

Digital Timer

BT series

INSTRUCTION MANUAL

We appreciate you for purchasing HanYoung NUX Co.,Ltd product. Before using the product you have purchased, check to make sure that it is exactly what you ordered. Then, please use it following the instructions below.

MAIN PRODUCTS

- DIGITAL : Temperature Controller, Counter, Timer, Speedmeter, Tachometer, Panel Meter, Recorder
- SENSOR : Proximity Switch/Photo Electric Sensor, Rotary Encoder, Optical Fiber Sensor, Pressure Sensor
- ANALOG : Timer, Temperature Co

HEAD OFFICE

1381-3, Juan-Dong, Nam-Gu
Incheon, Korea
TEL: (82-32)876-4697
FAX: (82-32)876-4696

HANYOUNG

SAFETY INFORMATION

Before you use, read safety precautions carefully, and use this product properly. The precautions described in this manual contain important contents related with safety; therefore, please follow the instructions accordingly. The precautions are composed of DANGER, WARNING and CAUTION.

⚠ DANGER

There is a danger of occurring electric shock in the input/output terminals so please never let your body or conductive substance is touched.

⚠ WARNING

1. If there is a concern about a serious accident caused by a malfunction or abnormality of this product, please install an external protection circuit and devise a scheme for preventing an accident.
2. This product does not contain an electric switch or fuse, so the user needs to install a separate electric switch or fuse externally. (Fuse rating: 250V 0.5A)
3. To prevent deflection or malfunction of this product, apply a proper power voltage in accordance with the rating.
4. To prevent electric shock or malfunction of product, do not supply the power until the wiring is completed.
5. Since this product is not designed for an explosion-protective structure, do not use it any place with flammable or explosive gas.
6. Do not decompose, modify, revise or repair this product. This may be a cause of malfunction, electric shock or fire.
7. Reassemble this product while the power is OFF. Otherwise, it may be a cause of malfunction or electric shock.
8. If you use the product with methods other than specified by the manufacturer, there may be bodily injuries or property damages.
9. Due to the danger of electric shock, use this product installed onto a panel while an electric current is applied.

⚠ CAUTION

1. The contents of this manual may be changed without prior notification.
2. Before using the product you purchased, make sure that it is exactly what you ordered.
3. Make sure that there is no damage or abnormality of the product during the delivery.
4. In case of the time setting is 0, please do not use since it can be a cause of its malfunction.
5. Set the time setting while the power is OFF. Please RESET it when changing while it is ON.
6. Do not use this product at any place with occurring corrosive (especially noxious gas or ammonia) or flammable gas.
7. Do not use this product at any place with direct vibration or impact.
8. Do not use this product at any place with liquid, oil, medical substances, dust, salt or iron contents. (Use at Pollution level 1 or 2)
9. Do not polish this product with substances such as alcohol or benzene. (Use neutral detergent.)
10. Do not use this product at any place with a large inductive difficulty or occurring static electricity or magnetic noise.
11. Do not use this product at any place with possible thermal accumulation due to direct sunlight or heat radiation.
12. Install this product at place under 2,000m in altitude.
13. When the product gets wet, the inspection is essential because there is a danger of electric leakage or fire.
14. If there is excessive noise from the power supply, using insulating transformer or noise filter is recommended. The noise filter must be attached to a panel which is already connected to a ground and the wire between the filter output and power supply terminal must be short as possible.
15. If twisting the power cables closely together then it is effective against noise.
16. Do not connect anything to the unused terminals.

17. After checking the polarity of terminal, connect wires at the correct position.
18. When this product is connected to a panel, use a circuit breaker or switch approved with IEC947-1 or IEC947-3.
19. Install the circuit breaker or switch at near place for convenient use.
20. Write down on a label that if the circuit breaker or switch is operating then the power will be disconnected since the circuit breaker or switch is installed.
21. For the continuous and safe use of this product, the periodical maintenance is recommended.
22. Some parts of this product have limited life span, and others are changed by their usage.
23. The warranty period for this product including parts is one year if this product is properly used.
24. When the power is on, the preparation period of contact output is required. In case of using signals of external interlock circuit or etc., use it with a delay relay.combining with noise, use it after shielding it.

Model Name and Suffix Code

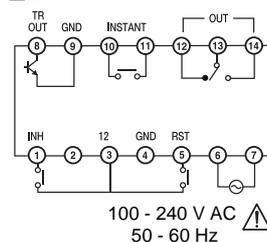
Model	Suffix code	Description
BT □	□ □	1 : 48 × 24 × 106 mm 3 : 96 × 48 × 109 mm 6 : 72 × 36 × 107 mm
Type	P	Preset
Digit	4	4 digits
	6	6 digits

Up/Down Range Selection

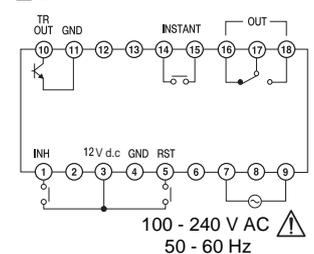
Up/Down Range Selection		Time Range			
		Decimal System		Sexagesimal system	
		6 Digits	4 Digits	6 Digits	4 Digits
Up	U.15	99999.9 s	999.9 s	9h 59 m 59.9 s	9 m 59.9 s
	U.015	9999.99 s	99.99 s	59 m 59.99s	59.99s
	U.15	999999 s	9999 s	59 h 59 m 59 s	59 m 59 s
	U.1h	999999 m	9999 m	9999 h 59 m	99 h 59 m
Down	d.15	99999.9 s	999.9 s	9 h 59 m 59.9 s	9 m 59.9 s
	d.015	9999.99 s	99.99 s	59 m 59.99 s	59.99 s
	d.15	999999 s	9999 s	99 h 59 m 59 s	59 m 59 s
	d.1h	999999 m	9999 m	9999 h 59 m	99 h 59 m

Wiring Diagram

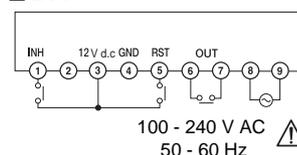
BT6



BT3



BT1



■ Ratings

Rated Voltage	100 ~ 240 V AC, 50 ~ 60 Hz
Voltage Fluctuation Rate	± 10 % of Rated Voltage
Power Consumption	About 5 VA (with 220 V AC 60 Hz)
Reset	Power Reset: Minimum Power Open Time 0.5 sec External Reset: Minimum Input Signal Range 0.02 sec (Common for Contact/ No Contact)
Power for Sensor	12V DC 50 mA Max.
Control Output	Relay: 250 V AC 3A Resistive Load (COS φ=1) Open Collector: 30 V DC 100 mA Max.
Operating Ambient Temperature	0 ~ 55 °C
Operating Ambient Humidity	35 ~ 85 % R.H.

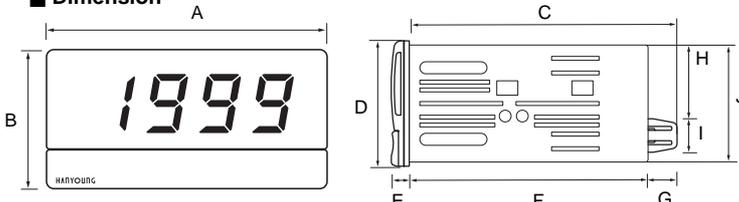
■ Characteristics

Using Timer Function	Repeat of Operating Time	Below ±0.01 % ±0.05 sec (Power Start)
	Effect of Voltage	Below ±0.005 % ±0.003 sec (Reset Start)
	Effect of Temperature	(Rate for setting value)
Insulation Resistance	Above 100 MΩ (up to 500 V DC mega) Between electronic conduction terminal and exposed non-charging metal	
Dielectric Strength	2000 V AC 50 ~ 60 Hz (Between electronic conduction terminal and exposed non-charging metal)	
Impulse Voltage	2 KV (Between control power terminals)	
Noise	Square frequency noise caused by noise simulator	
	± 2 KV (Between control power terminals)	
	± 500 V (Between input terminals)	
Vibration	Durability	10 ~ 55 Hz Double amplitude 0.75 mm
	Malfunction	10 ~ 55 Hz Double amplitude 0.5 mm
Impact	Durability	300 m/s² (about 30 G)
	Malfunction	100 m/s² (about 10 G)
Life Span	Mechanical	Over 10 million times
	Electronic	Over 100 thousands times (250 V AC 3 A resistive load)

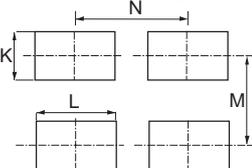
■ Dimension and Panel Cutout

(Unit : mm)

■ Dimension



■ Panel cutout



■ Dimension Table

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
BT1	48	24	100	24	5.8	100				22	22.5	45.4	45	65
BT3	96	48	102	48	7	91	11	28	13	44.8	45	92	60	130
BT6	72	36	100	36	6.5	89	11	16	12	30.5	31	66.5	60	100

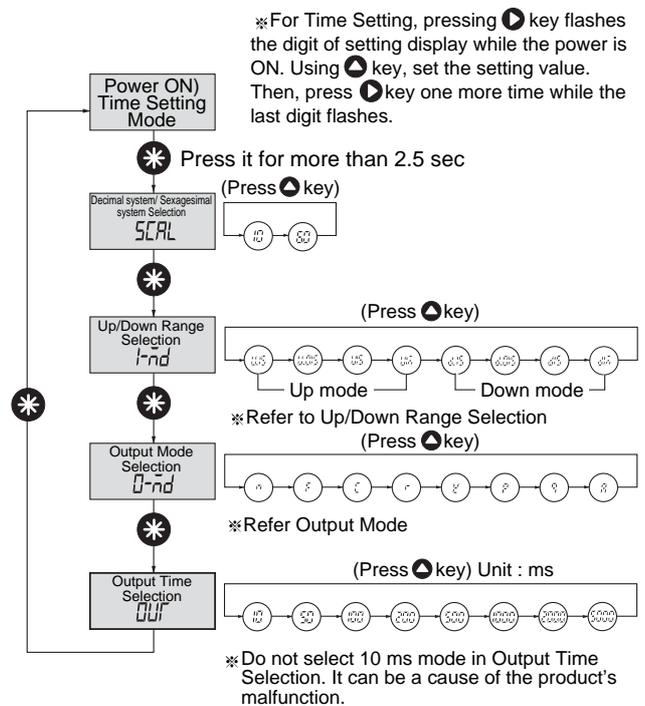
■ Functions of keys

Keys	Functions
Mode	Press Mode key to enter Program mode or to shift to other mode
Shift Key	Shift to next digit
Incremental key	Use to increase a set value . Use to select set items of each mode
Reset Key	Time display and initialize output

■ Default Specification Setting

Function	Mode Conditions
System	Sexagesimal system
Time Specification	Up 0.1s
Output Mode	N
Output Method	ON DELAY

■ Timer Mode Selection Method



■ Timer Output Mode

Self-maintenance Output
 ※Select one short output among 10 ~ 5000 ms
 One-Short Output

MODE	UP	DOWN	Operation after Output ON
N			The output and display are maintained until the reset signal is input.
F			The display is continuously processing without the setting before reset. The output is maintained until the reset signal is input.
C			The display returns to start status after one-short time. The output repeatedly operates in one-short.
R			The display returns to the reset status immediately after one-short. The output repeatedly operates in one-short.
K			The display is continuously processing without the setting before reset. The output repeatedly operates in one-short.
P			The display is continuously maintained during one-short time but counting returns to the reset start status immediately after ON. The output repeatedly operates in one-short.
Q			The display is processing during one short time but returns to the reset start status immediately after one-short. The output repeatedly operates in one-short.
A			The display is processing until the setting value. The output is one-short time ON and then one-short time OFF.

※ SV = Setting Value