

### ABC 812 SQUARE ROOT EXTRACTOR

**INPUT** Any signal level above 400mV span, plus 0 to 10, 4 to 20, 1 to 5mA DC. 0 to 1, 0 to 10, 2 to 10, 1 to 5V DC.

**OPERATING RANGE & ACCURACY** 1% to 100% Input—that is 10% to 100% output the accuracy of linearisation will be  $\pm 0.25\%$  of maximum signal.

If zero cut off is not used the output signal will respond down to an input signal level of +0.3%, but accuracy below input of 1.0% is not stated.

**ZERO CUT OFF OPTION** When the input signal reaches the cut off level the cut off operates and the output goes to constant value of zero output.

Normally preset at 0.5%.

A 15 turn potentiometer can be provided to set input signal cut off in span 0 to 2%. Suffix Z.

**OUTPUT** Any standard signal. Input and output do not have to be the same signal. Maximum output voltage 40V under any condition.

**INPUT IMPEDANCE** 1M ohms for voltage.

**ISOLATION** 1000V RMS  
Input/Output/Power Supply

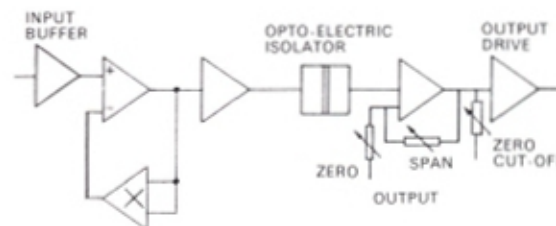
**SPEED OF RESPONSE** 5% to 95% response in approx. 1 second.

**THERMAL STABILITY**  $\pm 0.02\%$  per degree C.

**SERIES MODE REJECTION** 0.2% error for 50% span at 50Hz

**COMMON MODE REJECTION** 0.2% error for 250V RMS

**POWER SUPPLIES** AC—110V, 220V, 240V  $\pm 20\%$   
50/60Hz;  
DC—24V  $\pm 2.5V$



ROOT EXTRACTOR

### INPUT DATA

Source and Signal see individual specification.

Controls Zero  $\pm 25\%$  and Span  $\pm 50\%$  accessible by screw-driver from front by 15 turn potentiometers.

Trip Point Adjustment.

Infinitely variable by 15 turn potentiometers.

Trip Point Repeatability  $< 0.2\%$  Span.

Deadband on Trip 1.0% Span.

POWER 110V  $\pm 20\%$  50/60Hz

SUPPLIES 220V  $\pm 20\%$  50/60Hz

240V  $\pm 20\%$  50/60Hz

DC Models

24V  $\pm 2.5V$  DC

Consumption typically 3 Watts.

INPUT Typically  $> 1M\Omega$  for voltage.

IMPEDANCE 400mV for current

### OUTPUT DATA

Relay Specification DPDT for each trip point. Contacts rated at 250V 2AMP 100VA AC. Resistive load.

Relay Function Selected by internal link. Normally set to de-energise relay on operation of trip.

Relay Status Indicated by 150,000 hour rated LED for each trip. Coloured red.

SIGNALS 0 to 10mA into  $2400\Omega$  maximum  
4 to 20mA into  $1200\Omega$  maximum  
1 to 5mA into  $4800\Omega$  maximum  
Overrange limit to 40V DC open circuit output.

POWER ON Indicator

### CONDITIONS

ISOLATION 1000V RMS Input to Output and Power Supply by opto-electric devices.

AMBIENT Working  $-20$  to  $+60^\circ\text{C}$

TEMPERATURE Storage  $-40$  to  $+70^\circ\text{C}$

HUMIDITY 5 to 95% RH

VIBRATION 1g-15Hz to 150Hz has no effect

### ELECTRICAL STANDARDS

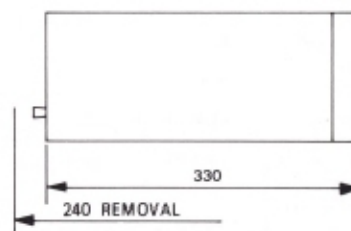
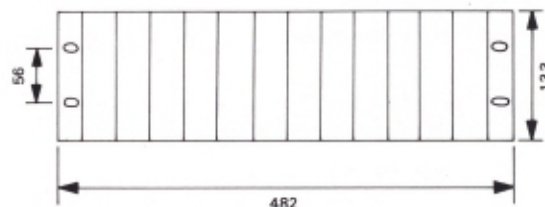
INSULATION 1000V. 2000V for  $20\mu$  Second.

FUSING Power supply fused.  
Spare fuse on PC Board.

### MOUNTING

#### INTERNATIONAL 19" RACK

Up to 12 Amelec AB units can be housed in one 19" rack section. The rack section to Amelec design is made of precision extruded aluminium and fits into any 19" International rack. It is recommended the wiring or cabling be carried out in plastic trunking.



WEIGHT Typical 1.5kg

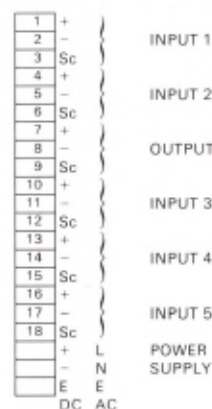
POSITION Any position

### TERMINATIONS

TERMINATION For conductors up to  $2.5\text{mm}^2$

MODELS ABT and ABM See individual specification.

MODEL ABC See below.



NOTE:-  
INPUTS 2, 3, 4, 5  
APPLY TO  
ABC 813  
ABC 814  
ABC 815 ONLY

### PERFORMANCE

#### ABT-TRIP AMPLIFIERS

Response Time < 200 milliseconds.  
Series Mode Rejection < 0.1% error 50Hz input at 5% span amplitude.  
Common Mode Rejection < 0.1% error for 250V RMS.  
Temperature effect on Trip Point < 0.01%/°C or 7µV/°C whichever is greater.  
Supply Voltage on Trip Point < 0.01%/°.

#### ABC-ARITHMETIC UNITS

SERIES MODE < 0.2% error for 50Hz at 50%  
REJECTION Span  
COMMON < 0.2% error for 250V RMS  
MODE  
REJECTION

#### ABM-TRANSMITTERS

Calibration Accuracy ±0.1% Span.  
Output Ripple < 0.3% RMS of FSD.  
Stability Over 24 hours ±0.05% Span. Over 1 year ±0.1% Span.  
Response Time < 400 milliseconds for within 1% of final value for change of input from 10 to 90% FSD.  
Temperature Effect on Zero < ±0.02%/°C.  
Temperature Effect on Span < ±0.01% Span/°C or < ±0.02°C Span/°C whichever is greater.  
Temperature Effect on Suppression/Elevation < ±0.02% of supp./elev. per °C.  
Series Mode Rejection < 0.1% error 50Hz input at 50% span amplitude.  
Common Mode Rejection < 0.1% error for 250V RMS.  
Supply Volts Effect < 0.01%/°.  
Output Overrange Maximum output 40V DC under any condition.  
For Thermocouple units, Cold Junction Compensation Variations are:  
CC, IC, CA 1.5µV/°C Deviation from  
PPR 0.7µV/°C 20°C  
Maximum error for 0 to 70°C Variation CJ  
= 40µV for CC, IC, CA, = 18µV for PPR.