

# DRG Series Field Configurable Limit Alarm Modules



**\$289**  
Basic Unit



- ✓ **Models Available for Thermocouples, RTDs, DC and AC Voltage and Current**
- ✓ **Easy Field Configurable Ranges**
- ✓ **Adjustable Setpoints Programmable HI or LO and Failsafe or Non-Failsafe**

The DRG-AR Series modules are a family of DIN rail mount limit alarms with dual setpoints and two contact closure outputs. The field configurable input and alarm functions offer flexible setpoint capability. Modules are available for a variety of input types including thermocouples, RTDs, DC and AC current and voltages.

Each module can be set to a number of input ranges via an input selector switch. The alarm points and dead band are adjusted by potentiometers.

## Diagnostic LEDs

All modules are equipped with 3 front panel LEDs. The first is a dual function LED labeled input. This green LED indicates line power and input signal status. Two red LEDs indicate the relay state for each setpoint. An illuminated red LED indicates the tripped condition.

## Output

The DRG-AR Series modules are equipped with two SPDT relays, rated at 120 Vac or 28 Vdc at 5 amperes. Each of these relays is independently controlled by the field configurable setpoint and deadband.

## Operation

The field configurable limit alarm setpoints can be configured for HI or LO, failsafe or non-failsafe operation. Each of the setpoints has a respective HI or LO deadband. In a tripped condition, the setpoint is exceeded and the appropriate red LED will illuminate. The trip will reset only when the process falls below the HI deadband or rises above the low deadband. In failsafe operation, the relay is energized when the process is below the HI setpoint or above the LO setpoint (opposite for non-fail-safe). In the fail-safe mode, a power failure results in an alarm state output.

**ALL MODELS AVAILABLE FOR FAST DELIVERY!**

Model	Price	Input Type
DRG-AR-AC	\$289	AC Voltage and Current
DRG-AR-DC	289	DC Voltage and Current
DRG-AR-RTD	289	RTD
DRG-AR-TC	289	Thermocouple

## Dynamic DeadBand

LSI circuitry in the DRG-AR Series prevents false trips by repeatedly sampling the input. The input must remain beyond the setpoint for 100 milliseconds to qualify as a valid trip condition. Likewise, the input must fall outside the deadband and remain there for 100 milliseconds to return the alarm to an untripped condition. This, effectively, results in a dynamic deadband.

## Specifications

### DRG-AR-AC

#### Range (Voltage Mode):

100 mV to 200 Vac

#### Impedance (Voltage Mode):

>100K $\Omega$

#### Overload (Voltage Mode):

300 Vac, max.

#### Range (Current Mode):

10 mA to 100 mAAC

#### Impedance (Current Mode):

20 $\Omega$ , typical

#### Overcurrent (Current Mode):

200 mAAC

#### Overvoltage (Current Mode):

60V peak

#### Frequency Range:

40 to 400 Hz

#### Limit Differentials (Deadbands):

>50 mV/5 mA: 0.25% to 5% of span

<50 mV/5 mA: 1% to 5% of span

#### Setpoint Repeatability (Constant Temperature):

0.2% of full scale

### DRG-AR-DC

#### Range (Voltage Mode):

10 mV to  $\pm 200$  V

#### Impedance (Voltage Mode):

>100K $\Omega$

#### Overload (Voltage Mode):

200 VRMS, max.

#### Range (Current Mode):

1 mA to  $\pm 100$  mA

#### Impedance (Current Mode):

20 $\Omega$ , typical

#### Overcurrent (Current Mode):

170 mA RMS max.

#### Overvoltage (Current Mode):

60 Vdc

#### Limit Differentials (Deadbands):

>50 mV/5 mA: 0.25% to 5% of span

<50 mV/5 mA: 1% to 5% of span

#### Setpoint Repeatability

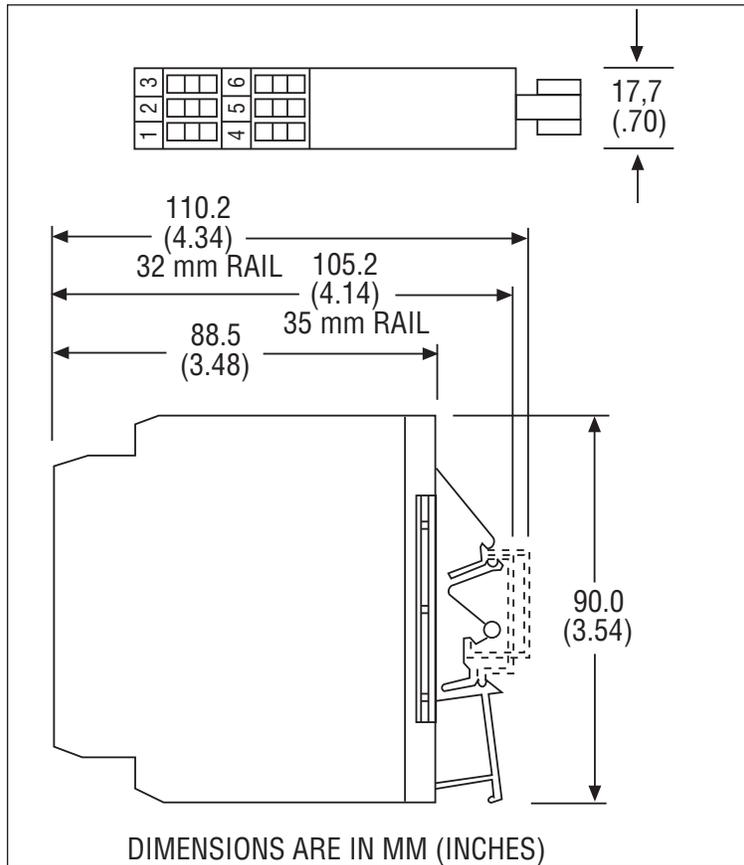
##### (constant temp):

>50 mV/5 mA: 0.1% of full scale

<50 mV/5 mA: 0.2% of full scale

#### Excitation:

24 Vdc, 20 mA maximum



### DRG-SC-RTD:

**Sensor Types:** RTD, Pt100, Pt500, Pt1000 ( $\alpha = 0.00385$ ); Cu10, Cu100, Ni 120, Ni Fe 604

**Sensor Connection:** 3 wire

**Range:** See Range Table

**Excitation Current:** <2 mA for Pt100, Pt500, Pt1000; <5mA for Cu100, Ni 120 or Ni Fe 604

**Lead Wire Resistance:** 40% of base sensor resistance or 100 $\Omega$  (whichever is less), max. per lead

**Lead Wire Effect:** Less than 1% of the maximum input temperature span

**Limit Differentials (Deadbands):** 1.0 to 5% of span

**Setpoint Repeatability (Constant Temperature):**  $\pm 0.2\%$  of full scale

### DRG-SC-TC

**Ranges:** See Range Table

**Bias Current (Burnout Detection):** <1.5 microamp

**Impedance:** >1M $\Omega$

**Overvoltage:**  $\pm 10$  V differential

**Limit Differentials (Deadbands):** 0.25 to 5% of span

**Setpoint Repeatability (Constant Temperature):** 0.2% for temp > 0 $^{\circ}$ C. 0.3% for temp < 0 $^{\circ}$ C

## SPECIFICATIONS COMMON TO ALL MODULES

### Relay Contacts

2 SPDT (2 form C) Relays

1 Relay per setpoint

Current Rating: 120 Vac: 5A,

240 Vac: 2A, 28 Vdc: 5A

Material: Silver-Cadium Oxide

Electrical Life: 10<sup>5</sup> operations

**Isolation:** 1800 Vdc between input, contacts and power

### RESPONSE TIME

**Dynamic Deadband:** Relay status will change when proper setpoint condition exists for 100 msec

**Normal Mode (Analog Filtering):** <250 msec, (10-90%)

**Mounting:** Standard 32mm or 35mm DIN rail

**Wire Termination:** Screw: Termination for 12-22 AWG

**ESD Susceptibility:** Meets IEC 801-2, Level 2 (4 KV)

**Humidity (Non-Condensing):** Operating: 15 to 95% (@45 $^{\circ}$ C), Soak: 90% for 24 hours (@65 $^{\circ}$ C)

**Temperature Range:** Operating: 0 to 55 $^{\circ}$ C (32 to 131 $^{\circ}$ F), Storage: -25 to 70 $^{\circ}$ C (-13 to 158 $^{\circ}$ F)

**Power:** 9-30 Vdc, 1.5 W typical, 2.5 W max

# DRG-AR-AC AC Voltage or Current Input Limit Alarm

**\$289**



The DRG-AR-AC is a DIN rail mount, AC voltage or AC current input limit alarm with dual setpoints and two contact closure outputs. Input voltage spans from 100 mVac to 200 Vac and input current spans from 10 mAAC to 100 mAAC can be field configured. For current spans of 1 to 5 Amps a 0.1Ω (5 W) shunt resistor (Model# DRG-C006) is available.

## Specifications

### INPUT RANGES

**Voltage:** 100 mVAC, 200 mVac, 500 mVac, 1 Vac, 2 Vac, 5 Vac, 10 Vac, 20 Vac, 50 Vac, 100 Vac, 200 Vac

**Current:** 10 mAAC, 20 mAAC, 50 mAAC, 100 mAAC



To Order (Specify Model Number)		
Model No.	Price	Description
DRG-AR-AC	\$289	AC volt/current limit alarm

Each DRG-AR-DC is supplied with a complete user's manual.

**Ordering Example:** DRG-AR-AC with one DRN-PS-1000 power supply and RAIL-35-2 DIN rail, \$289 + 150 + 15 = \$454.

## Accessories

Model No.	Price	Description
RAIL-35-1	10	35 mm (1.4") DIN rail, 1 m (3.3') length
RAIL-35-2	15	35 mm (1.4") DIN rail, 2 m (6.6') length
DRG-C006	15	0.1Ω, 5 W shunt resistor
DRN-PS-1000	150	DIN rail mount power supply, 95 to 240 Vac input, 24 Vdc @ 1 A output

# DRG-AR-RTD Input Limit Alarm

**\$289**

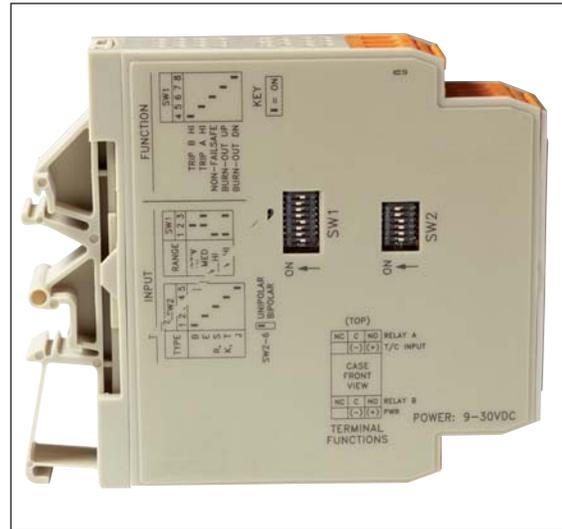


The DRG-AR-RTD is a DIN rail mount, RTD input limit alarm with dual setpoints and two contact closure outputs. The module features up to 8 temperature ranges for each RTD type.

To Order (Specify Model Number)		
Model No.	Price	Description
DRG-AR-RTD	\$289	RTD input limit alarm

Each DRG-AR-RTD is supplied with a complete user's manual.

**Ordering Example:** DRG-AR-RTD with one DRN-PS-1000 power supply and RAIL-35-2 DIN rail, \$289 + 150 + 15 = \$454.



## Input Ranges

RTD Type	Temperature Ranges (°C)
Pt100, 500, 1000	0 to 50, -50 to 50, 0 to 100, -100 to 100, (a = 0.00385), 0 to 250, -200 to 250, 0 to 550, 0 to 850
Cu10	25 to 70, -30 to 70, 25 to 120, -70 to 120, 25 to 260, -200 to 260
Cu100	25 to 75, -25 to 75, 25 to 150, -100 to 150, 25 to 260, -200 to 260
Ni120	-30 to 30, -80 to 30, -30 to 100, -30 to 200, -30 to 320
NiFe604	-40 to 0, -40 to 50, -200 to 50, -200 to 100, -200 to 240

# DRG-AR-TC Thermocouple Input Limit Alarm

**\$289**



The DRG-AR-TC is a DIN rail mount, thermocouple input limit alarm with dual setpoints and two contact closure outputs. The module features up to six temperature ranges for each thermocouple type to ensure accuracy and maximize setpoint resolution. A bipolar switch is provided for temperature ranges below 0°C. The DRG-AR-TC is configurable as a single or dual setpoint alarm, with HI or LO trips, upscale or downscale burnout detection and failsafe or non-failsafe operation.

To Order (Specify Model No.)		
Model No.	Price	Description
DRG-AR-TC	\$289	Thermocouple input limit alarm

Each DRG-AR-TC is supplied with a complete user's manual.  
**Ordering Example:** DRG-AR-TC with one DRN-PS-1000 power supply and RAIL-35-2 DIN rail, \$289 + 150 + 15 = \$454.

### Accessories

Model No.	Price	Description
DRN-PS-1000	\$150	DIN rail mount power supply, 95 to 240 Vac input, 24 Vdc @ 1A output
RAIL-35-1	10	35 mm (1.4") DIN rail, 2 m (3.3') length
RAIL-35-2	15	35 mm (1.4") DIN rail, 2 m (6.6') length



### Input Ranges

T/C	Temperature Ranges (°C)
B	0 to 1490, 0 to 1820
E	0 to 150, 0 to 290, 0 to 660, 0 to 1000, -270 to 150, -270 to 290
J	0 to 190, 0 to 350, 0 to 760, -210 to 190, -210 to 350
K	0 to 250, 0 to 480, 0 to 1280, 0 to 1372, -270 to 250, -270 to 480
R	0 to 970, 0 to 1690, 0 to 1760
S	0 to 1050, 0 to 1750
T	0 to 210, 0 to 390, -270 to 210, -270 to 390

# DRG-AR-DC DC Voltage and Current Input Limit Alarm

**\$289**



The DRG-AR-DC is a DIN rail mount, DC voltage and DC current input limit alarm with dual setpoints and two contact closure outputs. Input voltage spans from 10 mV to 200 V and input current spans from 1 mA to 100 mA can be field configured. Bipolar inputs are also accepted. The module also features 24 Vdc voltage source (isolated from line power) for transducer excitation.

### Specifications

#### INPUT RANGES (UNIPOLAR & BIPOLAR)

**Voltage:** 10 mV, 20 mV, 50 mV, 100 mV, 200 mV, 500 mV, 1 V, 2 V, 5 V, 10 V, 20 V, 50 V, 100 V, 200 V  
**Current:** 1 mA, 2 mA, 5 mA, 10 mA, 20 mA, 50 mA, 100 mA

To Order (Specify Model Number)		
Model No.	Price	Description
DRG-AR-DC	\$289	RTD input limit alarm

Each DRG-AR-DC is supplied with a complete user's manual.  
**Ordering Example:** DRG-AR-DC with one DRN-PS-1000 power supply and RAIL-35-2 DIN rail, \$289 + 150 + 15 = \$454.



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