



Bulletin 700-HXM

- One of the World's Smallest Compact Preset Timers
- Built-in Prescaling for Counter Operation
- Finger Protection Terminal Block to Meet VDE0106/P100
- Panel Surface Compatible with NEMA4/IP66
- Six-language Instruction Manual Provided
- Environmentally Friendly—Flash Memory, No Battery
- Highly Visible LED Display

TABLE OF CONTENTS

Description	Page	Description	Page
Product Selection	182	Operating Mode	186
Specifications	184	Dimensions	189

Description

The Bulletin 700-HXM Digital Timing Relay allows switching between 4-digit preset counter and 4-digit timer operation. While using the preset counter, it is possible to switch the display to monitor the totalizing count value (8 digits). The Counter/Timer features four preset values that can be changed by the front panel key. It also comes with an ON/OFF-duty adjustable repeat cycle mode that can be used to perform cyclic control for timer operation.

Conformity to Standards:

EN61010-1
IEC61010-1
VDE0106/P 100
NEMA 4/IP66
VDE0106/P100


Approvals:

CE Certified
UL508
CSA C22.2 No. 14
ACA

Your order must include:

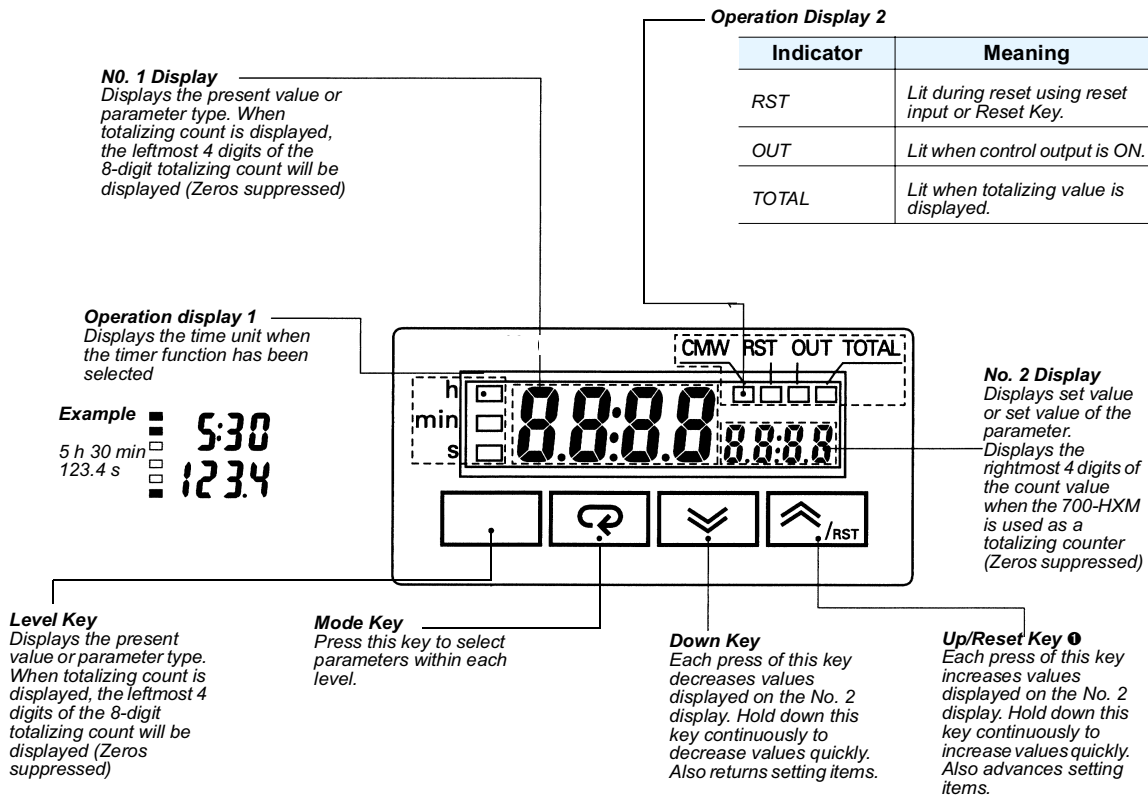
- Cat. No. of the timing relay plus suffixes of selection options.
- Cat. No. of socket required.
- If required, Cat. No. of any accessories.

“700-HXM User Manual” Available At:
<http://www.theautomationbookstore.com>

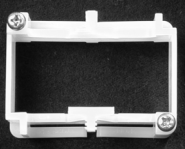
Model	Timer Modes	Counter Modes ①		Timing Range	Counter Range	Cat. No.	Factory-stocked Item
		Input	Output				
 Cat. No 700-HXM...	A mode: Signal ON-delay B mode: Repeat Cycle D mode: Signal OFF-delay E mode: One Shot F mode: Accumulative Z mode: ON/OFF-duty Adjustable Repeat Cycle	Increment Decrement Individual Quadrature	N,F,C,K	0.000...9999 h	-999...9999	700-HXM66Z24	✓

① For counter mode explanation, see page 184.

General Timer Functions



① To reset the present value, press this key while the present value is displayed. If this key is pressed while the totalizing count value is displayed, the totalizing count value and the present value will be reset.

	Description	Pkg. Qty.	Cat. No.	Factory-stocked Item
 <p>Cat. No. 700-HN141</p>	Replacement Flush Mounting Adapter (One shipped with each 700-HXM66Z24)	1	700-HN141	✓

Bulletin 700-HXM
Timing Relays
Specifications ①

Electrical Ratings		
Pilot Duty Rating		NEMA B300
Rated supply voltage		24 VDC
Operating voltage range		85%...110% of rated supply voltage
Power consumption		1.5 W max. (for max. DC load) (Inrush current: 15 A max.)
▶ ◀ 120V AC		30 A
Make 240V AC		15 A
◀ ▶ 120V AC		3 A
Break 240V AC		1.5 A
Hp at 120V AC		1/4 Hp
Hp at 240V AC		1/3 Hp
Mechanical		
Mounting method		Flush mounting (Panel or door)
Terminal screw tightening torque		0.5 Nm max.
Display		7-segment, negative transmissive LCD; time display (h, min., s); CMW, OUT, RST, TOTAL Present value (red, 7 mm high characters); Set value (green, 3.4 mm high characters)
Digits		PV: 4 digits SV: 4 digits When total count value is displayed: 8 digits (Zeros suppressed)
Memory backup		EEPROM (non-volatile memory) (number of writes: 100,000 times)
Counter	Maximum counting speed	30 Hz or 5 kHz ①
	Counting range	-999...9,999
	Input modes	Increment, decrement, individual, quadrature inputs
	Output modes	N, F, C, or K
Timer	Time ranges	0.000...9.999 s, 0.00...99.99 s, 0.0...999.9 s, 0...9999 s, 0 min. 00 s...99 min. 59 s, 0.0...999.9 min., 0 h 00 min....99 h 59 min., 0.0 h...999.9 h, 0 h...9999 h
	Timer modes	Elapsed time (Up), remaining time (Down)
	Output modes	A, B, D, E, F, or Z
Inputs	Input signals	For Counter: CP1, CP2, and reset For Timer: Start, gate, and reset
	Input method	No-voltage input (contact short-circuit and open input) Short-circuit (ON) impedance: 1 KΩ max. (Approx. 2 mA runoff current at 0Ω) Short-circuit (ON) residual voltage: 2V DC max. Open (OFF) impedance: 100 kΩ min. Applied voltage: 30V DC max.
	Start, reset, gate	Minimum input signal width: 1 or 20 ms (selectable)
	Power reset	Minimum power-opening time: 0.5 s
Control output		SPDT contact output: 5 A at 250V AC/30V DC, resistive load (cos φ = 1)
Minimum applied load		10 mA at 5 VDC (failure level: P, reference value)
Reset system		External, manual, and power supply resets (for timer in A, B, D, E, or Z modes)
Sensor waiting time		260 ms max. (Inputs cannot be received during sensor wait time if control outputs are turned OFF.)

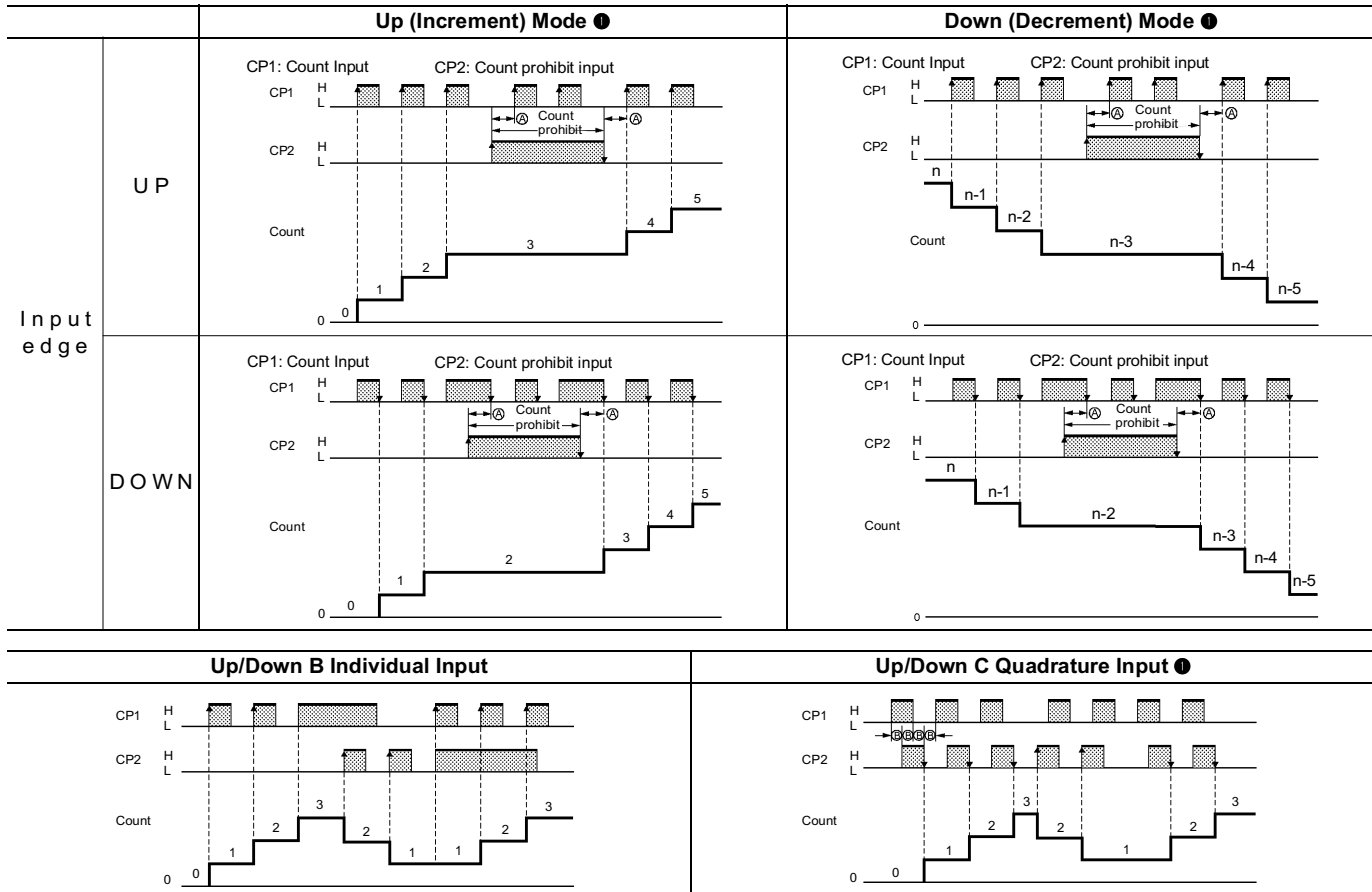
① The figures given for maximum counting speed are for incrementing or decrementing operation with a prescale value of x1. If prescaling is used and 5 kHz is set, the maximum counting speed will be reduced to about half. The maximum counting speed will also be reduced to about half when the up/down mode is selected.

Characteristics		
Timer function		Signal start: $\pm 0.03\% \pm 30$ ms max. Power-ON start: $\pm 0.03\% \pm 50$ ms max.
Insulation resistance		100 M Ω min. (at 500V DC)
Dielectric strength		1,500V AC, 50/60 Hz for 1 min. between output terminals and non-current-carrying metal parts 510V AC, 50/60 Hz for 1 min. between current-carrying terminals (except output terminals) and non-current-carrying metal parts 1,500V AC, 50/60 Hz for 1 min. between output terminals and current-carrying terminals (except output terminals) 500V AC, 50/60 Hz for 1 min. between communications terminals and current-carrying terminals (except output terminals) 1,000V AC, 50/60 Hz for 1 min. between contacts not located next to each other
Noise immunity		Square-wave noise by noise simulator; ± 480 V (between power terminals), ± 600 V (between input terminals)
Static immunity		± 8 kV (malfunction), ± 15 kV (destruction)
Vibration resistance	Malfunction	10...55 Hz with 0.35 mm single amplitude each in three directions for 10 min.
Shock resistance	Malfunction	100 m/s ² (approx. 10 G), 3 times each in six directions
Life expectancy	Mechanical	10 million operations
	Electrical	100,000 operations min. (3 A at 250V AC, resistive load)
Ambient temperature	Operating	-10°C...55°C (with no icing or condensation)
	Storage	-25°C...65°C (with no icing or condensation)
Ambient humidity		25%...85%
EMC		(EMI): Emission Enclosure: EN61326 Class A (EMS): EN61326 Immunity ESD: EN61000-4-2: 4 kV contact discharge (level 2) 8 kV air discharge (level 3) Immunity RF-interference: EN61000-4-3: 10 V/m (Amplitude-modulated, 80 MHz...1 GHz) (level 3); 10 V/m (Pulse-modulated, 900 MHz ± 5 MHz) (level 3) Immunity Conducted Disturbance: EN61000-4-6: 3 V (0.15...80 MHz) (level 2) Immunity Burst: EN61000-4-4: 2 kV power-line (level 3); 1 kV I/O signal-line (level 4); 1 kV communications-line (level 3) Immunity Surge: EN61000-4-5: 1 kV between lines (power and output lines) (level 3); 2 kV between grounds (power and output lines) (level 3)
Approved standards		UL508, CSA C22.2 No.14 Conforms to EN61010-1/IEC61010-1 (Pollution degree 2/overvoltage category II) Conforms to VDE0106/P 100 (Finger Protection)
Enclosure ratings		Panel surface: IP66 and NEMA Type 4 (indoors) Rear case: IP20 Terminal block: IP20
Weight		Approx. 80 g

Bulletin 700-HXM
Timing Relays
Operating Mode

Input/Output Modes and Count Values

Note: H = Short-circuited
 L = Open



① (A) indicates the minimum signal width and (B) requires at least 1/2 the minimum signal width. If these conditions are not met, a counting error (+1 or -1) may occur.

Input/Output Mode Settings

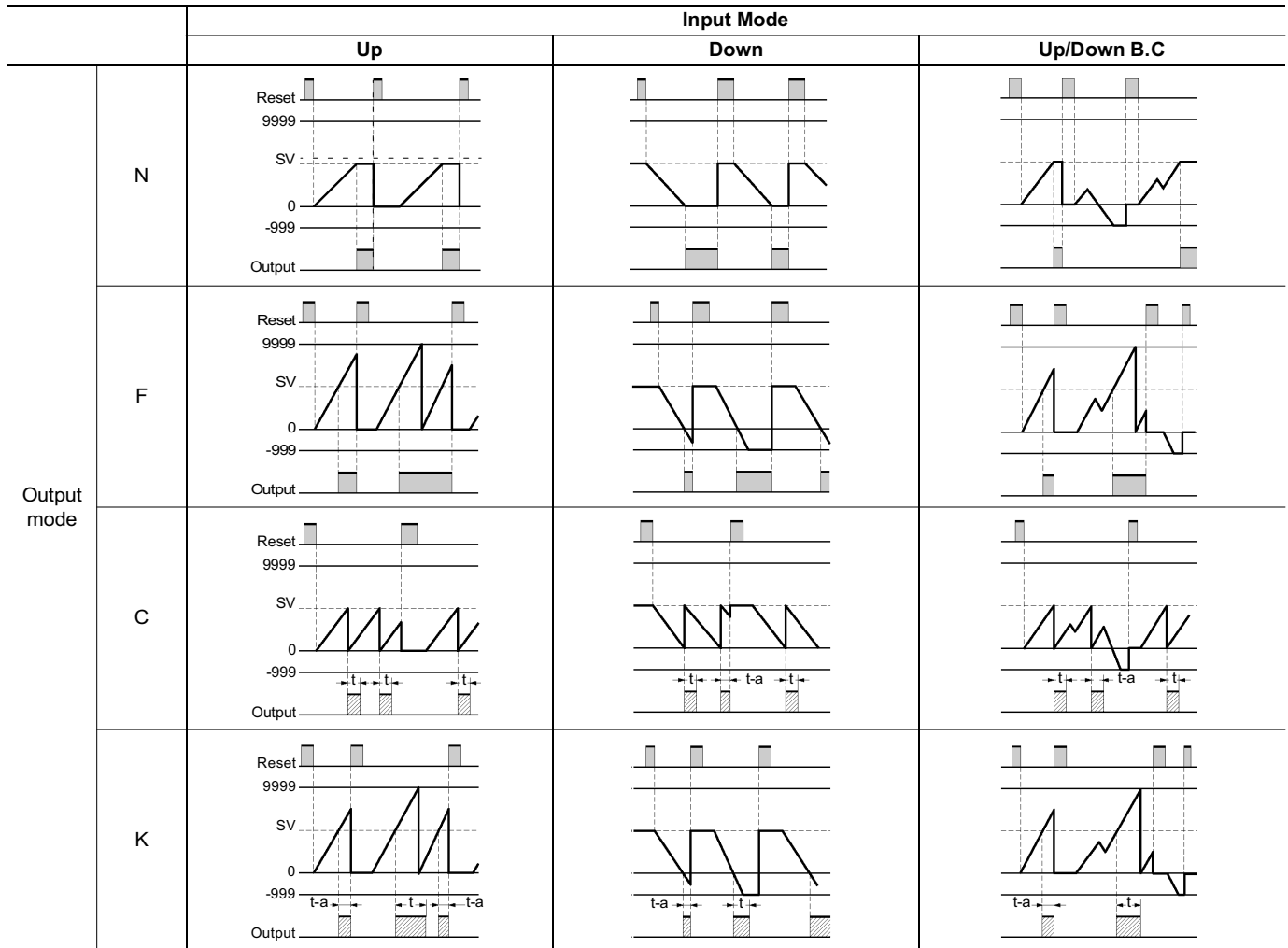
Counter Function

If there is a power failure during output ON, output will turn ON again when the power supply has recovered. For one-shot output, an output will be made again for the duration of the output time setting once the power supply has resumed.

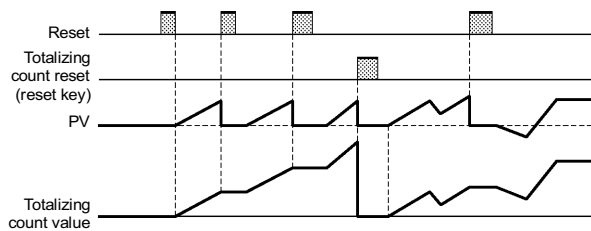
Output timing restarted during one-shot outputs is ignored.

Note: t-a: Less than the output time

t: Output time

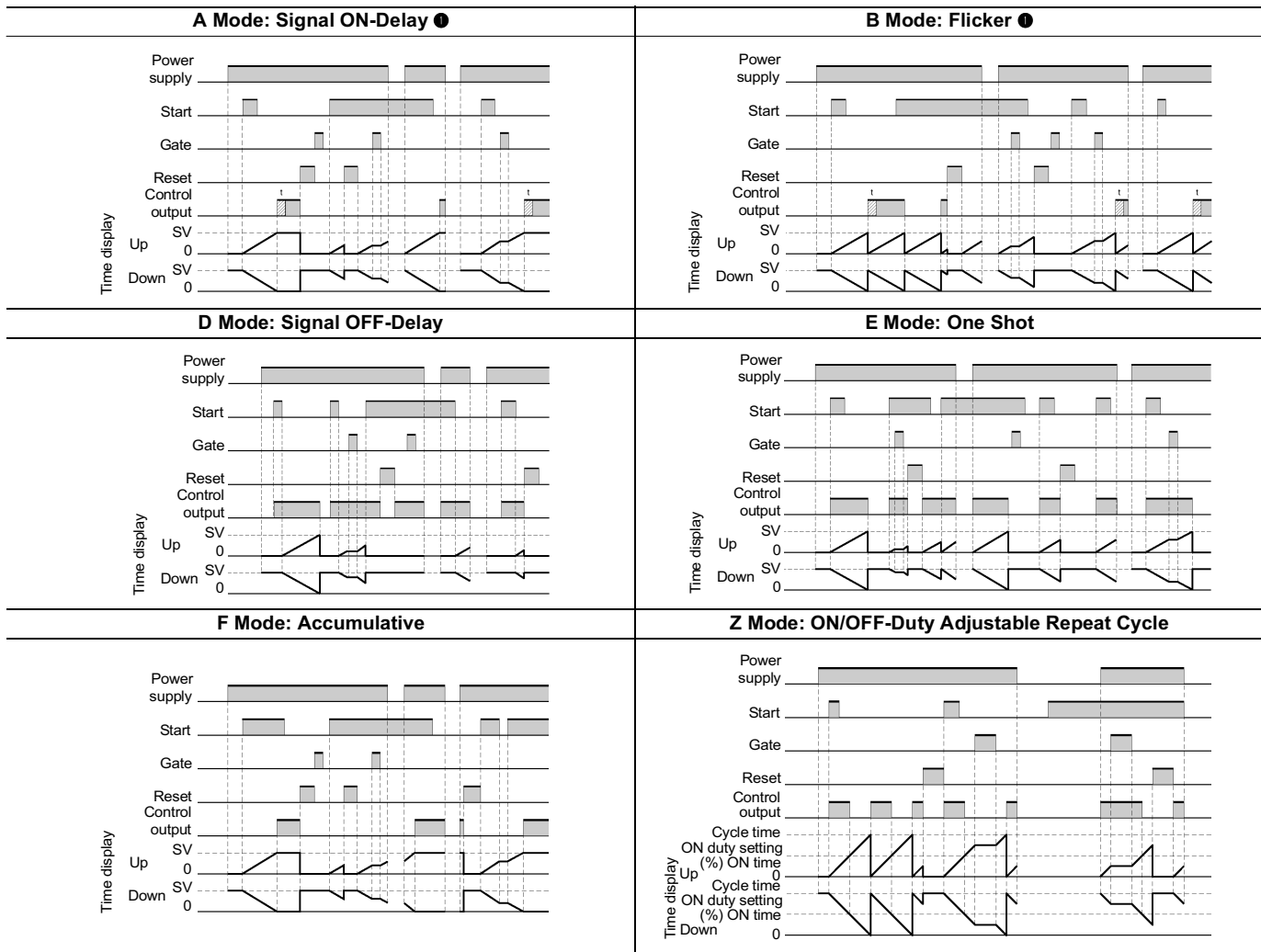


Totalizing Counter Operation



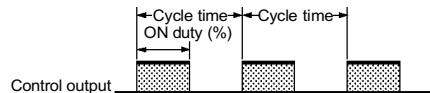
- Totalizing counter continues to count the present value, regardless of whether a reset input (by the reset key) has been made to reset the PV.
- When totalizing count value is reset, the PV is reset at the same time.
- The totalizing count range is 0...99,999,999. If the totalizing count exceeds 99,999,999, the count returns to 0. If the count drops below 0, it becomes 99,999,999.

Timer Function



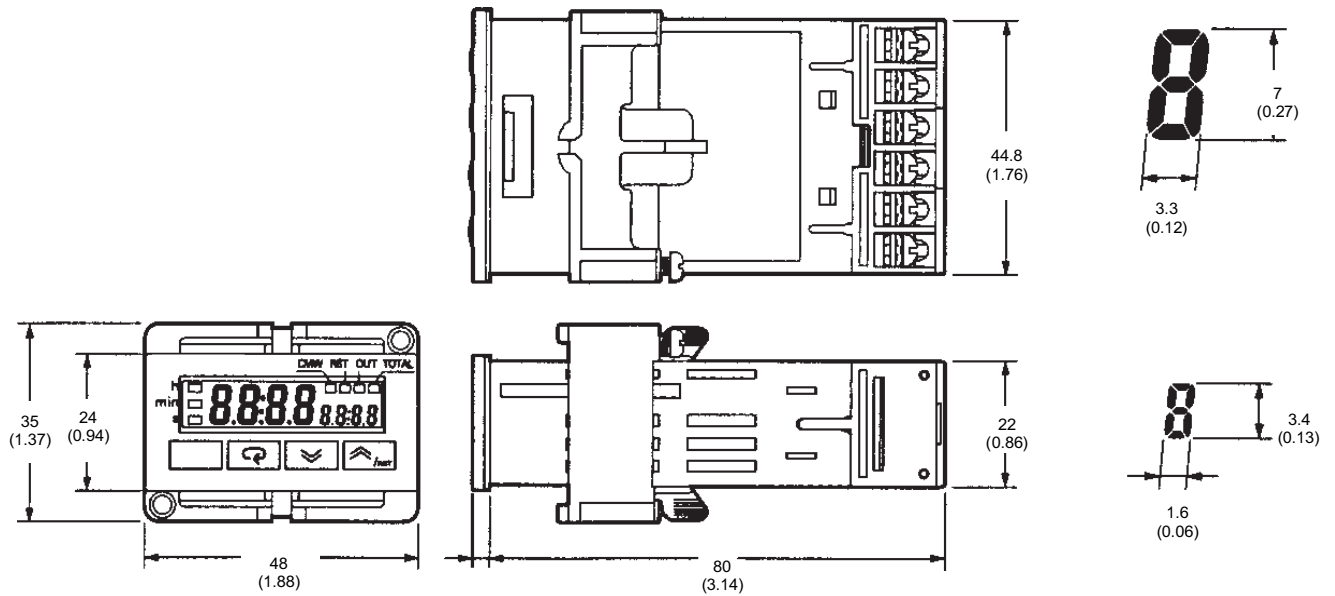
Z Mode

Output quantity can be adjusted by changing the cycle time set in the adjustment level to 1 and by changing the ON duty (%) set value. The set value shows the ON duty (%) and can be set to a value between 0 and 100 (%). When the cycle time is 0, the output will always be OFF. When the cycle time is not 0 and when ON duty has been set to 0 (%), the output will always be OFF. When ON duty has been set to 100 (%), the output will always be ON.



① One-shot output or HOLD output can be selected for output:

Dimensions are shown in millimeters (inches). Dimensions are not intended to be used for manufacturing purposes.



Cat. No. 700-HXM...

Terminal Arrangement

