AMELEC
SIGNAL CONDITIONING

# Series ABM 710
## Thermocouple and emf

The 710 series accepts inputs from all BSS 4937 and ISA, JKRT and pallaplat thermocouples.

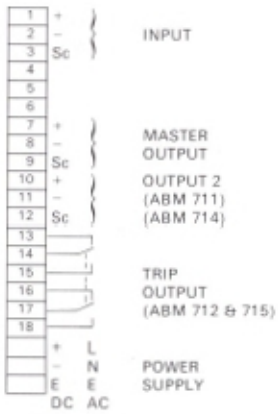
Normal minimum span is 5mV, lower ranges available.

All thermocouple input models have automatic Cold Junction compensation.

Output linearised with temperature available option G.

Two isolated outputs can be provided for computer and complex control systems.

| | |
|---|---|
| CALIBRATION ACCURACY | ±0.1% Span |
| INPUT SPAN | 5mV minimum to 120mV maximum customised |
| SOURCE RESISTANCE | 1000Ω Maximum for specified performance |
| ZERO SUPPRESSION | 400% of Span |
| INPUT IMPEDANCE | >1MΩ |
| OPEN CIRCUIT RESPONSE | UP OR DOWN SCALE DRIVE SELECTION |
| OUTPUT SIGNALS | 0 to 10, 4 to 20, 1 to 5mA DC<br>0 to 1, 0 to 10, 2 to 10, 1 to 5V DC |
| POWER SUPPLY | AC 110, 220, 240V ±20% 50/60Hz<br>DC 24V ±2.5V |
| ISOLATION | 1000V RMS Input/Output and Power Supply |
| AMBIENT TEMPERATURE | Working −20 to +60°C |




*TERMINAL DIAGRAM*

### MODEL ABM 710

Thermocouple input
Output any standard signal

### MODEL ABM 711

Thermocouple input
Provides two outputs each of any standard signal, buffered from each other and both isolated from input

### MODEL ABM 712

Thermocouple input
Combined Transmitter and Trip Alarm
Converter output any standard signal
Trip Alarm output is DPDT Relay 250V 2A 100VA AC Resistive
Fitted with LED relay status indicator

### MODEL ABM 713

emf input version of ABM 710

### MODEL ABM 714

emf input version of ABM 711

### MODEL ABM 715

emf input version of ABM 712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## OPTIONAL EXTRAS

| Description | | Suffix Code |
|---|---|---|
| Input Injection Jack | | J |
| Output Test Point | | P |
| Linearised output | ABM 710–TYPE K | G1 |
| | ABM 710–TYPE J | G2 |
| | ABM 710–TYPE R/S | G3 |
| | ABM 720–RTD | G5 |

## ORDERING INFORMATION

To order Signal Transmitters please give the following details:

1. Model No.
2. Power Supply–Voltage and Frequency
3. Input Range and source
4. Setting of open circuit drive–normally set to drive up scale
5. Setting of Relay Function for trip–normally set to de-energise on trip
6. Any extras to code
7. Output signal required

Order code example:

| | |
|---|---|
| ABM 712 | 110V 50Hz Power Supply |
| | Panel Mounting |
| | 0–400°C CA Thermocouple BS 4937 |
| | Open Circuit drive up scale |
| | Relay de-energised trip |
| | Output 4–20mA DC |

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## INPUT DATA

Source and Signal see individual specification.

Controls Zero ±25% and Span ±50% accessible by screwdriver 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 SUPPLIES | 110V ±20% 50/60Hz<br>220V ±20% 50/60Hz<br>240V ±20% 50/60Hz<br>DC Models<br>24V ±2.5V DC |

Consumption typically 3 Watts.

| | |
|---|---|
| INPUT IMPEDANCE | Typically >1MΩ for voltage.<br>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 2400Ω maximum<br>4 to 20mA into 1200Ω maximum<br>1 to 5mA into 4800Ω maximum<br>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 TEMPERATURE | Working −20 to +60°C<br>Storage −40 to +70°C |
| HUMIDITY | 5 to 95% RH |
| VIBRATION | 1g–15Hz to 150Hz has no effect |

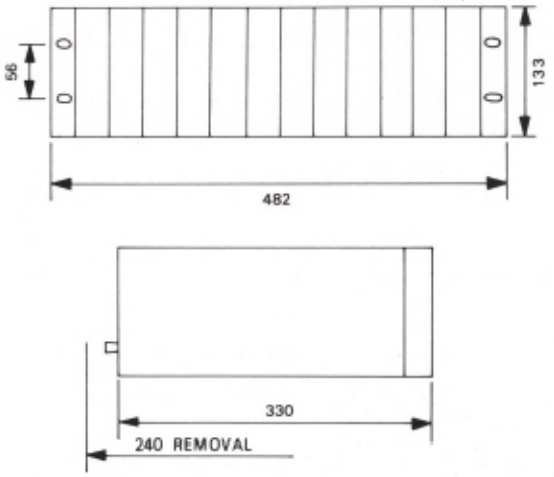
## ELECTRICAL STANDARDS

| | |
|---|---|
| INSULATION | 1000V. 2000V for 20μ Second. |
| FUSING | Power supply fused.<br>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.



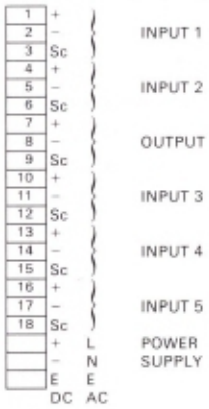

| | |
|---|---|
| WEIGHT | Typical 1.5kg |
| POSITION | Any position |

## TERMINATIONS

TERMINATION For conductors up to 2.5mm²

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

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## 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%/%.

### 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.

### ABC-ARITHMETIC UNITS

SERIES MODE REJECTION <0.2% error for 50Hz at 50% Span

COMMON MODE REJECTION <0.2% error for 250V RMS

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