

## Description

The FE-376-IPF is a dual channel AC coupled amplifier with constant current source for transducers with built in electronics commonly known as ICP®. The unit is presented as a printed circuit card with amplifier fine gain controls brought to the front edge of the card. Internal jumpers set gain, filter bypass and ICP current on/off.

8 pole (-48dB/octave) filter setting is by plug-in resistor network.

This amplifier features a unique active current termination option which allows the differential amplifier to reject the interference which may be generated when a transducer has a remote earth connection.

The amplifier may be used with ICP current disabled for general AC voltage amplification and additionally in filtering applications for example for alias protection in sampling systems.

## Specification

**Current source** 2 sources per card.

Level Setting 4 mA.

Compliance Voltage 22V typical.

Noise <0.1 $\mu$ A RMS (DC - 20 kHz).

Activation Jumper select current on/off

Indication 2 green LEDs indicate current flow.

**Active Current Termination** Plug-in sub-module option is able to reject earth line interference for remotely earthed transducers. Typical rejection >40dB.

**Amplifier section** Two identical amplifiers and filters, each individually configurable.

**Gain** Selection Internal jumpers for x1 to x300 0.5% (1, 3, steps).  
Alternative 0 to 50dB (via solder link).  
Vernier Front card edge control for additional x1 to >x3.2 (0 to +10dB).

**Input** Configuration Balanced differential.  
Coupling 1 $\mu$ F and 1 M $\Omega$  (0.16Hz -3dB, 1.04 Hz -0.1 dB).  
(Note that this is not the dominant HP response. See HP Filter)  
Noise 15nV $\sqrt$  Hz @ 1-10 kHz.

**Common Mode** Rejection > 80dB (x10 up) 50 - 500Hz.

**Frequency Range** <1Hz - 50kHz (-3dB).

**Output** Voltage Capability  $\pm$ 10V into 2k $\Omega$ , 5000pF max.  
Offset  $\leq$ 25 mV.

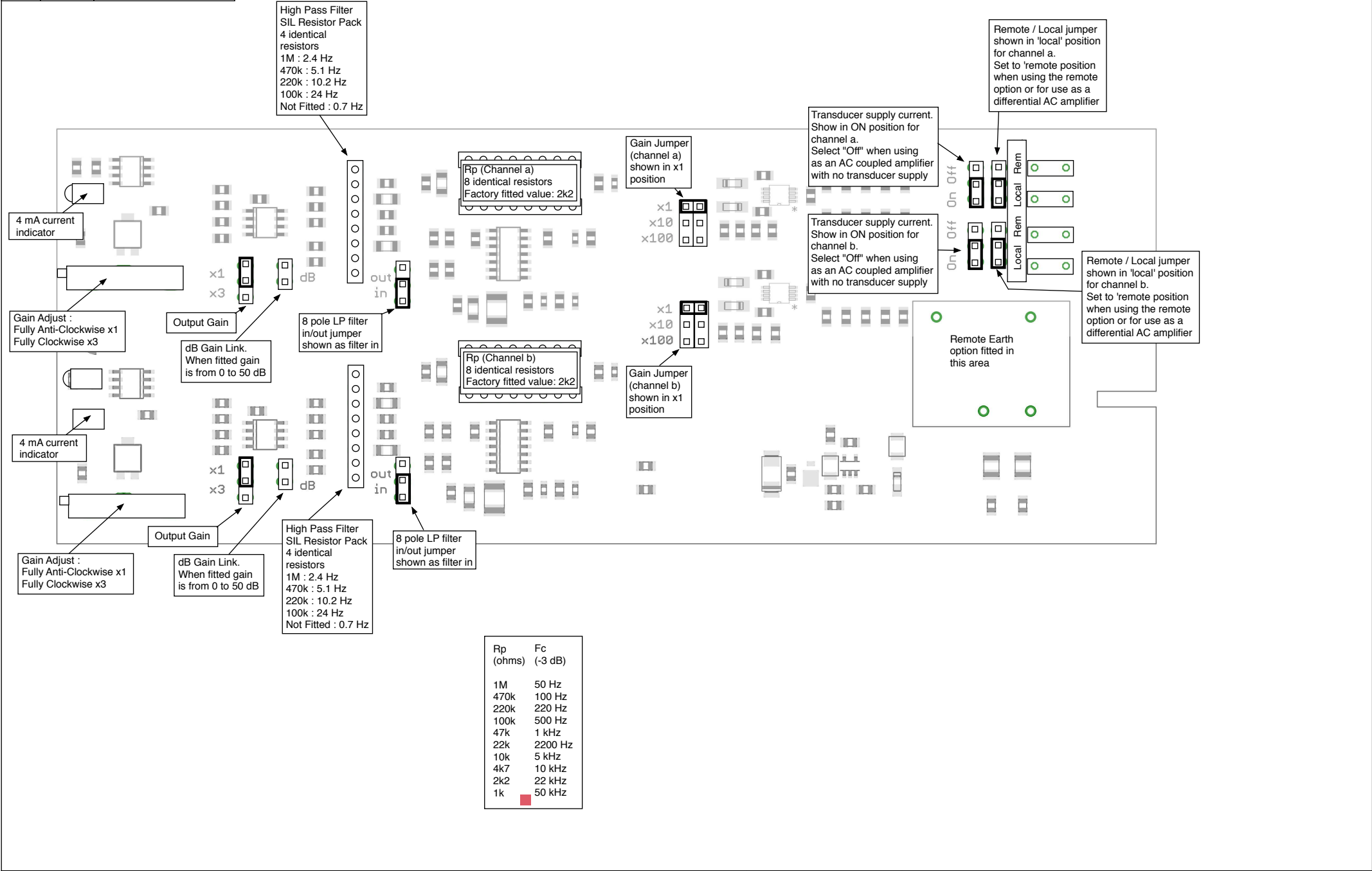
**LP Filter** Type Butterworth 8 pole, preset by plug-in resistor network (50Hz to 50kHz).  
Bypass Filter may be bypassed by jumper link.  
Gain Unity.  
Roll Off 48dB/ octave, 160dB/decade.

**HP Filter** Type Butterworth 2 pole, preset by plug-in resistor network (2.5Hz to 1kHz -3dB).  
Bypass Filter may be bypassed by resistor network removal  
(When bypassed response is single pole <700 mHz -3dB).  
Gain Unity.  
Roll Off 12dB/ octave, 40dB/decade.

## Physical

**Environment** Temp. Range 0°C to 50°C operating.  
**Physical** Card size 7" x 2.65" (180mm x 67mm). Fylde MicroAnalog2 format.

Issue	Date	Change History
1	17/4/18	New Drawing



High Pass Filter  
SIL Resistor Pack  
4 identical resistors  
1M : 2.4 Hz  
470k : 5.1 Hz  
220k : 10.2 Hz  
100k : 24 Hz  
Not Fitted : 0.7 Hz

Rp (Channel a)  
8 identical resistors  
Factory fitted value: 2k2

Gain Jumper  
(channel a)  
shown in x1  
position

Transducer supply current.  
Show in ON position for  
channel a.  
Select "Off" when using  
as an AC coupled amplifier  
with no transducer supply

Remote / Local jumper  
shown in 'local' position  
for channel a.  
Set to 'remote position  
when using the remote  
option or for use as a  
differential AC amplifier

Rp (Channel b)  
8 identical resistors  
Factory fitted value: 2k2

Gain Jumper  
(channel b)  
shown in x1  
position

Transducer supply current.  
Show in ON position for  
channel b.  
Select "Off" when using  
as an AC coupled amplifier  
with no transducer supply

Remote / Local jumper  
shown in 'local' position  
for channel b.  
Set to 'remote position  
when using the remote  
option or for use as a  
differential AC amplifier

Remote Earth  
option fitted in  
this area

Rp (ohms)	Fc (-3 dB)
1M	50 Hz
470k	100 Hz
220k	220 Hz
100k	500 Hz
47k	1 kHz
22k	2200 Hz
10k	5 kHz
4k7	10 kHz
2k2	22 kHz
1k	50 kHz