RHOMBERG

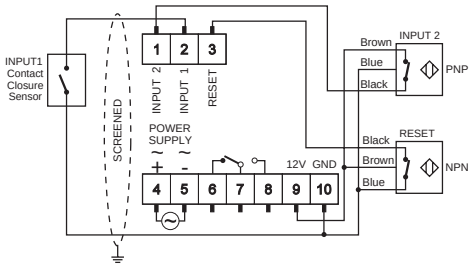
Multi-Function Preselect Counter 4 digit, panel mount

CC 701

Features

- 48 x 48 mm panel mount housing format.
- Large 4-digit LED display with leading zero suppression.
- User friendly keypad programming.
- Selectable ADD, SUBTRACT or ADD/SUBTRACT modes.
- Dividing prescale programmable from 1 to 250.
- Relay hold time programmable from 0,1 to 25,0 seconds
- High speed count input (1kHz) with selectable positive or negative active edge.
- Independent low speed count input (30Hz).
- Connection of DC NPN/PNP sensors (or Namur sensors on request) directly to counter - sensor powered by counter
- External reset input, or reset via front panel

WIRING EXAMPLE



COUNTALINE

ORDERING CODE

TYPE	SUPPLY VOLTAGE	SENSOR TYPE	RELAY CONTACTS
CC701	/ 240	D	- SP

D = DC PNP or NPN
N = Namur

Description of Operation

The CC-701 is a fully progammable 4-digit pre-select counter. All programming is performed via the keypad and the user is guided through by the large and clear LED display and user friendly installation instructions.

Low and High Speed Inputs

Low speed count input (Input 1): This input can be activated by either a switch or an NPN sensor. It is designed to ignore contact bounce from mechanical switches by limiting the input frequency to 30HZ. When in ADD mode, the low speed input increments the displayed count value. When in SUBTRACT or ADD/SUBTRACT mode 1, the low speed input decrements the displayed count value.

High speed count input (Input 2): This input can be activated by either an NPN/PNP sensor, or on request, a Namur sensor. When in the ADD or ADD/SUBTRACT mode 1, the high speed input increments the displayed count value. Incrementing or decrementing can be set to occur on a rising edge or falling edge of each input pulse. The input frequency is limited to 1kHz (500Hz in ADD/ SUBTRACT mode 1).

Input 1 and Input 2: In the ADD/SUBTRACT mode 2, the count direction of the high speed input is determined by the active state of the low speed input. The high speed input increments the displayed count value when the low speed input is held high, and decrements when it is held low.

Reset: The counter is reset by momentarily depressing the reset button on the front panel, or by the activation of an external switch or NPN sensor for less than 2 seconds. When in the ADD or both ADD/ SUBTRACT modes, a reset returns the present value (PV) to zero. When in SUBTRACT mode, a reset returns the PV to set value (SV).

Display

Present value: The present value (PV) displays the present count value and is indicated by the PV LED. This value is always displayed on power up.

Set value: The set value (SV) is entered from the keypad and is only displayed when the SV LED illuminates.

Functions

All function settings are entered from the keypad.

Function 1 (Count mode):

ADD mode: The present value (PV) increments from zero until it equals the set value (SV). At this point the relay energises for a period set in function 3 and the PV resets to zero.

SUBTRACT mode: The present value (PV) decrements from the set value (SV) until the PV equals zero. At this point the relay energises for a period set in function 3 and the PV resets to the SV.

ADD/SUBTRACT mode 1 (differential): The PV simultaneously increments, via pulses received from the high speed input, and decrements, via pulses received from the low speed input, until the PV equals the SV. At this point the relay energises. When the PV drops below the SV, the relay de-energises.

ADD/SUBTRACT mode 2 (count direction): The PV increments, via pulses received from the high speed input, when the low speed input is held high. The PV decrements when the low speed input is held low.

Note: For the ADD mode and the SUBTRACT mode the high speed and the low speed cannot be used simultaneously and must therefore be selected. However in ADD/SUBTRACT mode 1 and 2 both the low and the high speed inputs are used together.

Function 2 (Active edge):

This function allows for the selection of either a positive (leading) or a negative (trailing) active edge on both the high & low speed input.

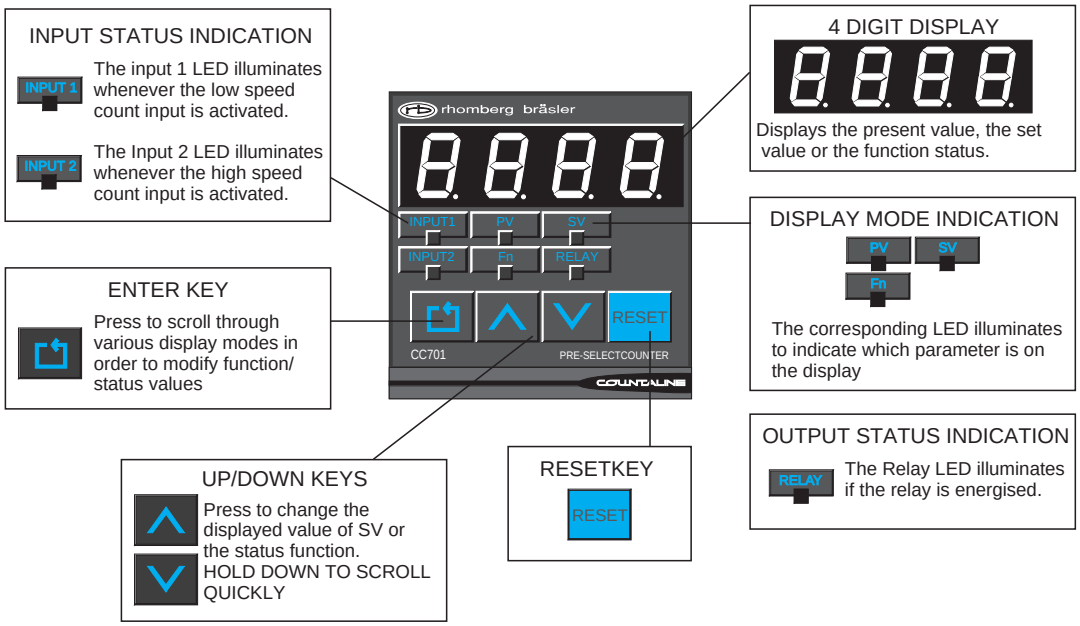
Function 3 (Relay hold time):

Time relay pulse mode: The relay ON time is set here.
Non-Cycling Modes: If the value is set at zero then the relay remains energised & only releases when the reset pulse is received.

Function 4 (Prescaler):

The integer dividing prescaler can be set from 1 to 250. The prescaler divides the count input pulses by this integer value. Thus the PV only increments or decrements once the prescaled number of pulses have been received on the count input.

Description of Controls



Technical Specification

Input Specifications

	LOW SPEED INPUT	HIGH SPEED INPUT	RESET INPUT
DC option (standard unit)	potential-free contact or NPN sensor (open collector output)	NPN/PNP sensor	potential-free contact or NPN sensor (open collector output)
NAMUR option (available on request)		Namur sensor DIN 19234	
Maximum Input Frequency	30Hz	1kHz (A, S, A/S-2) 500Hz (A/S-1)	1kHz
Minimum Pulse Width	16.7 ms	500 microseconds	500 microseconds
Active Pulse Edge	positive or negative (Programmable on function 2, Fn2)	positive or negative (Programmable on function 2, Fn2)	Negative: hold count value positive (if low for < 2 sec.): resets PV and clears error messages Positive (if low for < 3 sec.):clears error messages but not PV

General Specifications

Power Supply	AC: 110, 230, 400, 415 V ± 15% Isolation (sensor input to power supply): 2kV DC: 12 V ± 10% (no galvanic isolation) AC/DC: 24V ± 15% (no galvanic isolation)
Display	4 digit, 7-segment red LED display, height 10mm
Relay ON time	0.1 to 25.0 seconds in 0.1 second increments
Set-up and data retnetion	10 years (EEPROM)

Output Specifications

Relay output (standard)	10A/250VAC
SSR Drive (on special order)	10mA / 6V

Sensor Interface

Internal sensor power supply	
NPN/PNP Sensor (standard unit):	30mA / 12VDC
Namur Sensor (on special order):	10mA / 8VDC
Maximum NPN sensor saturation voltage:	2VDC (high speed count & gate inputs) 2.5VDC (low speed count input)
Maximum PNP sensor saturation voltage:	2VDC (high speed count & gate inputs)