

## ST106 Turbine Pre-Amplifier



### FEATURES

- ▶ *Frequency Compensated*
- ▶ *12V to 28V Operation*
- ▶ *Selectable Gain*
- ▶ *Differential and O/C Output Drivers*

### DESCRIPTION

#### Input Stage

The ST106 Pre-Amplifier is used to raise the small millivolt signals from the Turbine Flow-Meter pick up coils (variable reluctance pickups) to a satisfactory level for transmission over long distances. The ST106 compensates for the very large differences in signal levels which are produced at different turbine frequencies and hence flow rates.

Linking Pins 7 & 8 increases the input gain / sensitivity by a factor of 5.

Selectable gain and careful pulse shaping make this the Pre-Amplifier of choice with low frequency helical meters.

#### Output Stages

A variety of output signal types are available from the Pre-Amplifier, including a 9 V Output (using Q or  $\bar{Q}$  and 0V), an Open Collector Output up to 28V and a fully differential output compatible with a range of flow computers including the Emerson Remote Automation Solutions, FloBoss(TM) S600 Flow Manager and the AMR MicroCube.

The Pre-Amplifier continuously monitors line integrity of the pickup, circulating a few micro-amps, and signalling this to the flow computer when differential output is utilized, enabling full integrity tests, even when the turbine is stationary.

If the coil becomes open circuit, the ST106 puts the Q and  $\bar{Q}$  outputs both high which allows the open circuit failure to be detected by the remote flow-computer, if this feature is supported.

The differential output also allows secure signal transmission over long distances, up to 3000 feet.

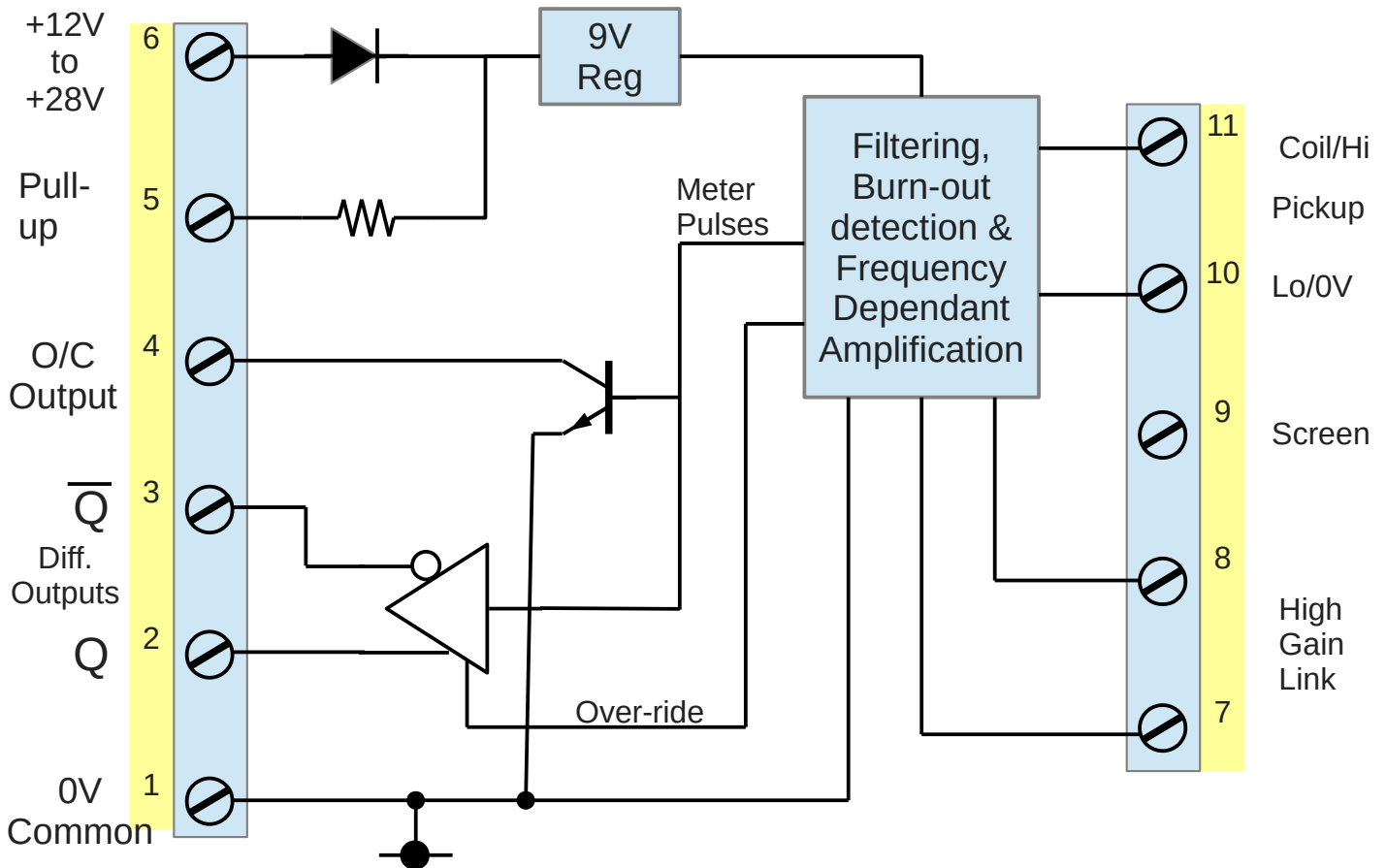


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# TECHNICAL DATA SHEET

## Block Diagram of ST106 Pre-Amplifier



## ST106 Pre-Amplifier Specification

<b>Supply Voltage</b>	= +12 to +28 VDC, (absolute Maximum 32 V)
<b>Quiescent current</b>	= 10 mA
<b>Signal Pulse Current</b>	= 20 mA (making 30 mA total) with a 400 $\Omega$ differential load
<b>Open Collector V &amp; I</b>	= 28 V and 50 mA maximum
<b>Open Collector Pull-up</b>	= 1.65 K $\Omega$ , optional Internal Pull-up
<b>Differential <math>Q, \bar{Q}</math></b>	= 9 V $\pm$ 0.5 V (unloaded)

<b>Input Impedance</b>	= 100 K $\Omega$
<b>Input sensitivity @ 5Hz</b>	= 105 mV
<b>Input sensitivity @ 1KHz</b>	= 155 mV
<b>Input sensitivity @ 5KHz</b>	= 650 mV

**Note Input sensitivity increased 5 times with pins 7 & 8 linked**

<b>Dimensions</b>	= 50 mm by 50 mm by 28 mm (including connectors)
<b>Mass</b>	= 70 grams
<b>Mounting</b>	= M4 Bolt through central mounting hole
<b>Operating Temperature</b>	= -4°F (-20°C) to +158°F (+70°C)

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