

Through type zero-phase current transformer
 Split type zero-phase current transformer
 Model ZT15B/ZT30B/ZT40B/ZT60B/ZT80B/ZT100B
 Model CZ-22S/ CZ-30S/ CZ-55S/ CZ-77S/ CZ-112S

User's Manual

- This instruction manual is for zero-phase current transformer(not included) and split type zero-phase current transformer (not included) that use with EMU4-LG1-MB.
- Be sure to read this instruction manual and the manual of measuring unit before use.
- The following items for zero-phase current transformer(not included) are included in package. Check that no items are missing
 - ① Through type zero-phase current transformer(ZT15B/ZT30B/ZT40B/ZT60B/ZT80B/ZT100B) × 1
or split type zero-phase current transformer(CZ-22S/ CZ-30S/ CZ-55S/ CZ-77S/ CZ-112S) × 1
 - ② Instruction manual×1(CZ-22S/ CZ-30S/ CZ-55S/ CZ-77S/ CZ-112S)

1 . Safety Precautions

1.1 Precautions concerning working environment and conditions

Do not use the unit in any of the following places. Doing so may cause malfunctions or a reduction in service life.

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| •Places where the ambient temperature exceeds the working temperature range(-5°C to +50°C). | •Places exposed to direct sunlight. | •Places where the out of the cabinet. |
| •Places where the humidity exceeds the humidity range (30% to 85%RH) or where condensation occurs. | •Places where metal pieces or inductive substances are laying around. | •Places with strong electromagnetic field or noise. |
| •Places with a lot of dust, corrosive gas, salt or oily smoke. | •Places with a lot of vibration or impacts. | •Places where the unit may be exposed to rain or drops of water. |
| •Place where the altitude exceeds 2000m. | •Places where the circuit with many harmonics. | •Places where the daily average temperature exceeds +35°C. |

1.2 Precautions concerning preparations before using the equipment

- Use the unit in the specified usage environment and conditions.
- Check the current and voltage ratings of the equipment.
- Don't give this product vibration, a shock at the time of the transportation as much as possible.

1.3 Precautions concerning installation and connection

⚠ Danger	<ul style="list-style-type: none"> • Perform installation, disassembly, the wiring work after intercepting a power supply by all means . There might be the damage of an electric shock or the product.
⚠ Caution	<ul style="list-style-type: none"> • Before installing and connecting the unit, read the instruction manual without fail. For safety, the unit shall be installed and connected by experts in electrical work. • Connect the wires carefully, checking the wiring diagram. Incorrect wiring can cause unit failures, fires, and electric shocks. • UL/c-UL listed corresponds, use the wires according to the following conditions and UL-listed crimp type terminals. Single wire:AWG24 to AWG17(φ0.5 to 1.2mm), Stranded wire:AWG20 to AWG16(φ0.5 to 1.3mm²) • Connect the wires carefully, checking the wiring diagram. Incorrect wiring can cause unit failures, fires, and electric shocks. • Use an electric wire of the size of penetrating this ZERO PHASE CURRENT TRANSFORMER (ZCT) for primary side cable, do not use a non-insulation electric wire or a metal for a primary cable • Zero phase current transformer is high-precision magnetic material. Please use not to applied weight of primary through type electric wire and external force. Please hold not to applied weight of primary through type electric wire to zero phase current transformer. It might be cause of exterior destruction. • Use the crimp-type terminal for secondary terminal and test terminal. If inappropriate crimp-type terminal is used, a wire breakage or a contact failure may occur, which may cause a device malfunction, a failure, a burnout or a fire. • Please wire not give vibration and impact directly in secondary terminal. • Read the manual of measuring units which is used with zero-phase current transformer, and is used well, and follow it. • Use this zero-phase current transformer in cabinet certainly. • Confirm that a terminal is closed surely. The lack of clamping causes malfunction of the machinery, a fire, the electric shock. • Carry out the clamping of the crimp-type terminal lugs by prescribed torque. The excessive clamping becomes the ruination of a terminal and the screw. • As for the panel, it be assumed that it was given the following matters. <ol style="list-style-type: none"> a) It is necessary to attach a key to the cabinet. b) The structure that a power supply is intercepted automatically is necessary when opening a cabinet.

1.4 Precautions concerning in using

⚠ Caution	<ul style="list-style-type: none"> • Use the unit within the rated range stated here. Using the unit out of the rated range may cause not only malfunctions or unit failure, but also fires or burnout. • Do not open the secondary side of the ZCT while the primary current is running.
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1.5 Precautions concerning maintenance and inspection

- Wipe off the surface dirt with tender cloth. Don't let chemical cloths touch it for a long time, and do not wipe it with benzine or thinner.
- Use a soft dry cloth to clean off dirt of the unit division surface.
- Check for the following items to use this unit properly for long time.
 - (1) Daily inspection
 - ① Does not this product have the damage?
 - ② Are not there an abnormal sound, bad-smelling fever?
 - (2) Periodic inspection (Check once in 6 months to 1 year)
 - Are not there installation, the slack of the screw?

1.6 Precautions concerning storage

- When storing the unit, turn off power, disconnect cables and wires, and put them in vinyl bags or the like.
- When storing the unit for a long time, avoid keeping it in the places shown below.

•Places where the ambient temperature is out of the range from -10°C to +60°C.	•Places with a lot of vibration or impact.
•Places where the humidity exceeds the humidity range (5% to 90%RH) .	•Places where the unit is exposed directly to rain, water droplets.
•Places with a lot of dust, corrosive gas, salt or oily smoke.	•Places where metallic particles or inductive substances are laying around.

1.7 Precautions concerning disposal

Dispose this product appropriately in accordance with the national or community rule.

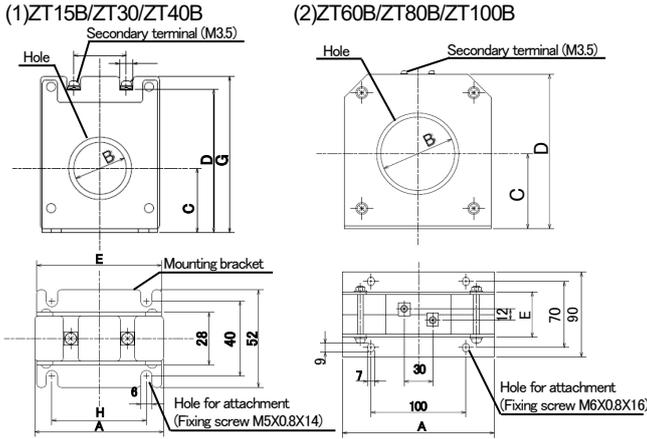
1.8 About packaging materials and this manual

For reduction of environment load, packaging materials are produced with cardboard, and this manual is printed on recycled paper.

1.9 Precautions for case of failure or abnormality
If you have any questions or the product is broken down, contact our sales representative near you.

2. Installation

Parts names and installation



- 1) Primary wire pass hole.
- 2) Wiring secondary terminal.

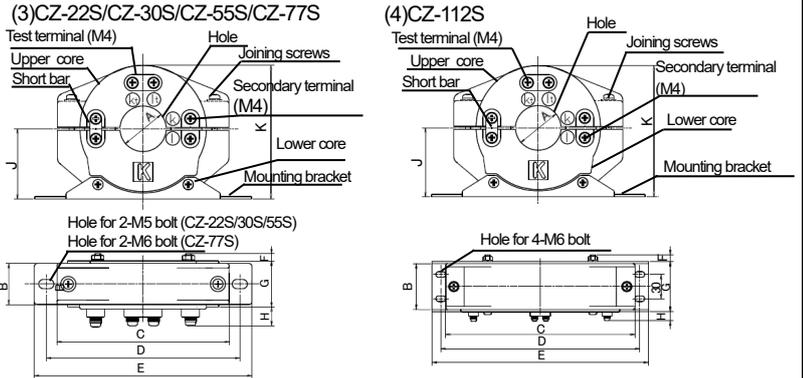
*For the details, see the manual for measurement unit.

Table of dimensions change

Dimensions [mm]

	ZT15B	ZT30B	ZT40B	ZT60B	ZT80B	ZT100B
A	48	68	85	140	160	185
B	15	30	40	60	80	100
C	29	37	43	73	82	93
D	62	82	92	150	169	190
E	46	66	81	46	48	50
F	15	30	40			
G	70	90	100			
H	25	50	50			

Parts names and installation



- 1) Unscrew the short bar and take off the one side of the short bar.
- 2) Loosen a joining screw of ZCT in right and left side alternation equality and take off upper core.
- 3) Put a primary wire through lower core. And Tighten a joining screw in right and left equality.
- 4) Tighten shorting bar. And wiring secondary terminal.

*For the details, see the manual for measurement unit.

Table of dimensions change

Dimensions [mm]

	CZ-22S	CZ-30S	CZ-55S	CZ-77S	CZ-112S
A	22	30	55	77	112
B	27	27	32	41	57
C	100	114	148	198	234
D	112	130	160	210	246
E	128	144	177	232	268
F	5	5	9	10	8
G	30	30	36	45	62
H	12	12	12	12	12
J	41	47	66	90	109
K	77	89	124	171	207

Table of the biggest electric wire diameter and the tolerance current

Wiring method			Diameter of electric wire throughable (mm ²) (acceptable current(A))										
Wiring type	Number of electric wire	Type of current wire	ZT15B	ZT30B	ZT40B	ZT60B	ZT80B	ZT100B	CZ-22S	CZ-30S	CZ-55S	CZ-77S	CZ-112S
1P2W	2	600V cable insulate by Vinyl (IV cable)	14	60	150	325	600	800	22	60	250	500	—
		600V Cross-linked polyethylene insulated Vinyl sheathed cable, Single (CV cable)	(88)	(217)	(395)	(650)	(992)	(1185)	(115)	(217)	(556)	(842)	—
1P3W 3P3W	3	600V cable insulate by Vinyl (IV cable)	2	38	60	250	400	600	22	38	200	500	1000
		600V Cross-linked polyethylene insulated Vinyl sheathed cable, Single (CV cable)	(33)	(190)	(260)	(655)	(870)	(1140)	(130)	(190)	(545)	(920)	(1470)
3P4W	4	600V cable insulate by Vinyl (IV cable)	8	38	100	250	500	725	22	38	200	500	—
		600V Cross-linked polyethylene insulated Vinyl sheathed cable, Single (CV cable)	(61)	(162)	(298)	(556)	(842)	(1095)	(115)	(162)	(469)	(842)	—
3P4W	4	600V cable insulate by Vinyl (IV cable)	2	22	60	200	325	600	14	22	150	325	800
		600V Cross-linked polyethylene insulated Vinyl sheathed cable, Single (CV cable)	(33)	(135)	(260)	(560)	(760)	(1140)	(100)	(130)	(455)	(725)	(1285)
3P4W	4	600V cable insulate by Vinyl (IV cable)	8	38	100	150	325	600	14	38	150	325	—
		600V Cross-linked polyethylene insulated Vinyl sheathed cable, Single (CV cable)	(61)	(162)	(298)	(395)	(650)	(992)	(88)	(162)	(395)	(650)	—
3P4W	4	600V cable insulate by Vinyl (IV cable)	—	14	38	100	250	400	8	22	150	325	600
		600V Cross-linked polyethylene insulated Vinyl sheathed cable, Single (CV cable)	—	(105)	(190)	(365)	(655)	(870)	(72)	(130)	(455)	(725)	(1005)

* Please confirm dimensions. Because there is the case that I cannot penetrate by a finish external form, the transformation (curves) of the electric wire, confirm dimensions.

3. Specification

Model	ZT15B	ZT30B	ZT40B	ZT60B	ZT80B	ZT100B	CZ-22S	CZ-30S	CZ-55S	CZ-77S	CZ-112S
Hole diameter (mm)	φ15	φ30	φ40	φ60	φ80	φ100	φ22	φ30	φ55	φ77	φ112
Maximum voltage (voltage to ground / line voltage)	600V AC										
Frequency	50/60Hz										
Rated short time current (Peak value)	50kA (100kA)										
Measurement (installation) category	CAT III										
Pollution degree	2										
Compatible specification	—				UL: UL61010-1 EMC: EN61326-1: 2013			Safety: EN61010-2-032 EMC: EN61326-1: 2013			
Combination unit *	This zero phase current transformer conforms to CE, UL in a condition to make combination use with EMU4-LG1-MB.										

*1 When combine it with a ZCT (Model: ZT60B, ZT80B, ZT100B), it conforms to UL standard.

4. Customer Service

MITSUBISHI ELECTRIC CORPORATION
HEAD OFFICE: TOKYO BUILDING, 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, Japan

Please refer to "catalog" or "user's manual (Details)" for more detail.