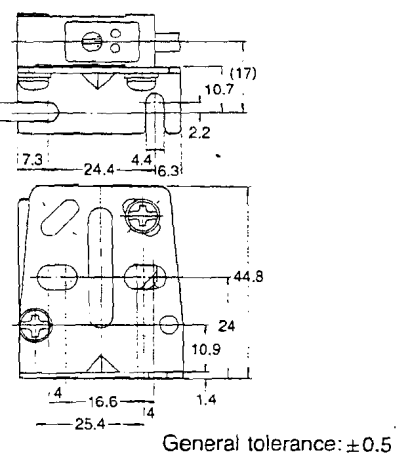
Drawing of mounting bracket mounting condition



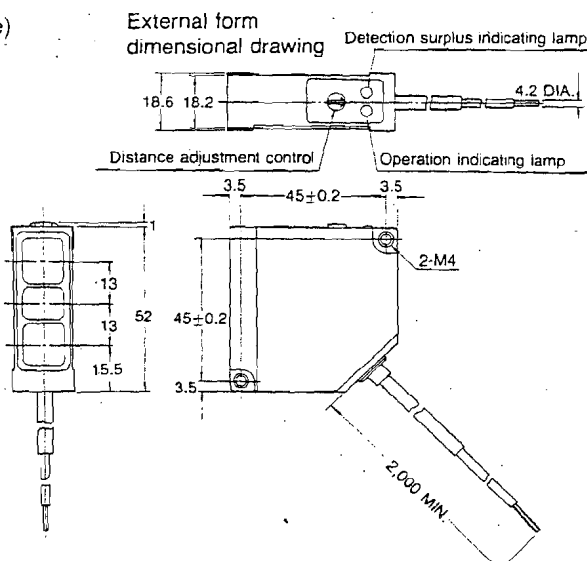
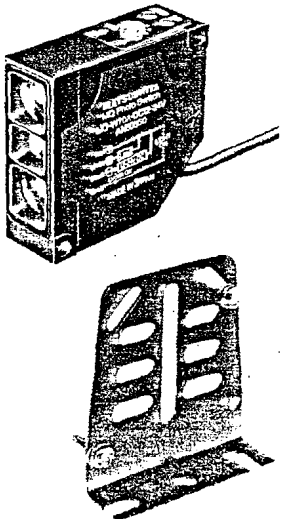
2. MQ-W20A (area reflection type)



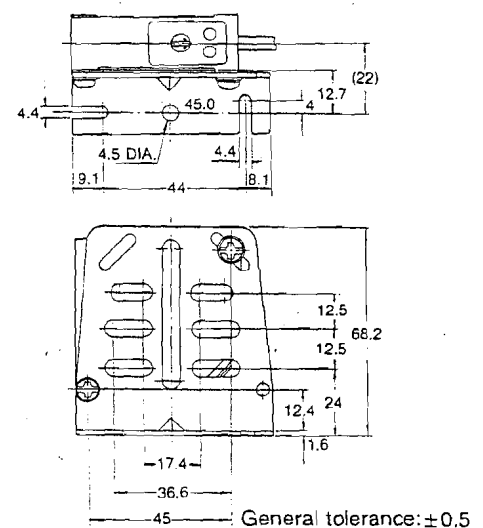
Drawing of mounting bracket mounting condition



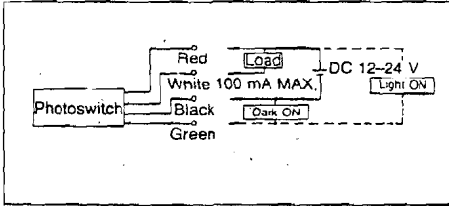
3. MQ-W70A (area reflection type)



Drawing of mounting bracket mounting condition



CONNECTING DIAGRAM



Make connection to ⊕ side with green wire for Light ON

Make connection to ⊖ side with green wire for Dark ON

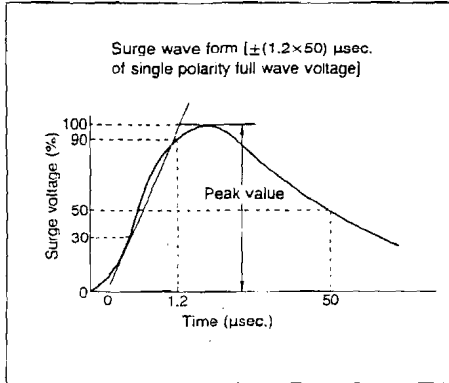
Note: When switching a power source, make ground connection to the frame ground terminal or to the ground terminal. This will assure more stable operation.

		Operating condition	
Output transistor	With light intercepted ON	Common use	
	With light entering ON		
Operation indicator lamp		Lights with light entering	

CAUTIONS REGARDING USE

1. Regarding ambient environment

- 1) Use within the range of ambient temperature of -25°C to $+55^{\circ}\text{C}$.
- 2) Use within a range of 9.6 V–30 V DC (ripple P-P included) for operating voltage.
- 3) Use with an ambient light level at the light receiving surface of less than 10,000 lux for incandescent lamp and less than 30,000 lux for sunlight.
- 4) Because a surge voltage exceeding 500 V [$\pm(1.2 \times 50)$ μsec . of single polarity full wave voltage] may cause damage to the internal circuit, a surge absorbing element should be used.



- 5) Avoid using in a location where there is excessive steam, dust, or corrosive gas.

6) The switch is of immersion proof type, but this does not mean that it can be used in water or where there is direct impingement of rain for detecting objects.

2. Regarding connections

- 1) Because the internal circuit can be damaged due to incorrect connections, before power is applied, the wiring should be thoroughly checked.
- 2) Load relays having a rated operating voltage of 12 V or 24 V DC as the load should be used. Care should be taken to allow for the voltage drop (1.2 V) from the operating voltage of the internal circuit as applied to the load relay.
- 3) If a load greater than 100 mA is connected, the output section will be damaged, so sufficient care should be taken.
- 4) If the wiring to the photoswitch is run parallel to high voltage or power lines, due to inductive noise, misoperation or damage can occur. Wiring should be run in separate channels.

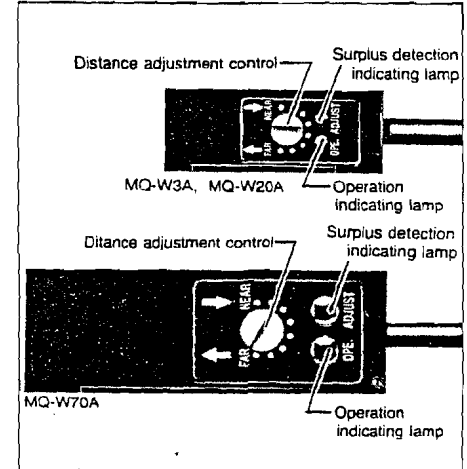
- 5) Use cable of 0.3 mm^2 or greater for extensions, and the length should be less than 100 meters.

6) When the photoswitch is being mounted, if the unit is struck by a hammer or other heavy tool, the function can be impaired. Sufficient care should be taken.

7) The changeover from light entering ON (light ON) to light intercepted ON (dark ON) can be carried out with the green lead wire. For light ON, connect the green wire to the ⊕ side, and for dark ON, connect the green wire to the ⊖ side.

3. Regarding distance adjustment

- 1) Set the detecting surface of the photoswitch in the detecting direction and temporarily fasten it.
- 2) With no detectable object in the detection region, set the distance adjustment control to maximum (FAR) and slowly turn it counterclockwise. Continue turning the control counterclockwise until the operation indicator lamp (OPE.) is extinguished. This is the adjustment position. If the indicator lamp is extinguished at the maximum position, that is the adjustment position.
- 3) With an object in the detecting position, set the control in the minimum position (NEAR) and turn the control clockwise to locate the position where the indicating lamp turns ON. If the indicator lamp goes ON at the minimum position, then NEAR is the adjustment position.
- 4) Set the control to a point midway between the locations found in 2) and 3) above.
- 5) Securely fasten the photoswitch. When fastening, the switch should be sufficiently secure so that it will not shift under vibration or shock.



Note:

1. If the surplus detection indicating lamp does not light in the adjustment of 3) above, or if the position between 2) and 3) is less than 2 graduations, change the position of the detection surface and repeat the procedure of 1) to 4), or try to determine the source of external factors such as variation in ambient temperature, variation in detectable object position, etc., that is creating the problem.
 2. The difference in detection distance due to the color of the detectable object is virtually non-existent, but if the actual object is one where the reflectivity is extremely low (objects which have a frosted finish produced by black rubber), or where the reflectivity is extremely high (mirror, glass, or truly reflecting objects), confirmation should be done with the actual object.
- ### 4. Regarding the sensing section
- 1) If an excessive amount of dust or dirt adheres to the detection surface, despite the fact that the detection method is not greatly affected by such a condition, the detection distance may be reduced, and it is advisable to keep the detection surface clean.
 2. The front surface of the lens is polycarbonate. This material is resistant to water, dilute acids and alkalis, aliphatic hydrocarbons, oils, etc., but it is not resistant to ketones, esters, halogenated hydrocarbons, or aromatic hydrocarbons.