



### ORDERING CODE

TYPE	MODEL	ACTIVE EDGE	VOLTAGE	POWER SUPPLY
CC	120	1	230	A

SEE PAGE 126 FOR ORDERING OPTIONS

## Application Examples

- Totalising cans on a can manufacturing line.
- Counting the number of people entering an area.
- Totalising the number of cars entering a parking area.
- Recording of items on a production line.
- Measuring production quantities of a press tool and hence determination of tool life.

## Features

- 48 x 72mm panel mount housing format.
- Large 6-digit LED display with zero suppression.
- High speed count input (5kHz) with positive or negative active edge (order option).
- Independent low speed count input (30Hz) suitable for mechanical sensors.
- Both high and low speed inputs can count simultaneously.
- Error message for count input overspeed indication (both high and low speed input).
- LED indication of both count inputs.
- Error message for indication of power supply interruption less than 0,3 seconds.
- Reset achieved via the front panel pushbutton, via external switch or via NPN sensor.
- Gate input for ignoring high speed count input pulses.
- DC (NPN or PNP) or NAMUR sensor compatible high speed and gate inputs (order option).
- Sensor leads can be connected directly as the CC-120 has an internal sensor power supply.
- Retention of count value guaranteed for 10 years using an EEPROM.
- High reliability of count value retention as no battery is used.

## Description of Operation

The countaline **CC-120** is a six digit totalising counter which offers a high and low speed count input. The high speed count input is used for high speed counting up to 5kHz with a sensor input of either a DC or NAMUR sensor. The low speed count input is used for low speed counting up to 30Hz and is suitable for an NPN sensor or a potential free contact. A gate input provides the option to inhibit the high speed count input from incrementing the count value. An external reset input or the front panel reset can be used to reset the count value to zero or to clear any error messages. Two red LED's on the front panel provided visible indication of the input status of both the high and the low speed input. Easy installation and sensor replacement is ensured with a reliable plug connector system.

### Count inputs

**Low speed count input:** 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. The count value will increment on the positive edge of the input signal (positive or negative edge option on order).

**High speed count input:** This input can be activated by either an NPN or PNP sensor (i.e. DC option), or Namur sensor (i.e. Namur option). The input frequency is limited to 5kHz. The count value will increment on the positive or negative edge of the input signal (positive or negative edge option).

### Control inputs

**Gate input:** This input can be activated by either an NPN or PNP sensor (i.e. DC option), or a Namur sensor (i.e. Namur option). The counter ignores the high speed input when the gate input is activated.

### Reset:

### Count value reset

The count value is reset to zero by:

- 1) Depressing the front panel reset button.  
or
- 2) By the activation of an external switch or NPN sensor.

Either reset option must be activated for less than 2 seconds.

### Error message reset

When an error message is displayed, it can be cleared by:

- 1) Depressing the front panel reset button.  
or
- 2) By the activation of an external switch or NPN sensor until the error message clears. The time taken for an error message to clear will be approximately 3 seconds.

### Input integrity indication

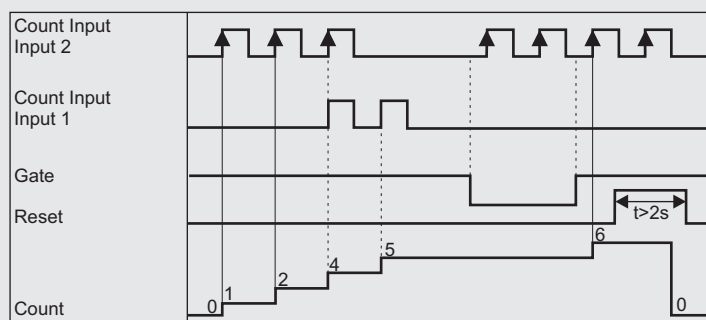
When power to the unit is lost the count value is stored in non-volatile memory (EEPROM). A power failure of duration less than 0,3 seconds is indicated by a flashing error message "P-FAIL".

If maximum input frequency is exceeded on either input, a flashing error message "0-SPD1" or "0-SPD2" is displayed.

In both, a brief power failure and an overflow condition, the error message indicates a possible miss count and can be cleared by depressing the reset button until the error message extinguishes.

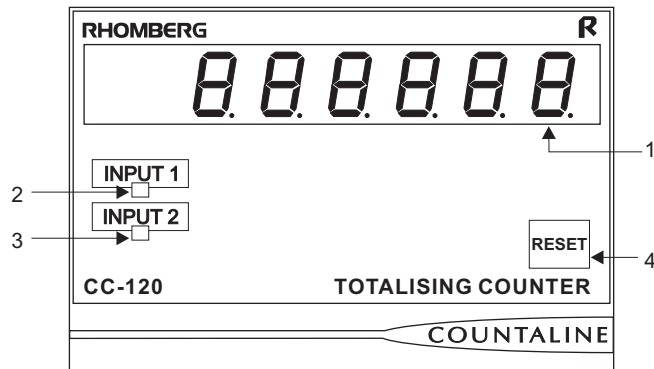
The count value displayed will not be cleared and counting can continue.

## Operational Diagram



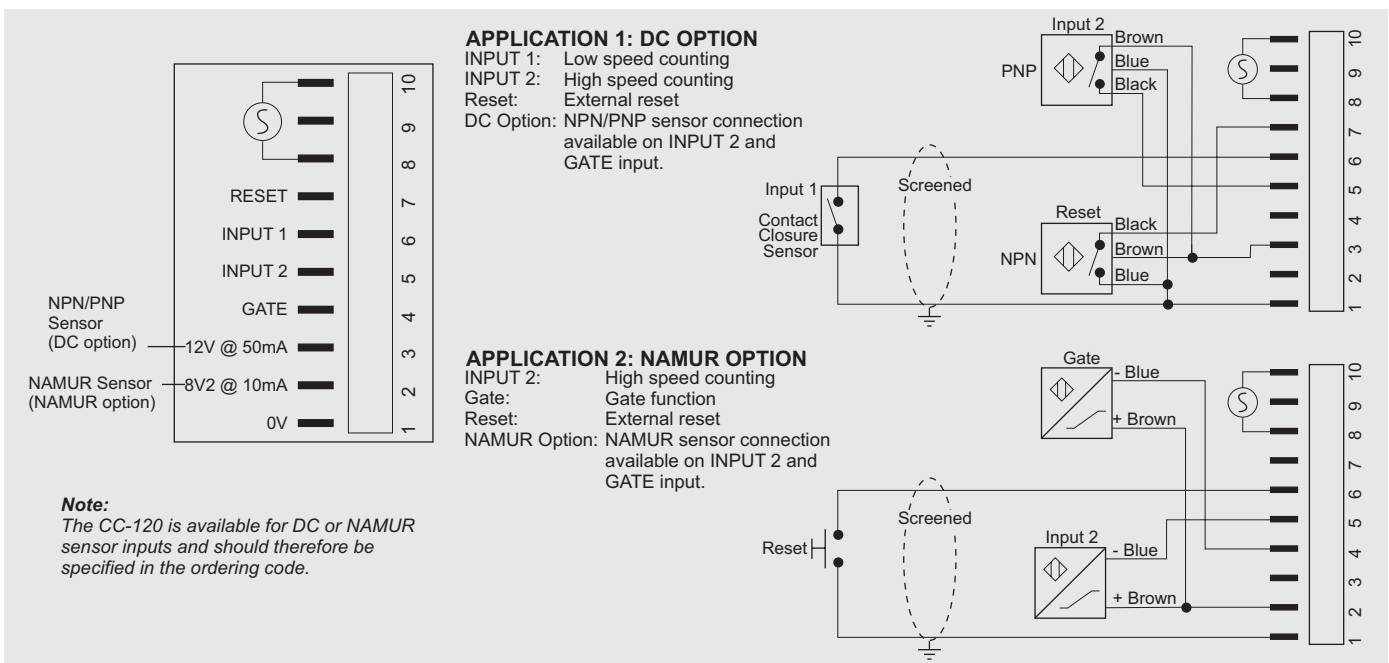


## Description of Controls



- 1: The **6-digit display** exhibits the present count value.
- 2: The red **Input 1** LED illuminates whenever the low speed count input is activated.
- 3: The red **Input 2** LED illuminates whenever the high speed count input is activated.
- 4: The **Reset** key has two functions:
  - If the Reset key is pressed momentarily, the count value will reset to zero.
  - If the Reset key is depressed and held down for more than 3 seconds, any error message present will be cleared without affecting the count value.

## Wiring and Connection



## Technical Specifications

INPUT SPECIFICATIONS					EMC PROTECTION RATING																						
	High Speed Input	Gate Input	Reset Input	Slow Speed Input	Parameter	Specification																					
NAMUR option	NAMUR sensor DIN 19234	NAMUR sensor DIN 19234	Potential free contact or NPN sensor (open collector type)	Potential free contact or NPN sensor (open collector type)	Radiated Emission	CISPR11, Class B																					
DC option	NPN or PNP sensor (open collector type)	NPN or PNP sensor (open collector type)			Conducted Susceptibility	IEC 225-22-1, CLASS 2																					
Max. Input frequency	5kHz	1kHz	1kHz	30Hz	Conducted Emission	CISPR11, CLASS B																					
Minimum pulse width	100 microseconds	500 microseconds	500 microseconds	16.7microseconds	ERROR MESSAGES																						
Active pulse edge	Positive or negative (selectable when unit is ordered)	Low level on input	Negative: holds count value positive (if low for < 2 sec): reset count value and clears error messages positive (if low for < 3 sec): clears error messages but not count value	Positive or negative (selectable when unit is ordered.)	Message	Condition	Remedy																				
<b>GENERAL SPECIFICATIONS</b> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Specification</th> </tr> </thead> <tbody> <tr> <td>Supply voltage</td> <td>24V AC/DC**, 110VAC, 230VAC, 400VAC, 415VAC, 525VAC</td> </tr> <tr> <td>Power consumption</td> <td>Less than 6VA</td> </tr> <tr> <td>Operating temperature</td> <td>0 to 55 degrees</td> </tr> <tr> <td>Humidity</td> <td>5 to 85 non-condensing</td> </tr> <tr> <td>Storage temperature</td> <td>-20 to 70 degrees</td> </tr> <tr> <td>Protection class (front label)</td> <td>IP 54</td> </tr> <tr> <td>Protection class (rear)</td> <td>IP 30</td> </tr> <tr> <td>Connection</td> <td>Plug-connector</td> </tr> <tr> <td>Weight</td> <td>300 grams</td> </tr> </tbody> </table>					Parameter	Specification	Supply voltage	24V AC/DC**, 110VAC, 230VAC, 400VAC, 415VAC, 525VAC	Power consumption	Less than 6VA	Operating temperature	0 to 55 degrees	Humidity	5 to 85 non-condensing	Storage temperature	-20 to 70 degrees	Protection class (front label)	IP 54	Protection class (rear)	IP 30	Connection	Plug-connector	Weight	300 grams	0-SPd1	Count frequency exceeded on low speed input	Reset for > 3 seconds
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0-SPd2	Count frequency exceeded on high speed input	Reset for > 3 seconds																									
P-FAIL	Power interruption less than 0,3 seconds	Reset for > 3 seconds																									

Three error messages are provided to warn the user of possible miscounts. When an error occurs the display alternates between the error message and the present count value.

**Sensor Interface**  
 Built-in sensor power supply:  
 NAMUR sensor option: 8.2 V DC / 10mA  
 DC (NPN or PNP) sensor option: 12V DC / 50mA  
 Maximum NPN sensor saturation voltage: 2V DC (high speed count and gate inputs) 2.5V DC (low speed count input)  
 Maximum PNP sensor saturation voltage: 2V DC (high speed count and gate inputs)

Additional information in Section J, page 131.