

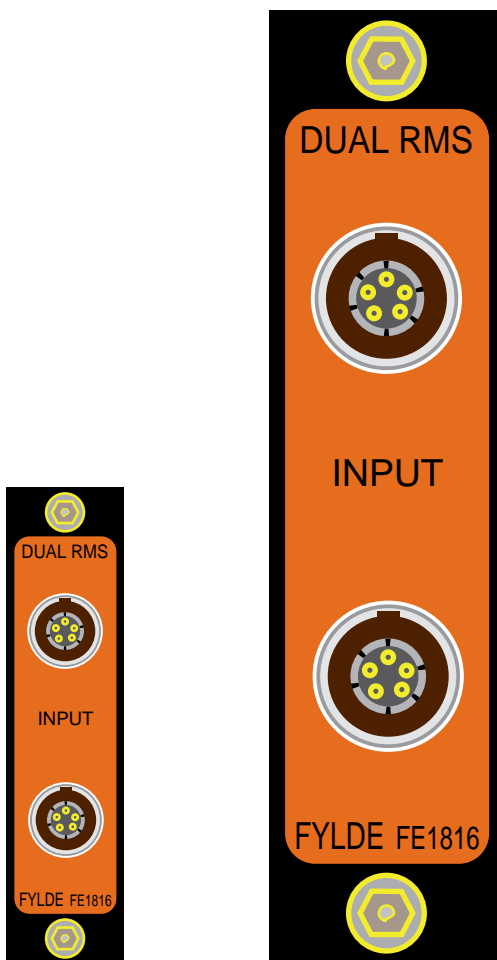
FE-1816 Dual R.M.S. to D.C. Converter

This module measures the RMS amplitude of input waveforms. An input buffer with optional A.C. coupling is provided, with an adjustable input attenuator which may be set by resistor change to adapt the input circuit to differing input voltage ranges. The input slew rate of 1.8 V/ μ s dictates the rise time and allows fast pulse train type inputs to be monitored.

The true RMS section converts the output of the buffer into the equivalent d.c. in the form of a current. A voltage is developed by choice of a conversion resistor and fed to the output buffer amplifier. The conversion gain stage typically provides 1V d.c. for 1V R.M.S. adjustable via the resistor change. Accuracy is ± 5 mV $\pm 0.5\%$ of reading $+0.01\%$ / $^{\circ}$ C.

The conversion accuracy also depends upon the deviation of the input peak value from the r.m.s value (Crest Factor). Crest factors of 3, reduce the reading by 0.1% and a crest factor of 7 by 1%.

Bandwidth is from 15.9 Hz to 50 kHz, and may be adjusted to limit noise by choice of resistor value for the output filter. An output offset of ± 2.5 V may be developed by use of a multi-turn potentiometer.



actual size

2X actual size

Converter	Input	Impedance	100 k (adjustable via resistor change)
		Coupling	a.c. 1 pole -3 dB @ 15.9 Hz optional
		Range	minimum 1 V R.M.S
		Offset Voltage	typical 0.2 mV, max 1 mV.
		Slewing Rate	1.8 V / μ s
		Attenuator	solder lugs arranged to attenuate higher level inputs
	Conversion	Gain	1 V d.c. for 1 V R.M.S. adjustable via resistor change
		Accuracy	+5 mV +0.5% of reading + 0.01% / degree C
		Crest Factor Error	1 to 2, as conversion accuracy. 3, - 0.1% of reading. 7, - 1%reading.
	Frequency response		- 3 dB 15.9 Hz to 50 kHz.
	Rise Time		25 ms in standard configuration (Rf=1 k)
	Output	Volts	5 V into 20 k load
		Impedance	<1 (wrt 0 V)
Slew Rate		0.15 V/ μ s max.	
Offset		max. +5 mV + 0.2 mV/ °C over range -25 to +85 °C Continuously variable +2.5 V to - 2.5 V	
Noise		<10 mV pk-pk DC to 5 kHz	
Ripple		Approx 0.1% @ 400 Hz as standard, (Rf=1 k)	
Filter		Single pole, adjustable via resistor change	
Capacity Load		Stable with capacity load up to 0.01 μ F	
Environment	Temperature	Range	-25 to +85 °C operating
	Altitude		3.8 to 108 kPa
	Vibration		MIL-STD-810B Fig. 514-2
	Acceleration		100 m/s ² any axis
	Shock		1000 m/s ² pk 1/2 sine 6 ms.
Connectors	Input		5 pin socket LEMO type EHG 0B305