DAYTRONIC

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MODEL 5M68

RMS VOLTAGE CONDITIONER
[5M SERIES]

WIDE-RANGE GENERAL-PURPOSE INSTRUMENT FOR CONDITIONING THE SIGNAL RECEIVED FROM AN AC GENERATED SIGNAL SOURCE THAT REQUIRES RMS CONDITIONING.

CE

The **5M68** delivers filtered analog output of **±5 VDC**, **±10 VDC** or **4-20 ma**, user selectable. The AC input may be either differential (floating) or grounded (single-ended). Exceptional signal stability and accuracy over an unusually wide range of voltage input levels configurations are achieved through :

- **high input signal band-width for RMS processing**
- **chopper-stabilized low-drift amplification**
- **selectable low-pass active filtering**
- **front panel setup configuration & calibration**
- **wide input range from 50 mv to 200 Vac FS**

FOR STEADY INDICATION AND SMOOTH, DEPENDABLE CONTROL ACTION, THE **5M68** CAN PROVIDE A TRUE RMS ANALOG VALUE EVEN WITH HIGH CREST FACTORS.

A high level, noise-free analog output is provided. For the **5M68** , the output amplitude is switch selectable from ±5 VDC, ±10 VDC or or 4-20 ma giving the unit the features necessary for a wide range of applications with a simple setup operation. Other features include:

- **High input impedance** on all ranges to eliminate cable resistance as a source of error (allowable cable length has virtually no practical limits)
- **High noise rejection**, eliminating errors from common-mode pickup and groundloops.
- **Powerful low-pass active filtering**, Front panel selectable filter cutoffs at 10 Hz, 20 Hz or 50 Hz remove the ripple inherant in RMS conversion while eliminating aliasing errors, if the module's output is subsequently sampled.

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FRONT PANEL - MANUAL CONTROLS ALLOW SIMPLE SETUP AND CALIBRATION WITHOUT THE NEED OF COMPUTER PROGRAMMING KNOWLEDGE.

To calibrate a **5M68**, use a known input from the measurement source or simulator to specify the desired relationship between the module's measured engineering units and its ±5-VDC, ±10-VDC or 4-20 ma output. Set the desired input Range switch(s) per the table below. With the known input to the **5M68** Module at full-scale (fs), adjust the Course Span control to set the approximate gain for the analog output signal, utilizing the Fine Span for precision. Once completed, bring the input signal to approx. 30% of the fs value. With the known low end input established, adjust the Fine Zero control potentiometer for the desired analog output of the **5M68**. Repeat Span and Zero for output signal precision. This method of calibration is referred to as "two-point" calibration or "dead-weight" calibration since it calibrates the **5M68** at its high and low points with known input values. True zero can not be obtained since the input requires an AC RMS signal to establish an analog output value.

SPECIFICATIONS

Housing: DIN mount housing, non-removable screw terminals

Dimensions: 114.5 mm D x 22.5 mm W x 99.0 mm H

Power Requirements: 11-28 VDC; 3.6 watts max.

ESD Protection: per EN61000-4-2

Operating Temperature Range: -10° C to 55° C (14° F to 131°F)

Operating Relative Humidity: 5% to 95%, noncondensing

Transducer Types: Virtually any transducer producing AC output which is externally powered or self generating powered

Input Ranges (Nominal, Full-Scale): See table; selectable via the 5M68 front panel range settings.

Status Indicator Lights: Power LED Green. Over-range LED Yellow, High Common Mode Over-range LED Red

CE Directive 2014/30/EU Electromagnetic Compatibility
2014/35/EU Low Voltage Safety

Amplifier:

Common-Mode Range: See chart below

Input Impedance: Greater than 1 MΩ differential on all ranges

Offset: Initial: ±0.02% of full scale; vs. temperature: ±50 ppm/°C; vs. time: ±20 ppm/month

Gain Accuracy:Limited only by calibration accuracy.

Gain Stability: vs. temperature: ±30 ppm/°C; vs. time: ±10 ppm/month

Analog Filters: 10, 20, or 50 Hz, independently switch selectable

Analog Outputs: Selectable, Filtered ± 0 to 5 VDC or ± 0 to 10 VDC or 4-20 ma , with linearity maintained for 20% overrange; on voltage ranges.

FRONT PANEL SWITCH SETTINGS

	Left	Right
Output Level	Current	Voltage
Voltage Level	10 Vdc	5 Vdc
Filter Setting	50 Hz	20 Hz
Filter Setting	10 Hz	20 Hz
Range A	0.5-0.4 Vac RMS	0.4-3.2 Vac RMS
Range B	3.2-25.0 Vac RMS	0.4-3.2 Vac RMS
Range C	25-200 Vac RMS	0.4-3.2 Vac RMS

SIDE LABEL DIAGRAM