NAiS LC4H Electronic Counter OPERATING INSTRUCTIONS

Please read these instructions before use for proper operation.
Please see catalog in details.

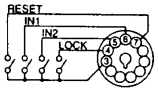
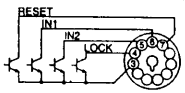
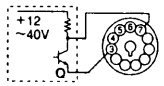
Before use

To avoid damage to the counter,refer to the following.

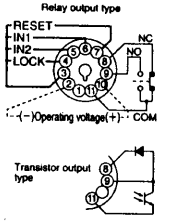
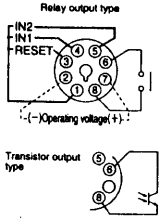
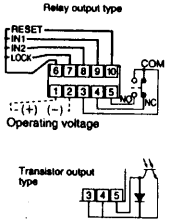
1. To prevent interference of internal circuit.
   - **Since the counter uses a transformer less power supply system, the input equipment must have the power supply transformer in which the secondary side is not grounded with the primary and secondary sides insulated, in order to prevent interference of the power supply circuit when connecting the external input circuit. Be sure not to use an autotransformer.**
   - **When the counting and the reset signals are input,securely connect the input signal terminal and common terminal (11-pin type: ③, 8-pin type: ①, Screw terminal type: 6) referring to the wiring diagram.If the input signal terminal is connected to the terminal other than the common terminal or if the power is applied to the input signal terminal, the internal circuit may be damaged.**
2. To prevent faulty operation due to noise.
   - The input device, the counter and input signal lines must be separated as far as possible from any source of electrical noise.
   - Connect the input wires, using shielded wires or in separate conduits as short as possible.
   - When connecting the input and output wires, do not connect them pareallel to high-voltage or power cables and avoid using the same conduit.
3. Operate the counter at ambient temperature of –10°C~+55°C and at the ambient humidity of 85%RH or less.
4. Do not use the counter in such places where inflammable or corrosive gas is generated, a lot of dust exists, oil is splashed or considerable shock and vibration occurs.

How to input

Relay output type, Transistor output type common.

		Contact input	Contactless input
Input wiring (Example of 11-pin type)			
Counting speed		30Hz	30Hz or 5kHz
Min. input signal width		20ms	1ms or 20ms
Input terminal	IN1	③–⑥([6]–[9])〈①–④〉	*( ) shows screw terminal type. 〈 〉 shows 8-pin type.
	IN2	③–⑤([6]–[8])〈①–⑤〉	*( ) shows screw terminal type. 〈 〉 shows 8-pin type.
	RESET	③–⑦([6]–[10])〈①–③〉	*( ) shows screw terminal type. 〈 〉 shows 8-pin type.
	LOCK	③–④([6]–[7])〈 —— 〉···20ms fix	*( ) shows screw terminal type. 〈 〉 shows 8-pin type. 8-pin type has no LOCK input terminal.
Notes of input		• Use the gold-plated contact. • Use the featuring short bounce time to prevent errors in the counter operation.	• Apply the open-collecter connection. • The characteristics of transistor V_{CEO}=20V or above I_C=20mA or above I_{CBO}=6 μA or less
Input from the contact less switching circuit (Example of RESET input)			• Short-circuit resistance must be 1kΩ or less. • Open-circuit resistance must be 100kΩ or more. • The residual voltage on terminal must be 2V or less.

Terminal connection

	11-pin type	8-pin type	Screw terminal type
Wiring diagram			
Applicable sockets	11-pin cap:AT8-DP11(ATA4861) DIN-rail mountable:AT8-DF11(ATC18004)	8-pin cap:AD8-RC(AD8013) Reversible socket:AT8-RR(AT7804) DIN-rail mountable:AT8-DF8 (ATC18003)	—
Power supply terminal (100~240V AC 24V AC)	②–⑩	②–⑦	[1]–[2]
Power supply terminal (12~24V DC)	②:(–) ⑩:(+)	②:(–) ⑦:(+)	[2]:(–) [1]:(+)
Notes	• Do not make direct solder connections to the round pins. • The power supply voltage must be applied at a time through contact of switch or relay. (Gradual increase of applied voltage may cause "malfunction" irrespective of the setting or power reset failure.)		

Output mode and input mode setting

Dip switch setting.

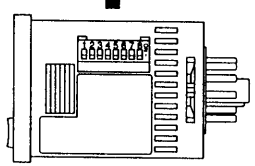
	Item	OFF	ON
1	Output mode	Refer to list 1	
2			
3			
4	RESET Min.input signal width	20ms	1ms
5	Counting speed	30Hz	5kHz
6	Input mode	Refer to list 2	
7			
8			

List 1

Switch No. 1	2	3	Output mode
ON	ON	ON	SHOT-A
OFF	OFF	OFF	SHOT-B
ON	OFF	OFF	SHOT-C
OFF	ON	OFF	SHOT-D
ON	ON	OFF	HOLD-A
OFF	OFF	ON	HOLD-B
ON	OFF	ON	HOLD-C
OFF	ON	ON	dIP Err indicator

List 2

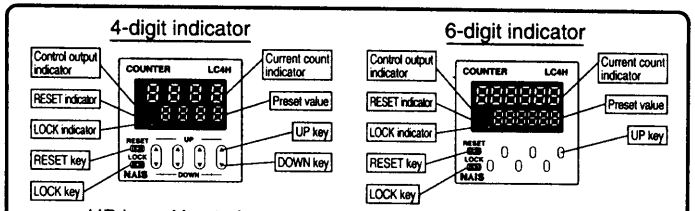
Switch No. 6	7	8	Input mode
ON	ON	ON	UP input
OFF	OFF	OFF	DOWN input
ON	OFF	OFF	DIR input
OFF	ON	OFF	IND input
ON	ON	OFF	PHASE input
OFF	OFF	ON	dIP Err indicator
ON	OFF	ON	dIP Err indicator
OFF	ON	ON	dIP Err indicator



* Set up dip switch before fitting to the panel.

Parts name

Set up front key.



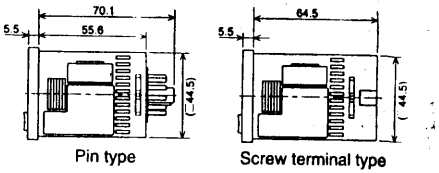
UP key : Use to increment preset value at each digit.
DOWN key : Use to decrement preset value at each digit.
RESET key : Use to preset current count and output.
LOCK key : Use to refuse all key operations.

Dimensions and mounting hole dimensions

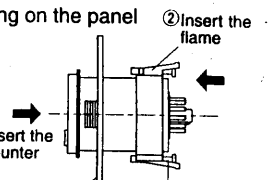
• Dimensions (Unit:mm)

4-Digit indicator

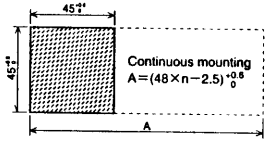
6-Digit indicator



• Mounting on the panel



• Panel cutout



Self-diagnostic functions

When as error happens,the following indicators are given.

Indicator	Meaning	Output status	Recovery	Preset value after recovery
---- or ------	Underflow of preset value *1	NO change	[RESET] key or reset input	No change
d iPEtt	DIP switch set error		Power on again (DIP switch set change)	
Ett-00	CPU error	OFF	[RESET] key or reset input or Power on again	Preset value when power on before CPU disorber
Ett-01	Memory error *2			0

*1 Count value less than minimum value at DOWN, DIR, IND, PHASE input mode.
*2 Includes getting to EEP-ROM rewriting life.

For CE marking products

EMC directive (89/336/EEC)

LC4H series counters have conformity to the EMC directive as a counter itself.
Conforming norms:EN50081-2,EN50082-2

Low voltage directive (73/23/EEC)

The condition described below should be followed in order to satisfy the VDE0435/Part2021 conformity.

1. Since the LC4H counters have a transformerless power supply system,the power supply and input terminals are not insulated.
   (1) Therefore,be sure to use double insulation between input terminal and input field device when using a sensor etc.as input for non-contact input.
   (2) Therefore,be sure to use a relay with double insulation between input terminal and input field device for contact input.
2. Be sure to use basic insulated device as output field device.Since LC4H counters have basic insulation,this basic insulation at the field device will meet the double insulation required by VDE.
3. Be sure to use a socket or caps for counter wiring when using pin type counters. Be sure to use a power supply with EN/IEC conforming over current protection (such as fuse for 250V 1A).
4. Never touch the LC4H counters,such as terminals while power is supplied.Be sure to check that no power is applied to every terminal before its installation and removal.
5. Never use LC4H counters as a part of a safety circuit.For example,if it is used for heat-generating equipment,be sure to add protective circuit to the equipment.

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