AN-6602

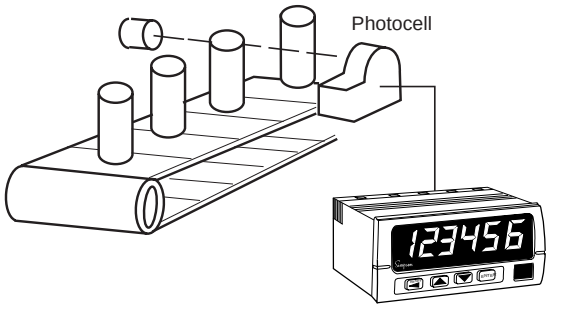
Item Counting

Technical Level: Beginner

Application Description

A Simpson Counter is to be used to count cans of beverage produced.

An appropriate photo eye and reflector has already been selected and installed.



S660, S662 or S663 Counter

Machine Specifications

Photo eye Specifications: Power requirement is 120 VAC, 0.1 Amp maximum.
Output is an optically isolated NPN transistor.

Process: Maximum production rate is 72,000 pieces per hour. A minimum of one can diameter between cans will be guaranteed as it passes the photo eye. A production shift is typically 8 Hours. The count will be manually reset between each shift.

Display: Desired display will be number of cans produced in the shift.

Product Selection

Using Preset Totalizer / Counter (Simpson #**S660**) operating from 120 VAC power has the required capabilities. When selecting a counter, initial computations are required to insure maximum operation speeds will not be exceeded.

Maximum Operating Speed = $\frac{72{,}000 \text{ Pieces/Hr}}{3600 \text{ Sec/Hr}}$ = 20 Pieces/Sec = 20 Hz

Maximum Count = 72,000 Pieces/Hr x 8 Hr/Shift = 576,000 Pieces/Shift

20 Hz is well below the maximum S660 input frequency (20,000 Hz). The resulting count totals will fit in a six digit display.

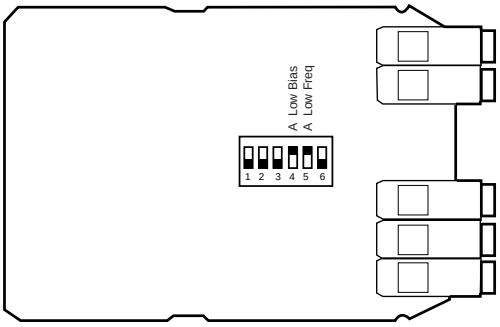
Product Ordering Information

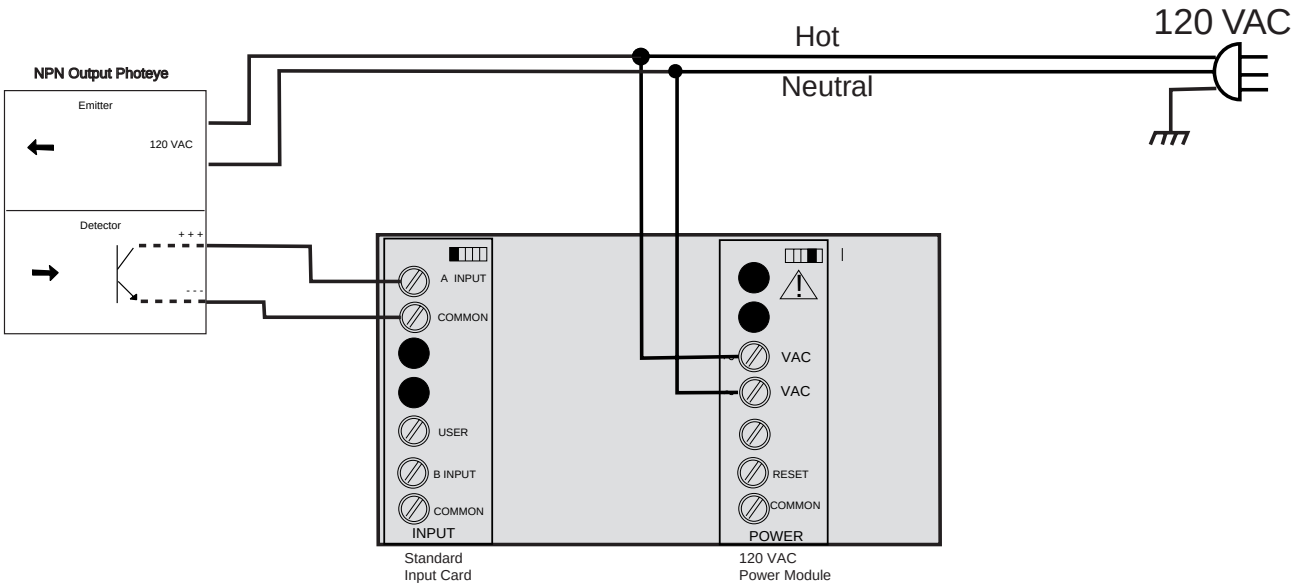
Qty	Simpson Part #	Description
1	**S660-1-1-0-0-0**	Model — Power — Input — Output — Excitation — Other **S660** | **120VAC 1**, 240VAC 2 | **Standard 1**, Quadrature 2 | **None 0**, 1 Relay 1, 2 Relay 2 | **None 0**, 12 VDC 1 | **None 0**

Hardware Setup :

An NPN is preferably used as a'sinking' device. That is, the transistor acts as a 'switch to ground'. Using a Standard Input Card, the default settings may be used.

Since the signal is less than 100 Hz, the counter 'debounce' circuitry may be used by selecting the A Low Frequency position (switch position 5 = ON). Using this feature is recommended if the photo eye has a fast response that may generate multiple 'edges' during light/dark transitions.





Counter Programming:

A standard count-up sequence will be used. Since no control operations are to be performed, Outputs and Auto-Reset features may be disabled or left at their default setting.

S660 Programming

Category	Parameter	Selection	Comments
inPut SEtuP	A CHAn	uP	Typical count up sequence.
Count SEtuP	PrESCL	1.0	A pre-scaler is not required in this application.
Count SEtuP	SCALE	0 1.0000	1 pulse = 1 count.
Count SEtuP	dP	000000	No decimal point will be displayed.
SEtPnt SEtuP	rStPoS	000000	When Reset occurs, set count to 0.
rESEt SEtuP	ArESEt	di SAbL	Auto-Reset feature must be disabled.
rESEt SEtuP	rStbtn	EnAbLE	The counter's reset button is enabled in this application.

Application Expansion

1. Use a Simpson Model S662 Batch Counter to give the capability to display number of cases and cans produced.

2. Use a Simpson Model S663 Counter / Rate meter to monitor the production rate and count cans.