# DDCT

Digital Counter / Timer

Description

Multi-function four digit counter / timer designed with the latest microprocessor technology. Setup and ranges can be adjusted with an easy to access and control menu system to make all common function available. The counter can be configured to accept two proxy ,one for up and the other for down count. Timer can be activated with proxy as well.

Wiring Diagram
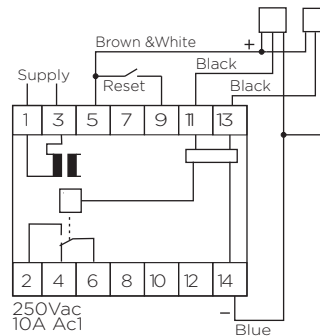
FEATURES

- Microprocessor controlled
- Multi Range
- Multi Function
- User friendly menu system
- Interface and power supply for NPN proxys
- Modular 53.5mm Din rail mountable
- 10A SPDT output relay

Input Specifications

Probe Type	NPN 3 wire proximity
Pin 5	Positive supply
Pin 14	Negative supply
Pin 11/13	Probe Input
Probe Voltage	+/- 20 Vdc
Short Circuit Current	25mA
Min Response Time	0.01sec

Timing Specifications

Time Range (Timer)	0.1 - 999.9 sec
	1 - 9999 sec
	0.1 - 999.9 min
	1 - 9999 min
	0.1 - 999.9 hrs
	1 - 9999 hrs
Range Accuracy	0.1%
Time Variation	< 0.05%/V
	< 0.2%/^{O}C
Reset Time	200ms
Pulse Frequency (counter)	10000Hz
Relay Pulse Duration	0-20sec

Supply Specifications

Power Supply AC Type	24, 48, 110, 230, 400 ±10% 50-60Hz ±5%
Galvanic Isolation	4kV
Consumption	±3VA
Power Supply DC Type	24, 48 ±10%
Galvanic Isolation	None
Consumption	± 300 mA

Output Specifications

Relay Output	SPDT
Rated Isolation	
Voltage	6000 VAC (contact / electric) 1000 VAC (contact / contact)
Nominal Rate in Ac1	1500 VA
Rated Current	10A
Rated Voltage	250V
Mechanical Life	$10*10^{6}$ cycles
Electrical Life	$110*10^{3}$ cycles (at max load)
Operating Frequency	≤ 1800 cycles/h

General Specifications

Power ON Delay	≤ 500 ms
Indication	Two sets of 4*seven Segment Red LED's Flashing R1 on when relay active
Count	Top display
Set point / status	Bottom display
Environment	
Degree Of Protection	IP 20
Operating Temperature	-10 to + 50°C
Storage Temperature	-50 to + 85°C
Weight	200g

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Mode of Operations

The unit will monitor the following parameters and respond as mentioned in each section.

Function 1: Counter

Input-1 (Pin 13) can be set to count up or down. Input-2 (Pin 11) will then count down or up, respectively. A pre-scaler can be added in the menu which will only increment/decrement the display after the number of counts is equal to the pre-scaler. The pulse length can be set in the menu, which will energize the relay for the pre-set time in seconds and the reset. If the pulse length is set to 0sec the relay will remain energized when the counter reaches the count or zero. The de-bounce time can set to eliminate contact bounce on a mechanical switch. The counter can be manually reset with the reset input (pin 9).

Example
Batch counting, Car park counter.

Function 2: Timer

The timer can be set to count up or down. The pulse length can be set in the menu, which will energize the relay for the pre-set time in seconds and reset the timer. If the pulse length is set to 0sec the relay will remain energized when the timer reaches the pre-set time or zero. The timer can be manually reset with the reset input (pin 9).

Example
On delay timer with display, Pulse timer

Function 3: Timer with Start/Stop

The timer can be started and stopped by Input 1 (pin 13). The timer will start timing when Input 1 is activated and stop when it is activated again.

Example
Precision timing, Pulse controlled interval timer

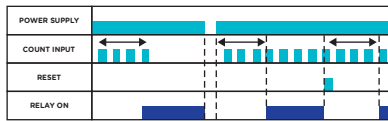### Function 4: Timer with timing on activation

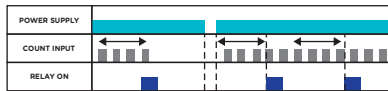When Input 1 is activated the timer starts timing and will stop if Input 1 is de-activated.

Example
Oven timer

Operation Diagram

FUNCTION 1 - COUNTER
RELAY ON WHEN REACHING COUNT

PULSE RELAY AND RESET ON REACHING COUNT

FUNCTION 2 - DELAYED ON OPERATION

FUNCTION 3 - PULSE START/STOP

FUNCTION 4 - START/STOP

Menu Diagram

"SET" Button Momentarily
        Count / Time setpoint

"SET" Button 4 seconds
        Function

1- Counter	2- Timer	3- Timer pulse start/stop	4- Timer start/stop
Debounce	Up/Down	Up/Down	Up/Down
Pre-scaler	Pulse Length	Pulse Length	Pulse Length
Up/Dowm	Range	Range	Range
Pulse Length	Show Relay	Show Relay	Show Relay
Show Relay			

"SET"