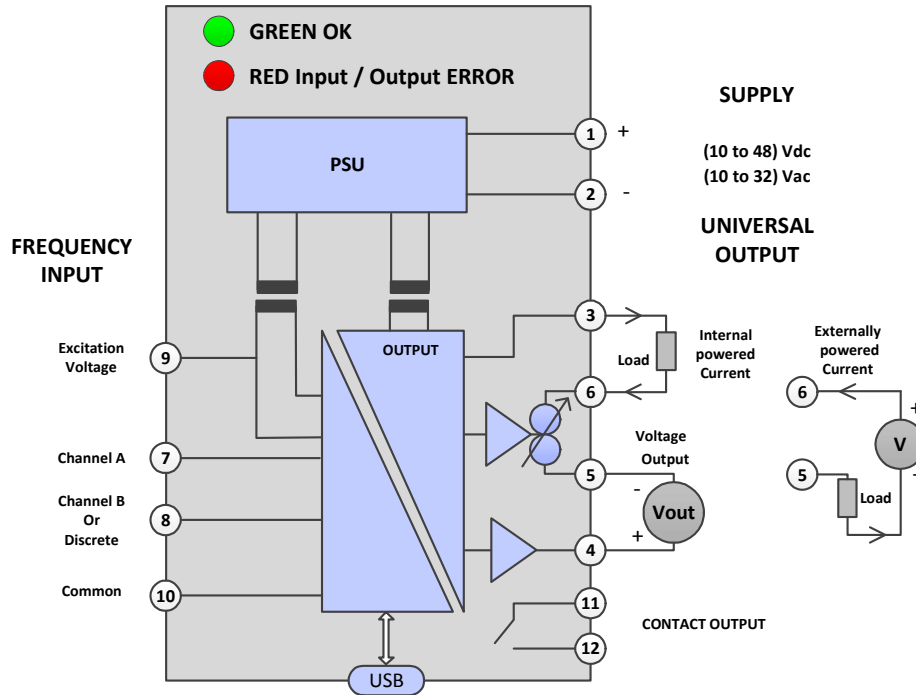




KOS1600F ACONDICIONADOR / PULSO / FRECUENCIA GUÍA DEL USUARIO

KOS1600F ACONDICIONADOR / PULSO / FRECUENCIA : GUÍA USUARIO



Información de Seguridad Importante

1. PARA MÁS INFORMACIÓN CONTACTAR AL PROVEEDOR - CONSULTE LA ETIQUETA DEL PRODUCTO PARA FABRICACIÓN DETALLES DE CONTACTO.
2. La seguridad del sistema que incorpora este dispositivo es responsabilidad del montador del sistema.
3. Este producto es adecuado para entornos de Instalación con grado de contaminación categoría II . El producto está clasificado como "EQUIPO CONECTADO PERMANENTEMENTE", y debe montarse en un carril DIN, dentro de un recinto adecuado que proporcione protección ambiental IP65 o superior
4. El suministro de CC / CA debe derivarse de un suministro local y no de un sistema de distribución.
5. Para mantener los requisitos de CE EMC, los cables de entrada y suministro deben ser inferiores a 30 metros. La unidad proporciona aislamiento entre entrada salida y alimentación. Para mantener el cumplimiento de la CE, los puertos de salida y alimentación deben estar conectados a un circuito que esté conectado a tierra en un punto. También recomendamos, si es posible, que el puerto de entrada también esté conectado a tierra en un punto.
6. Tenga en cuenta que el uso principal del puerto USB es para uso de configuración solo con el dispositivo no conectado. Es posible usar este puerto para el diagnóstico, pero el usuario debe ser consciente de que el puerto comparte el mismo común que el puerto de entrada, por lo tanto, recomendamos el uso de una computadora con batería al interactuar con un dispositivo en vivo. El producto no contiene piezas reparables ni ajustes internos. No se debe intentar reparar este producto. Las unidades defectuosas deben devolverse al proveedor para su reparación..
7. Este producto debe ser instalado por una persona calificada. Todo el cableado eléctrico debe llevarse a cabo de acuerdo con las regulaciones apropiadas para el lugar de instalación. Antes de intentar cualquier trabajo de conexión eléctrica, asegúrese de que todos los suministros estén apagados
9. Se han realizado todos los esfuerzos posibles para garantizar la exactitud de este documento, sin embargo, no aceptamos responsabilidad por daños, lesiones, pérdidas o gastos derivados de errores u omisiones, y nos reservamos el derecho de modificación sin previo aviso.

CONDICIONES MÁ IMAS ABSOLUTAS Superarlas puede causar daños a la unidad -

Supply Voltage	± 50 V dc, ±32 V ac (Protected for over voltage and reverse connection)
Current with over voltage	± 200 mA
Input Voltage	± 50 VDC, 35 V rms between any terminals
Input Current	± 100 mA between terminals
Ambient	Temperature (-30 to 70) °C Humidity (10 to 95) % RH (Non condensing)

RECEIVE AND UNPACKING

Please inspect the packaging and instrument thoroughly for any signs of transit damage. If the instrument has been damaged, please notify your supplier immediately.

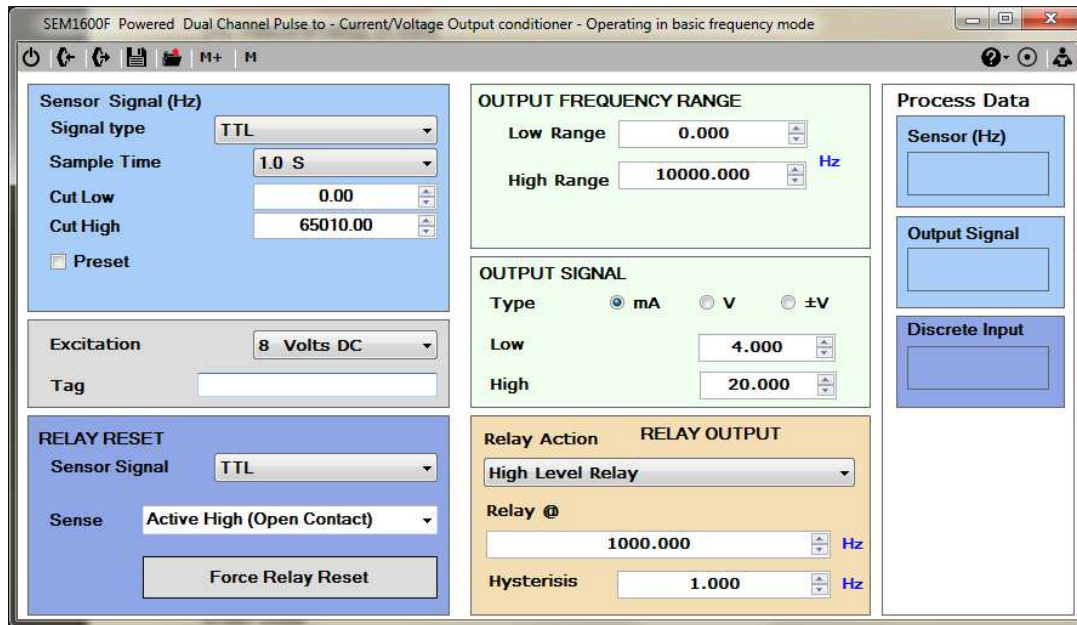
OPERATION MODES

This device has three different modes of operation. The required mode is selected by the user during configuration via the device USB port using USBSpeedLink software. The three modes are as follows:-

Basic Frequency

Operation

- Basic frequency mode offers a single channel frequency to output signal isolated converter with relay or pulse output.
- The second input can be used to reset the relay.
- No process scaling provided, all ranges are set in Hz.
- Three output signal options are provided, mA, Volts and \pm Volts. A typical configuration screen is shown below.



Advanced Frequency Mode

Operation

- Dual channel input with rate totalise maths functions relay and process signal.
- Single channel with rate totalise maths functions relay and process signal. Multi function discrete input.

Functions

Frequency Input(s)

- Frequency -Range (0 to 65000) Hz.
- Signal - TTL, mV, NPN, PNP, Contact, mA, preset. Sensor Excitation voltage 8V or 15 V.
- Functions - Cut low, cut high, preset.

Discrete Input (Single channel Mode only)

- Signal - TTL, mV, NPN, PNP, Contact, mA, preset.
- Sense - Active low or active high
- Reset Actions - total A, Batch, Relay.
- Count Actions - Off, Count Up/halt, Count Down/halt, Count up/Count Down.

Rate

- Two point scaling
- K factor scaling with optional meter factor correction (2 to 15) points.
- Rate units.

Total

- Up Down and halt modes are software or discrete input controlled.
- Scaling - user set time base, divisor and factor variable. Units
- Reset - user set up reset count, down reset count, reset to count.

Functions (Dual channel only) rate

- Rate - Four maths functions acting on rate A and rate B , A+B, A-B, Highest (A or B), lowest (A or B).
- Total - Four maths functions acting on Total A and Total B , A+B, A-B, Highest (A or B), lowest (A or B).

Relay (Dual channel mode)

- Relay Actions - High Level, Low Level, Latched High Level, Latched Low Level,
- Relay Source - Rate A, Rate B, Total A, Total B, Rate Function, Total Function.
- Settings - User configured set point and hysteresis .

Relay (Single channel mode)

- Relay Actions - High Level, Low Level, Latched High Level, Latched Low Level,
- Relay Source - Rate A, Total A.
- Settings - User configured set point and hysteresis .

Pulse Output (Dual channel mode)

- Pulse Actions - Pulse (Total A), Pulse (Total B).
- Settings - User configured Set point and pulse duration.

Pulse Output (Single channel mode)

- Pulse Actions - Pulse (Total A).
- Settings - User configured Set point and pulse duration.

Process Output (Dual channel mode)

- Source - Rate A, Rate B, Total A, Total B, Rate Function, Total Function.
- Settings - User configured range.

Process Output (Single channel mode)

- Source - Rate A, Total A.
- Settings - User configured range.

Output Signal

- Action - mA full range (0 to 20) mA, Volts full range (0 to 10) V, Bipolar volts full range ± 10 V.
- Settings - User configured range. example (4 to 20) mA, (1 to 5) V, (-5 to 5) V.

Tag Number

- User set 6 character tag number.

Batch counter

- Batch counter for diagnostics use. The batch counter will record the number of times the pulse relay has activated

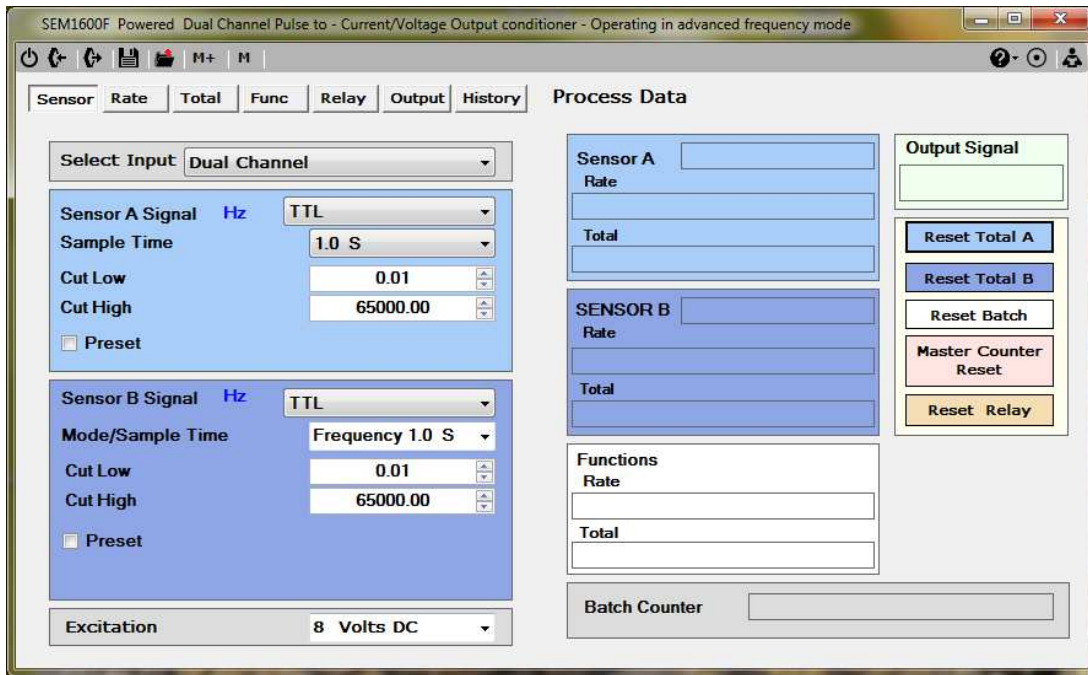
History

- Data available - Power ups, operating time, meter operating time, max frequency.
- Reset - History reset with low level password.

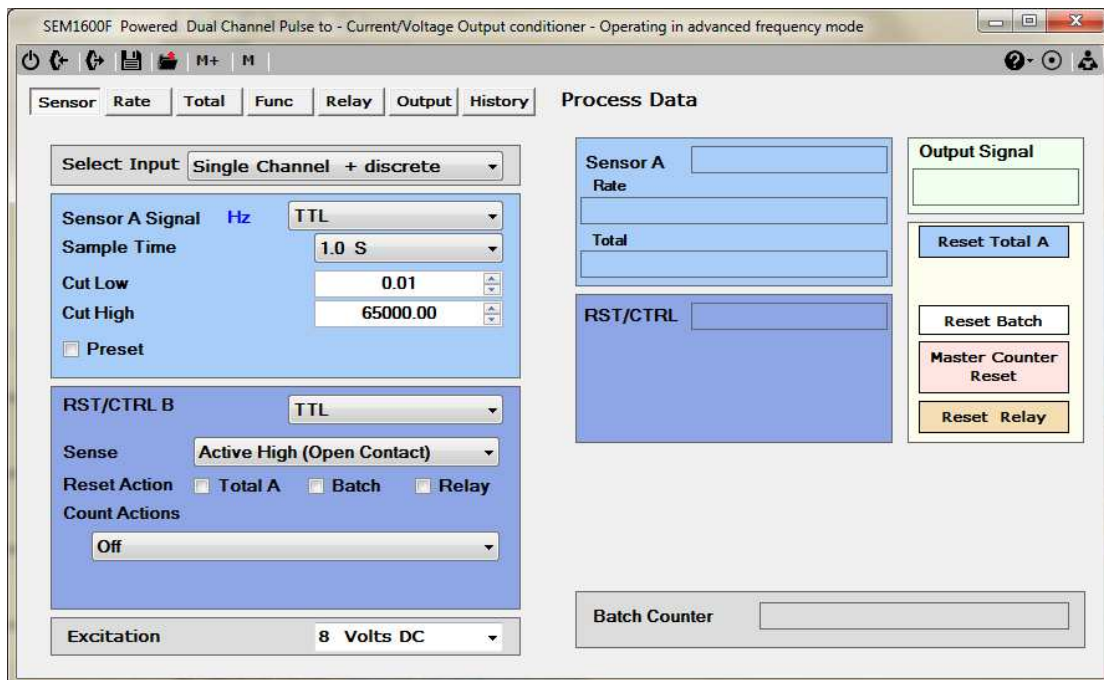
Live Data

- Data - Frequency, rate, total, functions, discrete state, output signal, batch counter, record data.

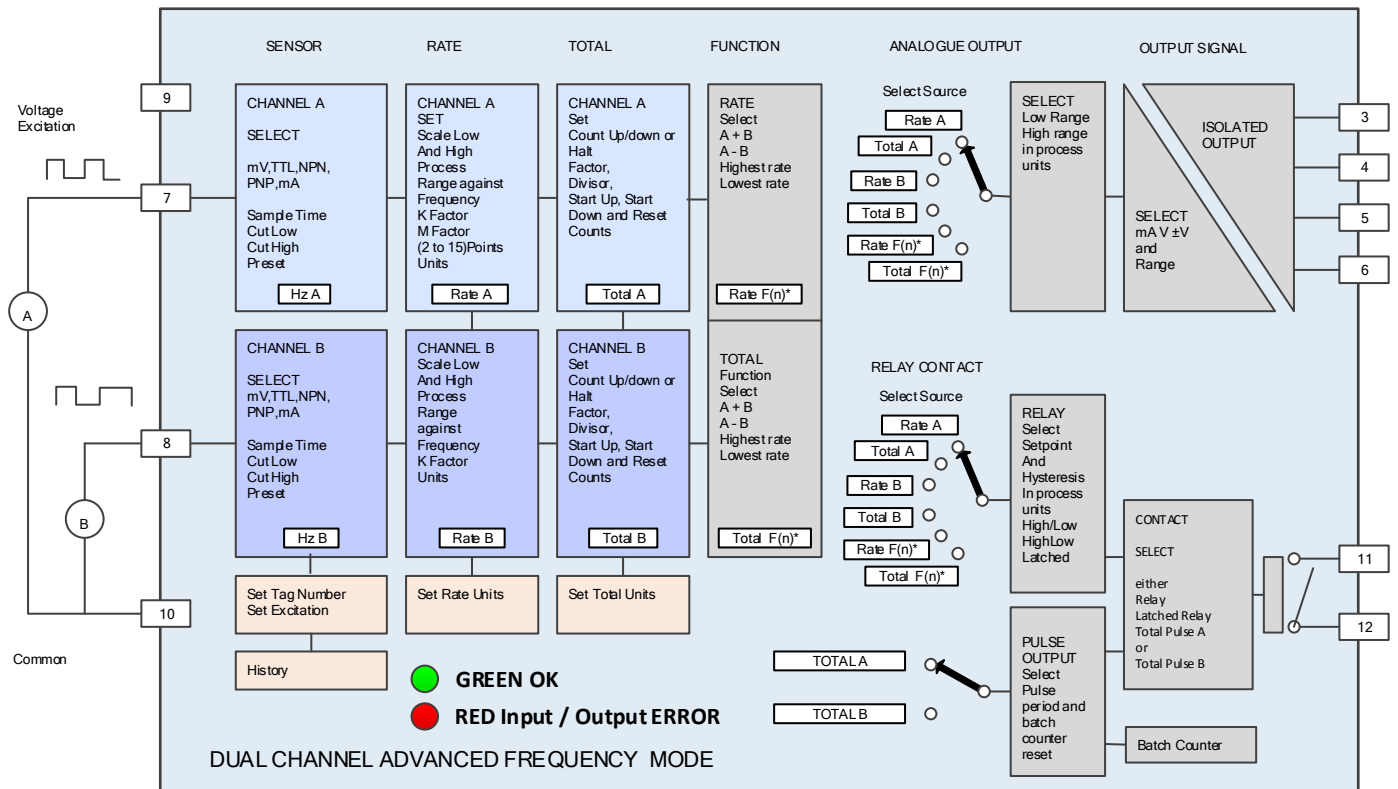
Advanced Frequency Configuration Screen Dual Channel



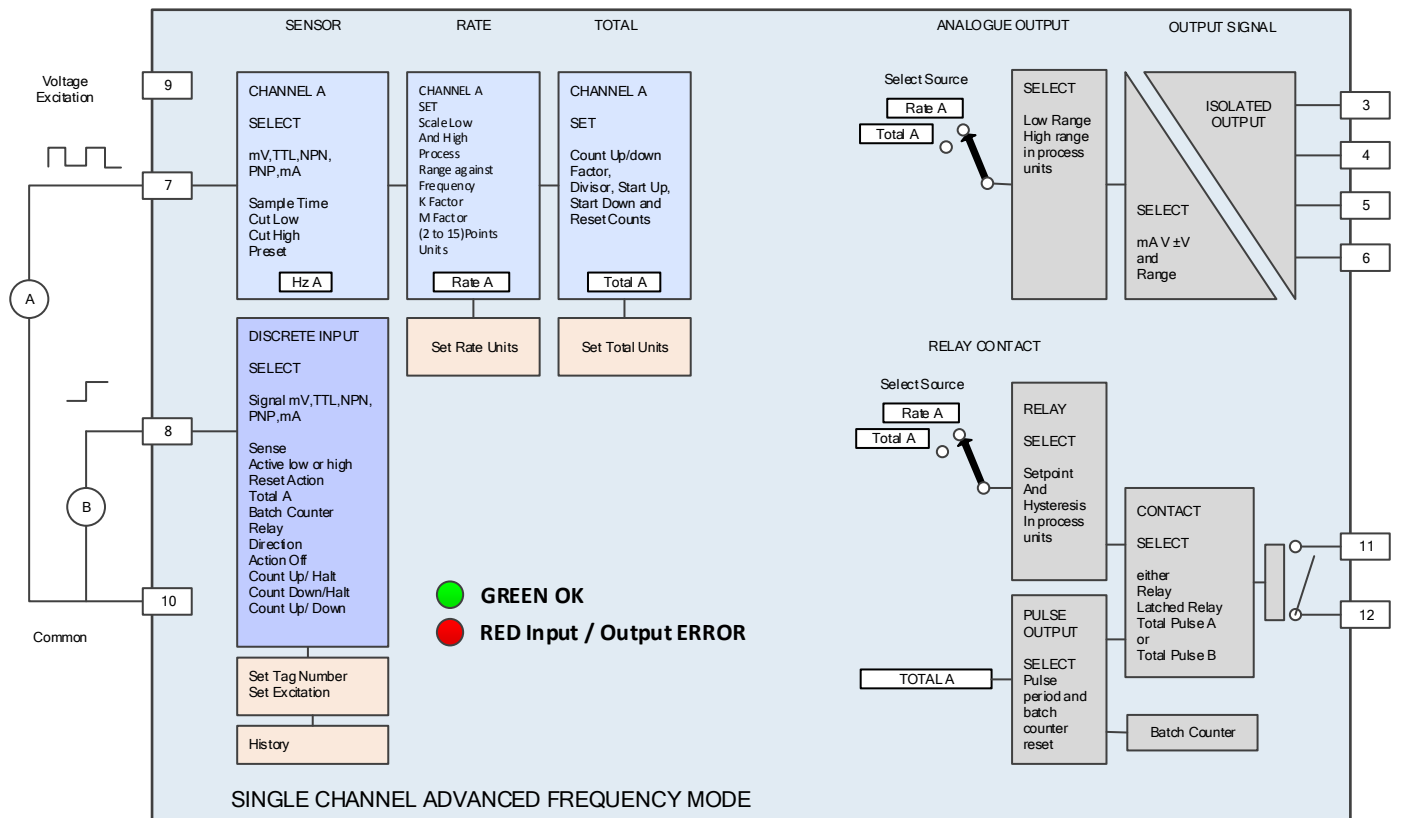
Advanced Frequency Configuration Screen Single Channel



Advanced Frequency Block Diagrams.



$F(n) * = \text{Maths Function}$



Counter Mode

Operation

- Dual channel input with totalise maths functions relay and process signal.
- Single channel with totalise relay and process signal. Multi function discrete input.

Count Input(s)

- Rate (dc to 1000) Hz.
- Signal - TTL, mV, NPN, PNP, Contact, mA, Preset.
- Sensor Excitation voltage 8V or 15 V.

Discrete Input (Single channel Mode only)

- Signal - TTL, mV, NPN, PNP, Contact, mA, preset.
- Sense - Active low or active high
- Reset Actions - total A, Batch, Relay.
- Count Actions - Off, Count Up/halt, Count Down/halt, Count up/Count Down.

Total

- Up Down and halt modes are software or discrete input controlled.
- K Factor scaling. Units.
- Reset - user set up reset count, down reset count and reset to count.

Functions Dual channel only rate

- Total - Four maths functions acting on Total A and Total B, A+B, A-B, Highest (A or B), lowest (A or B).

Relay (Dual channel mode)

- Relay Actions - High Level, Low Level, Latched High Level, Latched Low Level,
- Relay Source -Total A, Total B, Total Function.
- Settings - User configured set point and hysteresis.

Relay (Single channel mode)

- Relay Actions - High Level, Low Level, Latched High Level, Latched Low Level,
- Relay Source - Total A
- Settings - User configured set point and hysteresis.

Pulse Output (Dual channel mode)

- Pulse Actions - Pulse (Total A), Pulse (Total B).
- Settings - User configured Set point and pulse duration.

Pulse Output (Single channel mode)

- Pulse Actions - Pulse (Total A).
- Settings - User configured Set point and pulse duration.

Process Output (Dual channel mode)

- Source -Total A, Total B, Total Function.
- Settings - User configured range.

Process Output (Single channel mode)

- Source - Total A.
- Settings - User configured range.

Output Signal

- Action - mA full range (0 to 20) mA, Volts full range (0 to 10) V, Bipolar volts full range ± 10 V.
- Settings - User configured range. example (4 to 20) mA, (1 to 5) V, (-5 to 5) V.

Tag Number

- User set 6 character tag number.

Batch counter

- Batch counter for diagnostics use. The batch counter will record the number of times the pulse relay has activated

History

- Data available - Power ups, operating time. Reset - History reset with low level password.

Live Data

- Data - Count, total, functions, discrete state, output signal , record data.

Count Mode Configuration Screen Dual Channel

The screenshot shows the SEM1600F software interface for Dual Channel configuration. The window title is "SEM1600F Powered Dual Channel Pulse to - Current/Voltage Output conditioner - Operating in counter mode". The interface includes a top navigation bar with tabs for "Sensor", "Total", "Function", "Relay", "Output", and "History".

Select Input: Dual Channel

SENSOR A: Sensor Signal: TTL, Preset:

SENSOR B: Sensor Signal: TTL, Preset:

Excitation: 8 Volts DC

Process Data:

- Sensor A:** Count, Process Total
- SENSOR B:** Count, Process Total
- Functions:** Total
- Batch Counter:** [Input field]

Output Signal: [Green display box]

Reset Buttons: Reset Total A, Reset Total B, Reset Batch, Master Counter Reset, Reset Relay

Count Mode Configuration Screen Single Channel

The screenshot shows the SEM1600F software interface for Single Channel configuration. The window title is "SEM1600F Powered Dual Channel Pulse to - Current/Voltage Output conditioner - Operating in counter mode". The interface includes a top navigation bar with tabs for "Sensor", "Total", "Function", "Relay", "Output", and "History".

Select Input: Single Channel + discrete

SENSOR A: Sensor Signal: TTL, Preset:

RST/CTRL B: Signal: TTL, Sense: Active High (Open Contact)

Reset Actions: Total A, Batch, Relay

Count Actions: Off

Excitation: 8 Volts DC

Process Data:

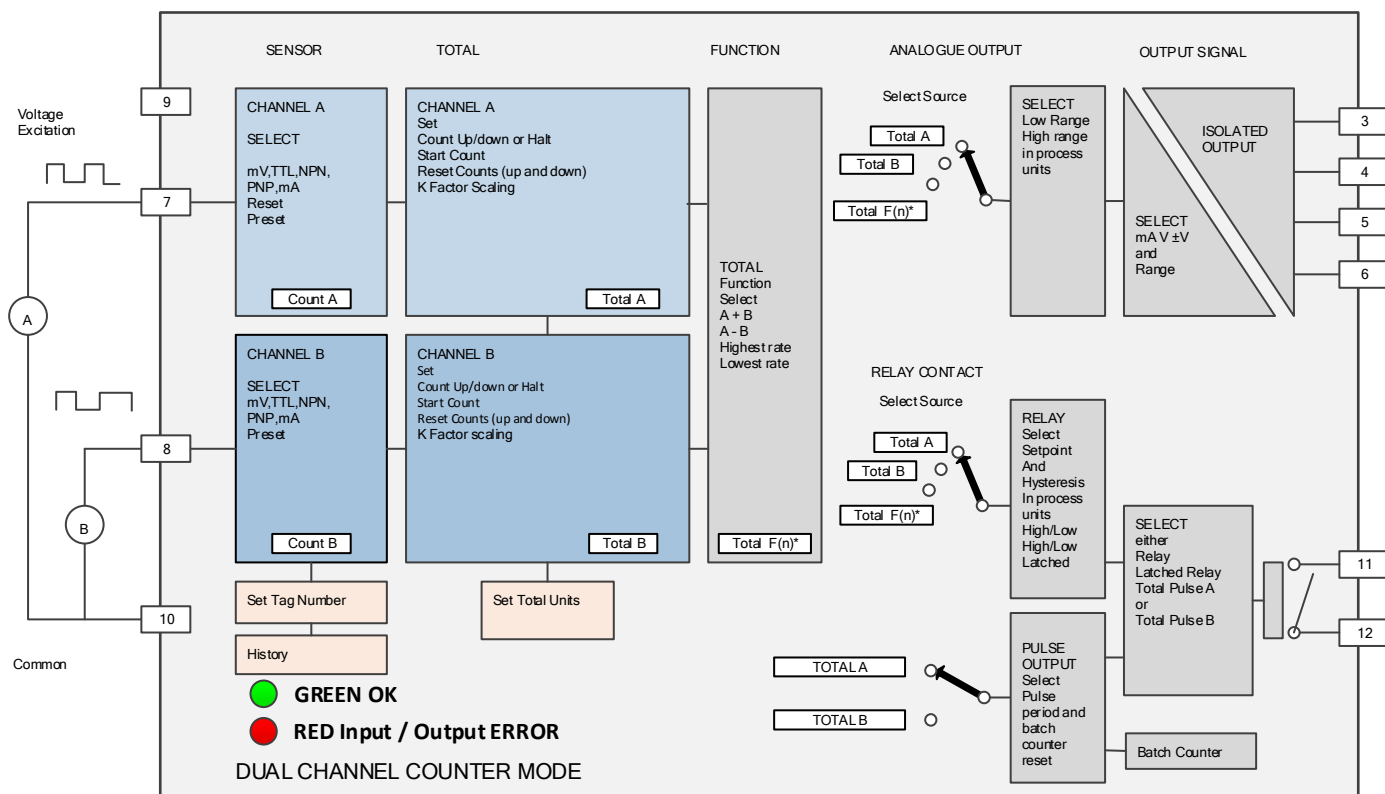
- Sensor A:** Count, Process Total
- DISCRETE INPUT STATE:** [Input field]

Output Signal: [Green display box]

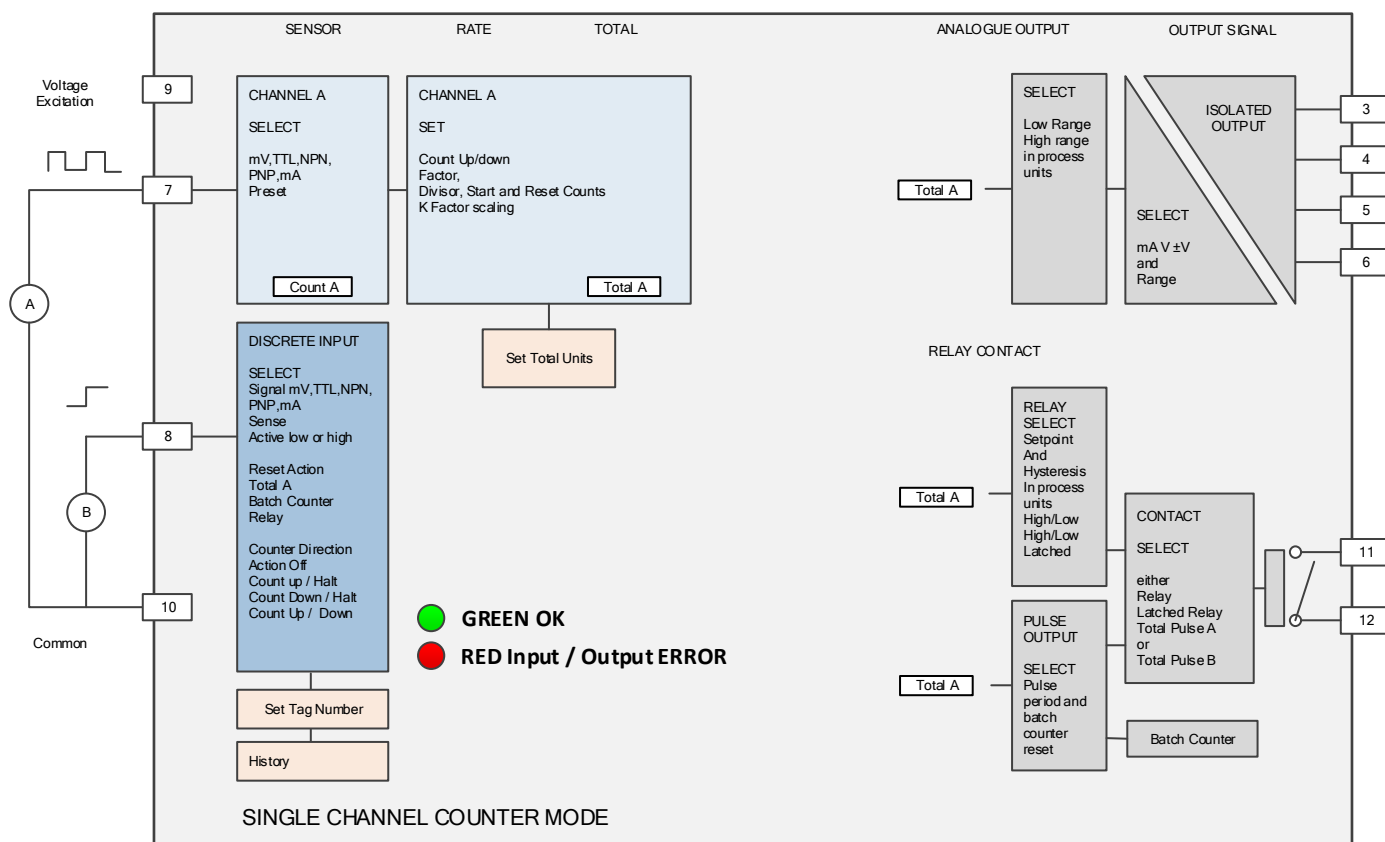
Reset Buttons: Reset Total A, Reset Batch, Master Counter Reset, Reset Relay

Batch Counter: [Input field]

Counter Mode Block Diagrams



$F(n) * = \text{Maths Function}$



CONFIGURATION



The product is configured by connecting to the USB port of a PC running USBSpeedLink software V 2.0.4 or later. The USBSpeedLink software is available from your supplier's web site. Your PC will need to be running windows version XP or later. During configuration the product is powered direct from the USB port, removing the need for additional power. If the user wishes to monitor live process data during configuration, then powered must be applied. Note the input and USB port of the device share the same common therefore care must be taken to ensure isolation between PC and input circuit. This is best achieved by using a battery powered PC.



USBSpeedLink software is provided with detailed help, please click the Help button on the software menu bar to open.

MECHANICAL INSTALLATION

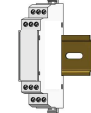


MOUNTING

Screw driver



Ø 3 mm

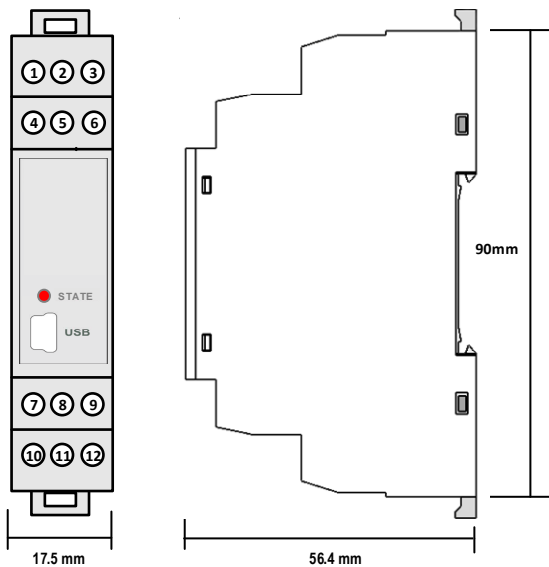


>= IP65

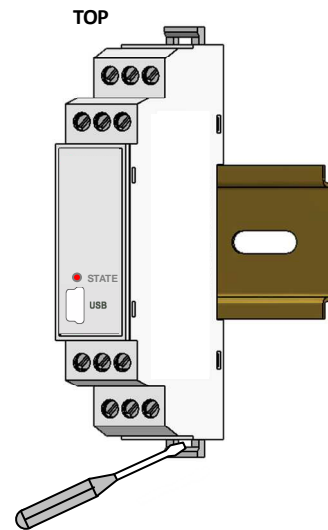


70°C

-20°C



Style DIN 43880 (1 module width)
 Material Polyamide 6.6 self extinguishing
 Terminals Screw terminal
 Cable 2.5 mm Max
 Colour Grey





To fit or release module
 Insert screw driver into slot and lever latch away from body

ELECTRICAL INSTALLATION

⚠️ TURN POWER OFF BEFORE ANY WIRING.

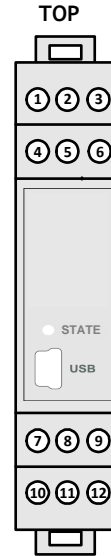
Overview

Screw Terminals	2.5 mm Max
Universal Supply	Terminals (1 & 2)
mA Output	mA source (3 & 6), mA Sink (5 & 6)
Voltage Output	(4 & 5)
Input Common	10
Input A	7
Input B	8
Excitation Voltage	9
Relay Contact	(11 & 12)
Configuration Port	Mini B USB

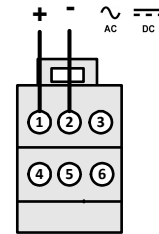
Mini-B

Green = Output Signal in range (-0.1 to 100.1) %
 Red = Input / Output error.



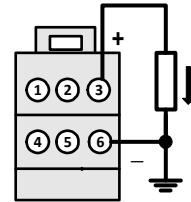
Universal Supply

Type	Local supply
dc Supply	(10 to 48) V dc
ac Supply	(10 to 32) V rms ac
Power	< 1 VA
Protection	Over Voltage with internal 0.5 A self reset fuse.
Cable Run	< 30 Metres to maintain CE compliance.
Cable Requirements	-



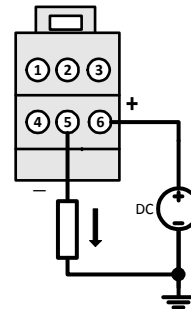
mA Source Output

Type	Current signal, device powered.
Range (full)	(0 to 20) mA
Max Load	750 R
Max Range	21.5 mA
Protection	Over voltage > 33 V
Cable Run	< 1000 Metres Loop must be earthed at one point.
Cable Requirements	Twisted pair or screened cable.



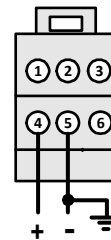
mA Sink Output

Type	Current signal with external power.
Range (full)	(0 to 20) mA
Loop Supply	(10 to 30) V dc
Max Range	21.5 mA
Protection	Over voltage > 33 V
Cable Run	< 1000 Metres Loop must be earthed at one point.
Cable Requirements	Twisted pair or screened cable.



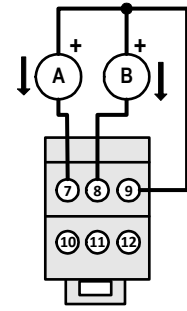
Voltage Output

Type	Voltage or bipolar voltage
Range (full)	(0 to 10) V dc or ± 10.0 Vdc
Max Load Current	± 5 mA
Max Range	10.5 mA
Min Range	0 V or -10.5 V
Protection	Over voltage > ± 15 V
Cable Run	< 30 Metres Loop must be earthed at one point.
Cable Requirements	Twisted pair or screened cable.



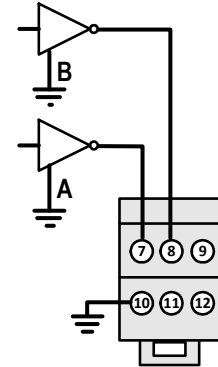
mA Input

Type mA
 Low Trigger < 1.2 mA
 High Trigger > 2.1 mA
 Excitation 8 or 15 V ± 0.5 V dc @ 25 mA
 Impedance 1 K ohm
 Protection Over voltage > ±40 V
 Cable Run < 30 Metres.
 Cable Requirements Twisted pair or screened cable.



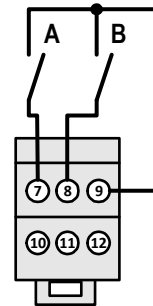
TTL Input

Type Digital
 Low Trigger < 1.0 V
 High Trigger > 2.0 V
 Impedance 100 K ohm
 Protection Over voltage > ±40 V
 Cable Run < 30 Metres.
 Cable Requirements Twisted pair or screened cable.



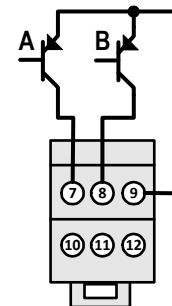
Volt Free Contact Input

Type Volt free contact
 Excitation Current 9 mA @ 8v Excitation, 16 mA @ 15 V excitation
 Low Trigger < 1.2 mA
 High Trigger > 2.1 mA
 Impedance 1 K ohm
 Protection Over voltage > ±50 V
 Cable Run < 30 Metres.
 Cable Requirements Twisted pair or screened cable.



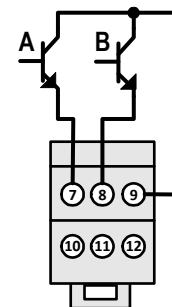
PNP Input

Type PNP transistor
 Contact Current 9 mA @ 8v Excitation, 16 mA @ 15 V excitation
 Low Trigger < 1.2 mA
 High Trigger > 2.1 mA
 Impedance 1 K ohm
 Protection Over voltage > ±50 V
 Cable Run < 30 Metres.
 Cable Requirements Twisted pair or screened cable.



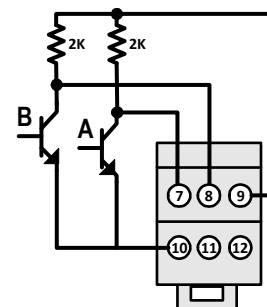
Isolated NPN Inputs

Type Floating NPN transistor floating
 Contact Current 9 mA @ 8v Excitation, 16 mA @ 15 V excitation
 Low Trigger < 1.2 mA
 High Trigger > 2.1 mA
 Impedance 1 K ohm
 Protection Over voltage > ±50 V
 Cable Run < 30 Metres.
 Cable Requirements Twisted pair or screened cable.



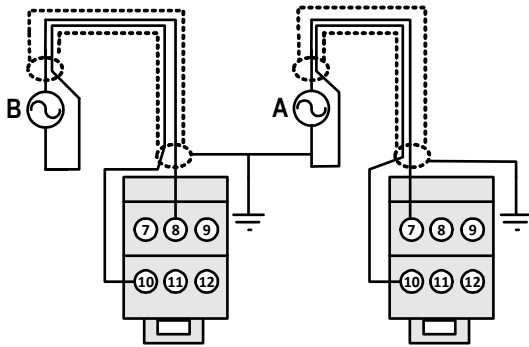
NPN Inputs

Type NPN transistor
 Low Trigger < 1.0 V
 High Trigger > 2.0 V
 Impedance 100 K ohm
 Protection Over voltage > ±50 V
 Cable Run < 30 Metres.
 Cable Requirements Twisted pair or screened cable.

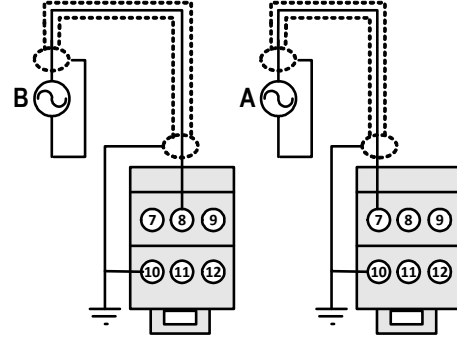


mV (Tacho) Input

Type	Analogue
Low Trigger	< 100 mV
High Trigger	> 200 mV
Impedance	100 K ohm
Protection	Over voltage > ±50 V
Cable Run	< 30 Metres.
Cable Requirements	Screened Cable



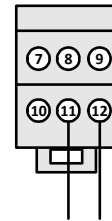
Screened cable



Single core screened cable

Contact

Type	Volt free
Max Voltage	24 V dc
Max Current	0.5 A (resistive)
Cable Run	< 30 Metres.
Cable Requirements	-



IMPORTANT SERVICE INFORMATION

- The device contains no user serviceable parts. Please return any faulty devices to your supplier for repair or calibration.
- If installed correctly this device will never require cleaning. If cleaning is required use a cloth damped with mild water based detergent mixture.

Fault finding

When using this device if possible we advise the user bench tests the system prior to installation. The USBSpeedLink diagnostics tool will assist in this operation. The following notes are aimed at helping the user overcome many of the common pitfalls of installation.

- Always insure all wiring is correct before applying power. The device can be powered without input or output connections. To ensure the supply is connected correctly, check for red or green STATE led, ensure USB is disconnected as the USB port will also powers the device. In the event of the supply exceeding the specified limit the devices fast protection circuit will cut in, shutting down the device. Care must be taken to ensure the supply is clean and no voltage spikes are present.
- If the input sensor signal is not detected by the device check the correct signal type has been set in the configuration software. If available use an oscilloscope to view the sensor signal and ensure the low and high thresholds are being exceeded.
- If the output signal is incorrect, try removing the monitor system and directly connect a current or voltage meter. The most common problems with current loops are :-
 - Open circuit or high impedance connections.
 - More than one grounded devices in the same loop.
 - The loop burden is too high for the device or in sink mode the external supply.