

CT ALARM (dual or quad alarm trip; field-configurable)

MODEL **AS4CT**

BEFORE USE

Thank you for choosing M-System. Before use, please check contents of the package you received as outlined below. If you have any problems or questions with the product, please contact M-System's Sales Office or representatives.

■ PACKAGE INCLUDES:

CT alarm (body + base socket + CT protector)(1)

■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

■ INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

- This equipment is suitable for Pollution Degree 2, Measurement Category II (output, transient voltage 2500V) and Installation Category II (transient voltage 2500V). Basic insulation (signal input to output to power input: 300V) is maintained. Prior to installation, check that the insulation class of this unit satisfies the system requirements.
- Altitude up to 2000 meters.
- The equipment must be mounted inside a panel.
- Insert a noise filter for the power source connected to the unit. TDK-Lambda Noise Filter Model RSNA-2006 or equivalent is recommended.
- The equipment must be installed such that appropriate clearance and creepage distances are maintained to conform to CE requirements. Failure to observe these requirements may invalidate the CE conformance.
- The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures* to ensure the CE conformity.
- * For example, installation of noise filters and clamp filters for the power source, input and output connected to the unit, etc.
- Install lightning surge protectors for those wires connected to remote locations.

■ POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:
 100 – 240V AC rating: 85 – 264V, 47 – 66 Hz,
 4.6VA at 100V AC
 5.9VA at 200V AC
 6.8VA at 264V AC
 24V DC rating: 24V \pm 10%, approx. 3.5W
 110V DC rating: 85 – 150V, approx. 3.5W

■ GENERAL PRECAUTIONS

- Before you remove the unit from its base socket or mount it, turn off the power supply and input signal for safety.

■ CT PROTECTOR

- Temperature of the CT Protector may rise if the signal conditioner body is left unplugged from the base socket. Be careful not to get burned when you need to touch it.

■ ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -5 to +55°C (23 to 131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

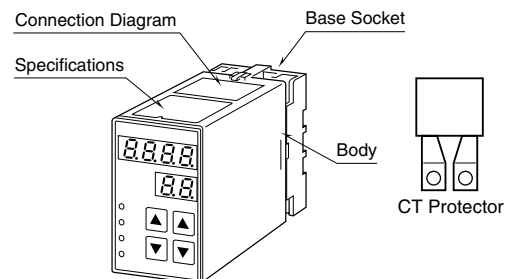
■ WIRING

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

■ AND

- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

COMPONENT IDENTIFICATION

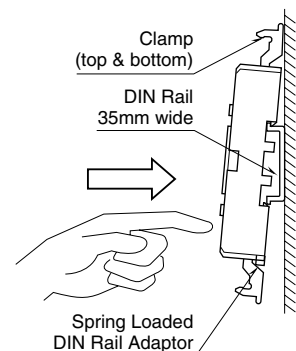


INSTALLATION

Detach the yellow clamps located at the top and bottom of the unit for separate the body from the base socket.

■ DIN RAIL MOUNTING

Set the base socket so that its DIN rail adaptor is at the bottom. Position the upper hook at the rear side of base socket on the DIN rail and push in the lower. When removing the socket, push down the DIN rail adaptor utilizing a minus screwdriver and pull.



■ WALL MOUNTING

Refer to "EXTERNAL DIMENSIONS."

Shape and size of the base socket are slightly different with various socket types.

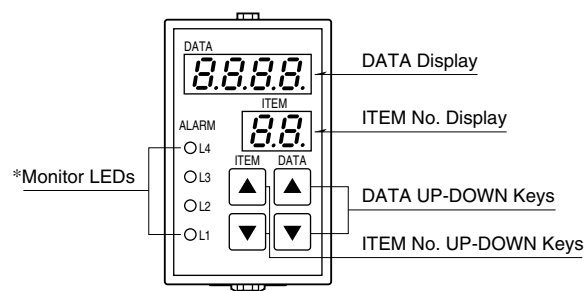
FRONT VIEW & PROGRAMMING

■ PROGRAMMING PROCEDURE

- 1) Press ITEM UP or DOWN key until ITEM display indicates "01".
- 2) Press DATA UP or DOWN key and choose "1" or "2" on DATA display.
 - 1: Only alarm setpoints are modifiable.
 - 2: All parameters are modifiable.
- 3) Press ITEM UP or DOWN key until ITEM display shows the ITEM No. you need to change.
- 4) Press DATA UP or DOWN key and choose a DATA No. or value you need on DATA display.
- 5) Repeat above 3 and 4. (Entered data is stored when you move to a new ITEM.)
- 6) Press ITEM UP or DOWN key until ITEM display indicates "01".
- 7) Press DATA UP or DOWN key and choose "0" on the display.
- 8) Press ITEM UP or DOWN key until ITEM display indicates "P".
DATA display shows process input.

(You can now check data setting by choosing ITEM No.)

Note: DO NOT press UP and DOWN keys simultaneously.



*L3 or L4 does not turn on for dual output type.

ITEM	MDF. CODE	DATA	CONTENTS	DEFAULT SETTING
P	N/A	-1999 – 9999	Process input display in engineering unit (as set in ITEM 07/08)	----
L1	1, 2	-1999 – 9999* ¹	L1 alarm setpoint in engineering unit	Quad: 20.0 Dual: 20.0
L2	1, 2	-1999 – 9999* ¹	L2 alarm setpoint in engineering unit	Quad: 30.0 Dual: 80.0
L3	1, 2	-1999 – 9999* ¹	L3 alarm setpoint in engineering unit * ²	Quad: 70.0
L4	1, 2	-1999 – 9999* ¹	L4 alarm setpoint in engineering unit * ²	Quad: 80.0
01		0, 1, 2	Modification code 0: Data indication only. 1: Only ITEM L1 – L4 are modifiable. 2: All parameters are modifiable.	1
02	N/A	0 – 99	Status indication ("0" is normally indicated.) 0: Normal 1: Memory error 10: Out of input range -15 – +115%	
03	N/A	6, 7	Input range 6: S1, 7: S5	Specified when ordering
04	N/A	-15.0 – 115.0	Input indicated in % (as set in ITEM 27, 28)	----
05	2	-19.99 – 99.99	Zero adjustment (%) (fine adj. of the value set in ITEM 27)	0.00
06	2	0.000 – 9.999	Gain adjustment (fine adj. of the value set in ITEM 28)	1.000
07	2	-1999 – 9999	Display range scaling 0% of the range set in ITEM 27/28. ITEM 07 < ITEM 08	0.0
08	2	-1999 – 9999	Display range scaling 100% of the range set in ITEM 27/28. ITEM 07 < ITEM 08	100.0
09	2	0, 1, 2, 3	Decimal point position 0: ____ (Specify the number of digits) 1: ____ . __ 2: __ . ____ 3: _ . ____	1
10	2	0 – 99	Power ON-delay time (seconds)	5
11	2	0 – 99	Alarm ON-delay time (seconds)	0
12	2	0, 1, 2, 3, 4	Moving average (sampling cycle: 100 msec.) 0: No, 1: 4 samples, 2: 8 samples, 3: 16 samples, 4: 32 samples	0
13	2	0, 1	L1 trip operation (0: Lo, 1: Hi)	Quad: 0 Dual: 0
14	2	0, 1	L2 trip operation (0: Lo, 1: Hi)	Quad: 0 Dual: 1
15	2	0, 1	L3 trip operation (0: Lo, 1: Hi) * ²	Quad: 1
16	2	0, 1	L4 trip operation (0: Lo, 1: Hi) * ²	Quad: 1
17	2	0, 1 – 60	Power-saving mode 0 : Continuous display after the last access* ³ 1 – 60 : Time before display turned off (minutes)	10
18	2	0, 1	L1 coil at alarm (0: Energized, 1: De-energized)	0
19	2	0, 1	L2 coil at alarm (0: Energized, 1: De-energized)	0
20	2	0, 1	L3 coil at alarm (0: Energized, 1: De-energized)* ²	0
21	2	0, 1	L4 coil at alarm (0: Energized, 1: De-energized)* ²	0
22	N/A	----	Version No. indication	----
23	2	1 – 9999	L1 hysteresis (deadband) in engineering unit	1.0
24	2	1 – 9999	L2 hysteresis (deadband) in engineering unit	1.0
25	2	1 – 9999	L3 hysteresis (deadband) in engineering unit * ²	1.0
26	2	1 – 9999	L4 hysteresis (deadband) in engineering unit * ²	1.0

ITEM	MDF. CODE	DATA	CONTENTS	DEFAULT SETTING
27	2	S1: 0.00 – 1.00 S5: 0.00 – 5.00	0% input current (ITEM 27 < ITEM 28)	S1: 0.00A S5: 0.00A
28	2	S1: 0.00 – 1.00 S5: 0.00 – 5.00	100% input current (ITEM 27 < ITEM 28)	S1: 1.00A S5: 5.00A

*1. Selectable within the display scaling range

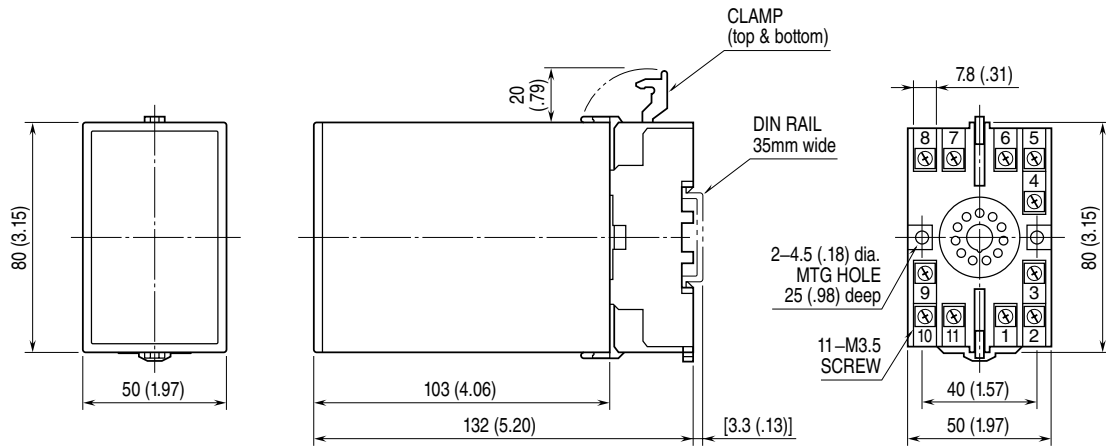
*2. Quad alarm trip type only

*3. OFF when power is on. After power is turned on, pressing any key enables to turn on continuously.

TERMINAL CONNECTIONS

Connect the unit as in the diagram below or refer to the connection diagram on the top of the unit.
Attach the CT Protector together with input wiring to the input screw terminals.

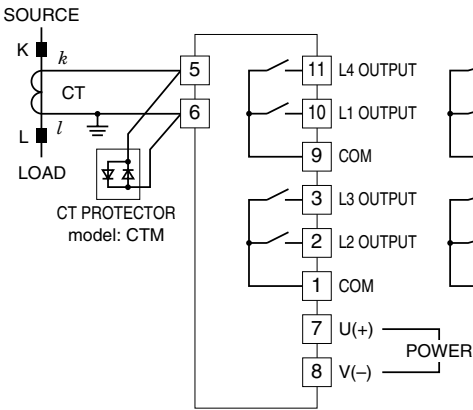
EXTERNAL DIMENSIONS unit: mm (inch)



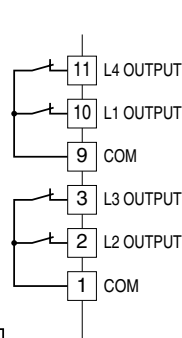
• When mounting, no extra space is needed between units.

CONNECTION DIAGRAM

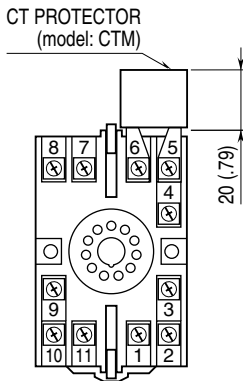
N.O. RELAY



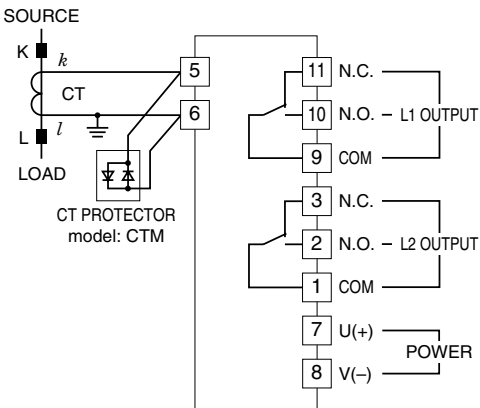
N.C. RELAY



TERMINAL ASSIGNMENTS unit: mm (inch)



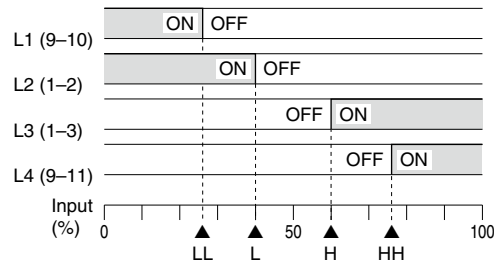
SPDT RELAY



CHECKING

- 1) Terminal wiring: Check that all cables are correctly connected according to the connection diagram.
- 2) Power input voltage: Check voltage across the terminal 7 – 8 with a multimeter.
- 3) Input: Check that the input signal is within 0 – 100% of the full-scale.
Be sure to short the secondary side of CT or turn off the current at its primary side for preventing the CT from burning when the cables are to be disconnected from input terminals of the base socket.
- 4) Alarm operations: Check the alarm operations referring to the figure below.
- 5) Output load: Check that the output load is 380 V AC / 120 VA or 125 V DC / 30 W (≤ 0.5 A for CE) at the maximum. For maximum relay life with inductive load, external protection is recommended.

Alarm Trip Operation Terminal No. in parentheses
Example with quad N.O. contacts (LL, L, H, HH)



- Trip Operation in Power Failure**
- Output code 2: All relays turn off.
 - Output code 3: All relays turn on.
 - Output code 5: Terminals 1 – 3, 9 – 11 turn on.

MAINTENANCE

Regular calibration procedure is explained below:

■ CALIBRATION

Warm up the unit for at least 10 minutes.

• H (HH) Setpoint

Increase the input signal from a value lower than the setpoint and check that the relay trips at the H (or HH) setpoint within the setpoint accuracy described in the data sheet.

• L (LL) Setpoint

Decrease the input signal from a value higher than the setpoint and check that the relay trips at the L (or LL) setpoint within the setpoint accuracy described in the data sheet.

When the setpoints are shifted, please contact M-System's Sales Office or representatives.

LIGHTNING SURGE PROTECTION

M-System offers a series of lightning surge protector for protection against induced lightning surges. Please contact M-System to choose appropriate models.