## Description

The FE-396-FV is a dual channel micro analogue 2 presentation of the established FE-570-FV, and accepts frequency inputs from proximity detectors, flow meters, toothed wheel, or any electromagnetic or light activated source.
The FE-396-FV will operate from as low as 0.5 Hz up to 20 kHz .

**Specification** Two identical channels as below:-

| | | |
|---|---|---|
| Frequency | range (jumper selectable in 1, 2, 5 steps.) | Min 0- 50 Hz gives 0 to +10 V output.<br>Max. 0- 20 kHz gives 0 to +10 V output. |
| Input | sensitivity (threshold) | 35 mV peak at 100 Hz. (25 mV rms) |
| | trigger control | 25 turn screwdriver control adjusts trigger threshold. |
| | CMR | 40 dB dc-1kHz. |
| | impedance | 20 kΩ typical. |
| | transducer supply | Power to opto pickup, proximity detector or flowmeter. +12V @50mA current limited. |
| | completion | Pull up or hold down resistor positions are available. |
| Conversion | method | Digital period measurement and 10 bit D/A conversion. |
| Linearity | | Better than 0.1% of full scale. |
| Response time (all ranges up to 5 kHz) | 0.5 Hz to 5 kHz | Responds within two periods of input frequency or 1.5 ms whichever is greater. |
| Response time (10 kHz and 20 kHz ranges) | 3 kHz to 20 kHz | Responds within 32 periods of input frequency or 1.5 ms whichever is greater. |
| Digital Averaging | Filter Jumper | Output is average of last 8 sample periods with this jumper fitted. |
| | Prescaler Jumper | Input is prescaled by an additional factor of 16 with this jumper fitted. |
| Output | voltage | Capability ±10 V into 2kΩ, 5000 pF max.<br>Offset < ± 5 mV. |
| Indication | Signal Present LED | Flashes when frequency is too high for selected range. |
| | Tune LED | Intensity of illumination indicates quality of input signal. |

## Physical

| | | |
|---|---|---|
| Temp. Range | 0°C to 50°C operating | |
| Card size | 7” x 2.65”. 2U high format (180mm x 67mm) | |
| Environment | Temp. Range | 0°C to 50°C operating |
| Physical | Card size | 7” x 2.65”. 2U high format (180mm x 67mm). |

| Iss. | Date | Change History |
|---|---|---|
| 1 | 18/07/16 | New Drawing (SMT) |

Signal Indicators.

When flashing: signal frequency is too high for selected range.

When off: signal frequency is too low for selected range.

5Hz
10Hz
20Hz
x10
x100
x1k
Filt.

To set the full scale (10V) output,
fit one jumper only of the set x5, x10, x20
and one jumper only of the set x10Hz, x100Hz, x1kHz.
e.g. x10Hz and x100 select 1000Hz input for 10V output.

Remove the "Filt." jumper for fastest response to changes in the input frequency.

Fit the "Filt." jumper to reduce noise at the voltage output.

R147,148, 150 & 151 to R43 are pull up and pull down resistor positions. These components are not normally fitted.

R150: Channel A Pull Up.
R151: Channel A Pull Down.
R147: Channel B Pull Up.
R148: Channel B Pull Down.

Adjust this control to ensure that the red LED does not flicker

Remove these jumpers to AC couple the input signal to Channel A.

Channel A Full Scale Trimmer. Factory set for +10.00V maximum output volts

Channel A Prescaler.

Fit this jumper to provide maximum averaging of the input signal frequency.

Note that the "Filter" jumper must be fitted for this jumper to be effective.

Channel A

Channel A Signal indicator

Grn.
Red

AC Couple
AC Couple

VR131 O/P Adj. Ch.A

Ch.A Range Jumpers

5Hz
10Hz
20Hz
x10
x100
x1k
Filt.

Prescale Ch.A

R151
R148
R150
R147

Channel B Signal indicator

Grn.
Red

16Mhz
16Mhz

Ch.B Range Jumpers

5Hz
10Hz
20Hz
x10
x100
x1k
Filt.

VR124 O/P Adj.

Prescale Ch.B

Channel B

AC Couple
AC Couple

Adjust this control to ensure that the red LED does not flicker

Remove these jumpers to AC couple the input signal to Channel B.

Channel B Full Scale Trimmer. Factory set for +10.00V maximum output volts

Channel B Prescaler.

Fit this jumper to provide maximum averaging of the input signal frequency.

Note that the "Filter" jumper must be fitted for this jumper to be effective.

Use one or the other oscillator, not both.

| TITLE: FE-396-FV Dual Frequency to Voltage Converter - user diagram | REF: | DRG.No. : 1297 | Issue : 1 | Date : 18th July '16 | Checked |
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