



S663 Preset Rate/Totalizer Counter

- Easily Programmed from the Front Panel
- Software Functions Include:
 - Password
 - Display Scaling
 - Set Point Programming
 - Decimal Point Selection
- Screw Terminal Connectors for Easy Installation
- Rugged, High-Impact Plastic Case Fits Standard 1/8 DIN Cutout
- 3.24" (82mm) for Restricted Space Behind Panel
- Remote Reset Capability
- Input Variety: Quadrature, Switch, TTL, CMOS, NAMUR, PNP, NPN



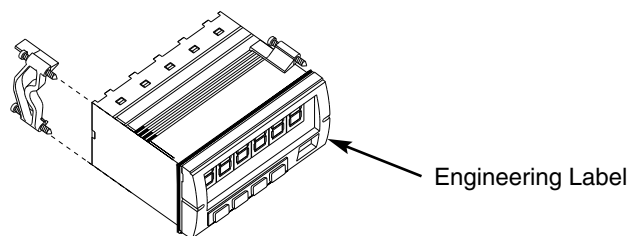
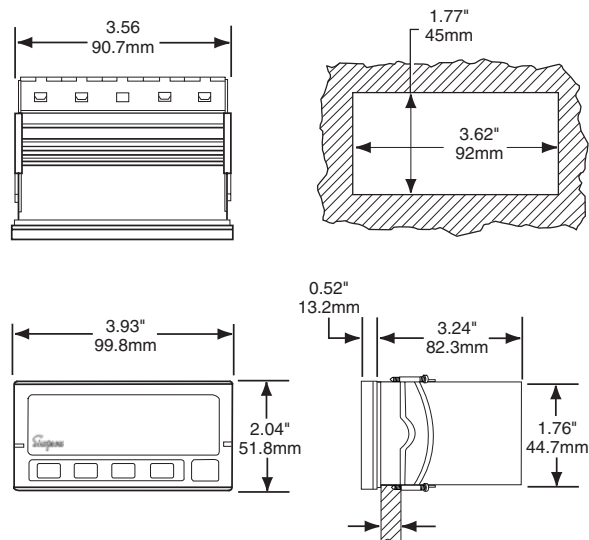
The S663 is a multi-function counter that allows the end user to track the rate (speed) of a product and continuously monitor the product quantity for a given process. The count and rate displays have separate programmable decimal point settings and scaling values.

The S663 is compactly designed and features a standard 1/8 DIN case made of PBT-ABS alloy. Screw terminals are standard for easy installation and removal of the meter.

The counter is powered from 120 or 240VAC and has a non-volatile EEPROM to retain all programming and count information when the power source is removed or interrupted. An optional 12VDC (100mA) excitation output module can provide power for external sensors.

Optional field-replaceable single/dual relay modules enhance the counter from a passive display device to an integral control element for your application. This versatile counter has latching, boundary or timed (0.01 to 599.99 seconds) output modes.

Installation and Panel Cutout



Mounting Requirements

The S660 series 1/8 DIN counters require a panel cutout of 1.77" (45mm) high by 3.62" (92mm) wide. To install the counter into a panel cutout, remove the clips from the side of the meter. Slide the meter through your panel cutout, then slide the mounting clips back on the meter. Press evenly to ensure a proper fit.

Engineering Label Placement

If replacement of the engineering unit label is required, place the tip of a ball-point pen into the small hole at the base of the engineering label in the bezel. Slide the label up until it pops out. Grasp and remove. Slide the new label half the distance in, then use the ball-point pen to slide it down into place.

Specifications

DISPLAY

Type: 6-digit, 7-segment, red LED
Height: 0.56" (14.2mm)
Decimal Point: User-programmable
Count Direction: "+" indication implied, "-" indication displayed
Display Range: -99,999 to +999,999
Output Indicators: 1 and 2

POWER REQUIREMENTS

AC Voltages: 120, 240VAC, $\pm 10\%$
Power Consumption: 3VA

INPUT RATINGS

Current Sinking: 10K Ω 5% Resistor pull-up to (9.0 - 16VDC) $\pm 10\%$
Current Sourcing: 5.1K Ω 5% Resistor pull-down to common
Minimum Pulse Width: $\sim 5\mu s$

Low Pass Filter: $< 200\text{Hz}$
Low Bias: VLT = $1.6\text{V} \pm 10\%$
VUT = $3.6\text{V} \pm 10\%$
High Bias: VLT = $5.0\text{V} \pm 10\%$
VUT = $7.0\text{V} \pm 10\%$
Count Rate: 20KHz (Pulse Max)
5KHz (Quadrature X4 Max)

Maximum Voltage Input

A, B, and User: 30VDC (Max)

INPUT

User Input: (Rate channel reset) Count on the rate channel is reset when the User Input is pulled low.
Standard Input: VLT $\leq 0.2\text{VDC}$ guaranteed low, VUT = 3.0VDC (max)
Quadrature Input: VLT = 0.9VDC
VUT = 3.15VDC (max)

ENVIRONMENTAL

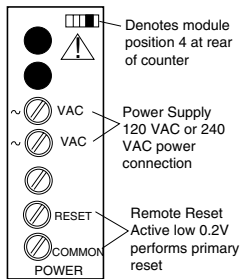
Operating Temp.: 0°C to $+40^\circ\text{C}$
Storage Temp.: -10°C to $+60^\circ\text{C}$
Relative Humidity: 0-80% for temperatures less than 32°C , decreasing linearly to 50% at 40°C
Ambient Temperature: 25°C
Temp. Coefficient (per $^\circ\text{C}$): $\pm 100\text{PPM}/^\circ\text{C}$
Warmup Time: 15 minutes

MECHANICAL

Bezel: 3.93" x 2.04" x .52"
(99.8mm x 51.8mm x 13.2mm)
Depth: 3.24" (82.3mm)
Panel Cutout: 3.62" x 1.77" (92mm x 45mm)
Case Material: PBT-ABS
Weight: 9oz (255.1g)

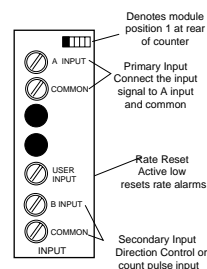
Mode	Range (implied scale)	Typical Update Period	Minimum Input Frequency	Maximum Input Frequency	Display Resolution
0	mSec (Hz x 1000)	1.0 sec	1Hz	20KHz	0.001Hz
1	Sec (Hz)	0.5 sec	2Hz	20KHz	1Hz
2	Min (Hz x 60)	3 sec	20 Counts/Min	1.2 Million Counts/Min	1 Pulse per Minute
3	Hr (Hz x 3600)	90 sec	40 Counts/Hr	3.0 Million Counts/Hr	1 Pulse per Hour

Wiring Diagram



AC Power Module

Power Module: The AC power module allows the S663 to be operated from standard 50/60Hz line power. The power module will be configured as 120 or 240VAC per markings on the back panel. Ensure the input rating of the supply matches your line voltage. The power supply module has provisions for a hard-wire Count Reset. This control can be a switch, relay contact or solid state device. The reset circuit is independent of the power circuit.



Standard Input Module

Note: The input boards are designed so that selecting sourcing or sinking is based on the type of sensor that is being used. If a PNP (sinking) sensor is being used, set the input board for sinking also (switches 3 and 6 = OFF). If channel B is not used, default settings for switch positions 1 through 3 should be selected.

The Input module also provides for a user input signal. On the S663, this input serves as a display hold. While active, the rate value shown on the display is "frozen." Internal measurements and output controls continue to operate.

Input Module: The DIP switch SW1 is used to set up the counter to conform to the electrical characteristics of the sensor or signal being detected. Switch positions 1-3 configure channel B, while switches 4-6 configure channel A. These switches select bias (threshold voltages), low pass filter (enable/disable) and sensor type (sink or source). Refer to the sensor's documentation for related information.

Programming

Menu Category	Parameter Name	Choices/Format	Description
	PASS	000 *	Password Entry and Verification
	ACCESS <—	—> dEn Ed	Password Fail <i>Appears if incorrect password entered</i>
	CHPASS	000	Password Change <i>Appears if correct password entered. 000 = password protection disabled. 001-099 = secures all parameters. 100-999 = enable SPs/ ResPos access in display mode.</i>
Input Setup	A CHAn	uP * dotn QuAd r QuAd	Chan A Mode Select count mode of A channel.

*Default Setting

Programming (Cont'd)

Menu Category	Parameter Name	Choices/Format	Description
Input Setup	b CHAn	d r * uP dobn	Chan B Mode Select count mode for B channel. Note: If A channel set to QuAd or r QuAd , this item is not accessible.
Count Setup	PrESCL	1.0 * 0.1 0.01 0.001	Prescale Set prescaling multiplier.
	SCALE	0 1.0000 *	Scale Set Display Value scaling multiplier. Values: 9.9999 to 99.9999.
	Cnt dP	000000 * 000000. 00000.0 0000.00 000.000 00.0000 0.00000	DP Display Value 1 (Count) Decimal Point location. Affects appearance of RstPos and any associated set point parameters.
rate setup	mModE	nn SEC SEC * nn n Hz	Rate Mode Defines the pre-scaling and sampling interval for frequency computation.
	rESCL	0 1.0000 *	Scale Set Display Value 2. Values: 9.9999 to 99.9999.
	rAt dP	000000 * 00000.0 0000.00 000.000 00.0000 0.00000	DP Display Value 2 (Rate) Decimal Point location. Affects appearance of Offset and set point parameters.
	oFFSEt	000000 *	Rate Offset Set Display Value 2 (Rate) scaling offset. Values: -99999 to 99999. A decimal point will appear according to user-programmed Rate DP position.
OPUT 1 SETUP	mModE 1	d SPbL t, nNEd LAtCH * bound	Output 1 Mode Set the mode of operation for Output 1. Can be disabled, timed, latched or boundary mode.
	SrC 1	Cout * rAtE	Output 1 Source Select which Display Value to be used for output 1 comparisons/matchpoints. See also SP1 and SP2.
	t, nNEd <— LAtCHEd <— SP 1:Lo <—	—> At SP 1 —> At SP 1 * —> SP2:Hi	Output 1 Bindings Reminder message indicates which and how the set points are used for comparison. Which message is displayed is determined by the Output 1 Mode selected.
	dELAY 1	0 10.00 *	Delay 1 Output 1 delay time. <i>Appears only if Output 1 mode set to timed.</i>
	unt, L 1	rESEt * SP 1 SP2 SP3 SP4 rStPos	Until 1 Output 1 latched until parameter. <i>Appears only if Mmode1 = latch and SRC1 = Count.</i>
OPUT 2 SETUP	mModE 1	d SPbL t, nNEd LAtCH * bound	Output 2 Mode Set the mode of operation for Output 2. Can be disabled, timed, latched or boundary mode.
	SrC2	Cout	Output 2 Source Select which Display Value to be used for Output 2 comparisons/matchpoints. See also SP3 and SP4.

*Default Setting

Programming (Cont'd)

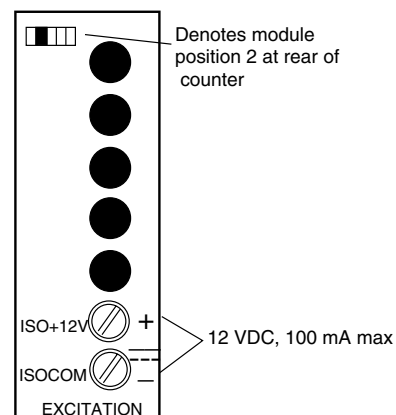
Menu Category	Parameter Name	Choices/Format	Description
Output 2 SETUP	Output 2 Mode <— Latched <— SP3=Lo <—	—> At SP3 —> At SP3 * —> SP4=Hi	Output 2 Bindings Reminder message indicates which and how the set points are used for comparison. Which message is displayed is determined by the Output 2 Mode selected.
	Until L2	RESET * SP1 SP2 SP3 SP4	Until 2 Output 2 latched until parameter. Appears only if Mode2 = Latched and SP2 = Count.
setpnt SETUP	SP1	000010 *	SP1 Set Point #1 Low. Values: -99999 to 999999. Decimal point will appear according to the current DP setting.
	SP2	000020 *	SP2 Set Point #1 High. Values: -99999 to 999999. Decimal point will appear according to the current DP setting.
	SP3	000030 *	SP3 Set Point #2 Low. Values: -99999 to 999999. Decimal point will appear according to the current DP setting.
	SP4	000040 *	SP4 Set Point #2 High. Values: -99999 to 999999. Decimal point will appear according to the current DP setting.
	ResetPos	000000 *	Reset Position Count value is set to this when an Auto or Manual Reset event occurs. Values: -99999 to 999999. Decimal point will appear according to the user-programmed DP position.
Reset SETUP	Reset Mode	At SP1 * At SP2 At SP3 At SP4 At SP1 At SP2	Auto Reset Mode Selects when an auto reset function is to occur. Disabled, at a set point or after output times out. See also the rstpos parameter in the setpnt setup category.
	Reset Btn	ENABLE * At SP1	Reset Button Enable or disable front panel reset button.
	PowerSt	no * YES	Power On Reset Select whether count reset event will occur at power-up.
End			Exit Programming Menu

*Default Setting

Excitation Output

The Excitation Module can supply 12VDC at up to 100mA for external sensors or encoders. This excitation is isolated from the counter internal logic supply.

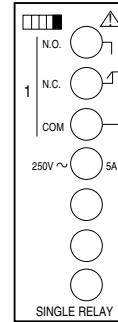
When using sensors or encoders that do not have a signal return, or imply a signal return that is in common with the supply voltage, a common attachment that ties the excitation supply to the logic input common may be required.



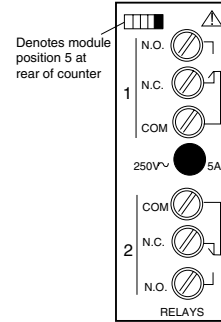
Single and Dual Relay Modules

The Single and Dual Relay modules can activate circuit loads of up to 5 amps at 250VAC. A Form C configuration allows use of normally-open (NO) and normally-closed (NC) circuit action.

Only the output 1 channel is implemented in the single relay module.

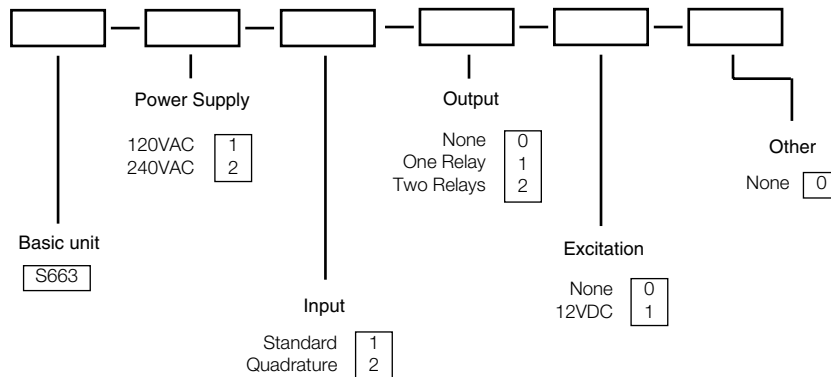


Single Relay Module



Dual Relay Module

Ordering Information



Safety Symbols



The WARNING sign denotes a hazard. It calls attention to a procedure, practice, or the like, which, if not correctly performed or adhered to, could result in personal injury.



The CAUTION sign denotes a hazard. It calls attention to an operating procedure, practice, or the like, which, if not correctly adhered to, could result in damage to or destruction of part or all of the instrument.

Accessories



SE Quadrature Encoder

The cube-style, dual-shaft SE Encoder is available with a choice of five different resolutions (pulses/revolution) to handle a broad range of measuring jobs. When the encoder is affixed to a chariot with measuring wheels and wired to one of the S660 series counters, cut-to-length measurement applications are assured an accurate and reliable reading.



Chariot

The Chariot is used to mount most cube-style quadrature encoders and measuring wheels. Made of anodized aluminum, the chariot includes mounting hardware and selectable pivotal points. Wheels, tires and flexible shaft couplings are sold separately.

Catalog No. 46012

12" Circumference Measuring Wheels with Tires

These 12-inch wheels are precision-machined anodized aluminum with a printed alignment scale. Replaceable tires are available in four different durometers, for use on a wide range of materials including non-marking tires to prevent tearing, damaging or marking up delicate materials.

Pulses Per Revolution

60
100
120
360
600

Catalog Number

SE-060
SE-100
SE-120
SE-360
SE-600

Tire Durometer

80A, black tire; longer service life for plastics, metals
83A, non-marking tire for textiles, medium textures
92A, non-marking tire for plastics, metals, coarse wood
70A, non-marking tire for soft textiles

Catalog No.

46004
46005
46006
46007