MOORE INDUSTRIES

FCA

Field-Configurable
Current and Voltage Alarm

August 2016

Description

The 4-wire FCA Field-Configurable Alarm accepts a current or voltage input signal from an analog device such as a temperature, pressure, level, or flow transmitter. When the signal value exceeds a preset limit, the FCA outputs two contact closure signals. The alarm outputs are ideal for indicating high and/or low process conditions via a bell, buzzer, light or other device. Front panel LED's indicate when the unit is in an alarm condition.

Two Alarm Trips per Module—To reduce space requirements and equipment costs, every FCA features dual alarm trip capabilities. From one signal input, the FCA delivers two independent contact closure output signals. The FCA can be configured to respond to High/Low, High/High, or Low/Low process conditions. Precise trip point settings can be quickly made using potentiometers conveniently located on the front panel.

The choice of failsafe (unit provides relay outputs if power fails) or non-failsafe (no relay outputs if power fails) relay action is also field-configurable.

Ordering Specifications

To order, use the bold-face data from the Ordering Specifications section of the Specifications table. For assistance, refer to the model number example located at the bottom of the table.

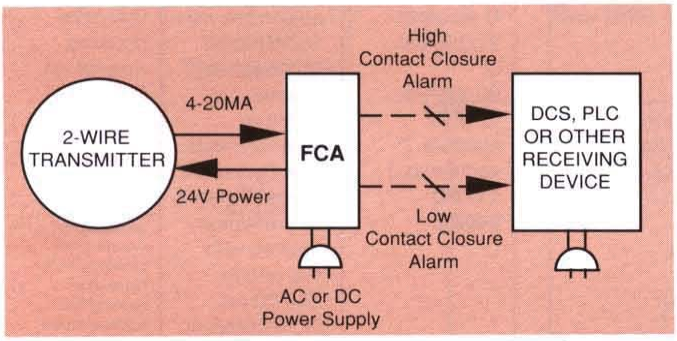
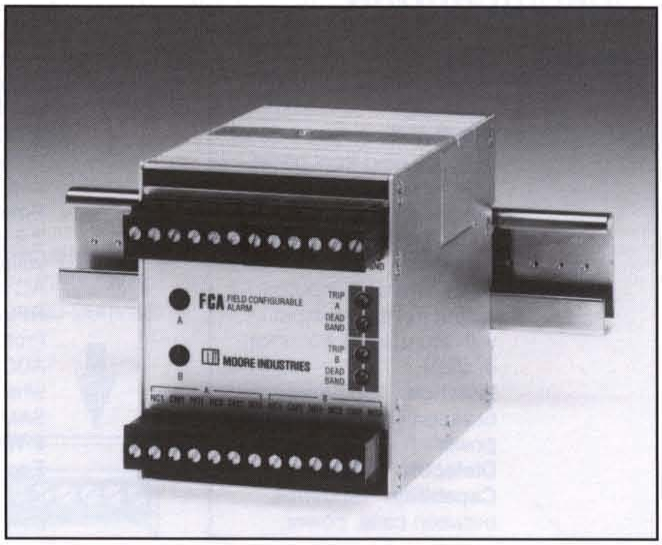


Figure 1. *The FCA will supply power to a 2-wire transmitter while providing two separate alarm outputs from a single input.*



The DIN-style FCA's universal mounting clip *allows quick installation on a G-Type or Top Hat rail in a control room or in a field-mounted cabinet.*

Features

- **Ideal plant standard.** The exceptionally versatile FCA features field-configurable input, output and power input. Ideal for both new and retrofit applications, stocking an array of costly spares is eliminated.
- **Configurable input.** Field-configures to accept a 4-20mA, 10-50mA or 1-5V input signal.
- **Configurable dual outputs.** The choice of alarm configuration (high/low, high/high, or low/low) and failsafe or non-failsafe relay action can be quickly set with easy-to-access on-board controls.
- **Powers a 2-wire transmitter.** The FCA features standard loop excitation that can be used to power a 2-wire transmitter if required for the application.
- **Universal power input.** Automatically accepts all ac (90-260Vac) and dc (22-300Vdc) power supply inputs. No adjustments, such as jumper changes, are required.
- **Isolated and RFI/EMI protected.** Exceptional signal isolation of 1000V rms and 30V/m RFI/EMI protection prevent false alarms from occuring in noisy environments

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192-710-02D

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Specifications

Performance

Repeatability: Trip point repeats within ±0.1% of input span
Deadband: Adjust 1-20% of span using front panel potentiometers (larger ranges also available, consult factory for details)
Response Time: 50ms, average, input-to-output (for a step input with trip point at midpoint of step)
Isolation: 1000Vrms between input, output and power
Dielectric Withstand Capability: 1500Vrms between case, power, inputs, and outputs
Common Mode Rejection: Greater than 100 dB between input and case
Power-Up/Down Filtering: Filtering prevents chatter or bounce upon power-up or power-down

Performance (continued)

Power Supply Effect: Less than 0.002% of span per volt, max.; 50Hz line effect on trip point is < 0.008% between 85Vac and 262Vac
Power Consumption: 2.9 watts at max. dc voltage; 6.9 watts at max. AC voltage
RFI/EMI Effect: Protection rates 30V/m - ABC = ±0.1% of full scale when tested according to SAMA standard PMC 33.1
2-Wire Transmitter Excitation: Front panel terminals available for powering one, 2-wire, 4-20mA transmitter; regulated 24Vdc supply @ 25mA (transmitter excitation is not available when -DA option is specified)

Ambient Temperature

Range: -18°C to +70°C (0°F to +158°F)
Effect: ±0.02% of span per °C maximum

Adjustments

Type: Front panel multiturn potentiometers
Trip Points: -10% to +110% of input span
Deadband: 1-20% of span (larger ranges also available, consult the factory for details)

Indicators

Type: Two LEDs on front panel indicate when Trip Point A and/or Trip Point B has been exceeded
Failsafe Models: LED(s) remains on in non-alarm condition and off in alarm condition
Non-Failsafe Models: LED(s) remains off in non-alarm condition and on in alarm condition

Weight 450 grams (15.9 ounces)

Ordering Specifications

Unit	Input	Output	Power	Options	Housing
FCA	**PRG** Universal unit can be field-configured via connection terminals on front panel to accept: 4-20mA into 50 ohms 10-50mA into 20 ohms 1-5V @ 1 megohm Units with -DA Option <u>REQUIRE</u> one of the following input selections: **2X4-20MA** 4-20mA into 50 ohms **2X10-50MA** 10-50mA into 20 ohms **2X1-5V** 1-5V @ 1 megohm	**PRG** Universal unit field-configures via internal solderless jumpers for any output type listed under FACTORY CONFIGURATION (PRG unit comes configured as DH1L1) <u>FACTORY CONFIGURATION</u> Specify any of below output types and the unit will be delivered factory configured (unit retains configurability even if Factory Configuration is specified): **DH1L1** High/low, failsafe alarm **DH2L2** High/low, non-failsafe alarm **DH1H1** High/high, failsafe alarm **DH2H2** High/high, non-failsafe alarm **DL1L1** Low/low, failsafe alarm **DL2L2** Low/low, non-failsafe alarm (DPDT relay contacts rated 5A @ 220/240Vac or 24Vdc non-inductive) NOTE: Failsafe refers to relays that are energized in the non-alarm condition and de-energized upon alarm or power loss to the unit.	Universal Power: **U** Accepts 22-300Vdc or 90-260Vac (6 watts nominal, 7 watts max.) **117AC** **240AC**	**-AR** Alarm response delay adjustable from 150ms to 30 seconds via internal multiturn potentiometer **-DA** Deviation alarm (transmitter excitation deleted with this option; 2X4-20mA, 2X10-50mA or 2X1-5V input type must be specified) **-MR** Manual reset terminals provided for customer supplied pushbuttons	**DIN** Aluminum DIN-style housing mounts on G-type or Top Hat rail NOTE: Mounting brackets are available for installing the DIN-style FCA housing in existing STD surface-mount housing holes. Consult the factory for details.

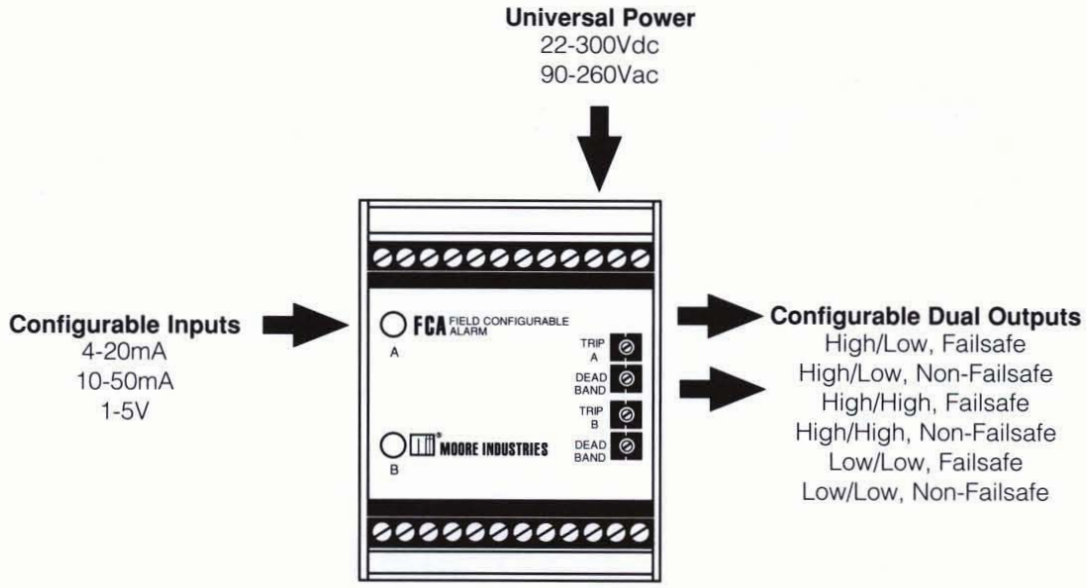
When ordering, specify: Unit / Input / Output / Power / Options [Housing]
Model number examples: FCA / PRG / PRG / U / -MR [DIN]

Field-Selectable Inputs and Outputs with Universal Power

It's easy to specify the right FCA. One field-configurable, universal model handles the majority of alarm trip applications.

The FCA quickly sets up to accommodate common current and voltage signal input types and alarm configurations. Standardize on the FCA and avoid having to stock an array of expensive and restrictive fixed-parameter units.

Adding to its flexibility, the FCA automatically adjusts to accept any standard ac or dc power supply.



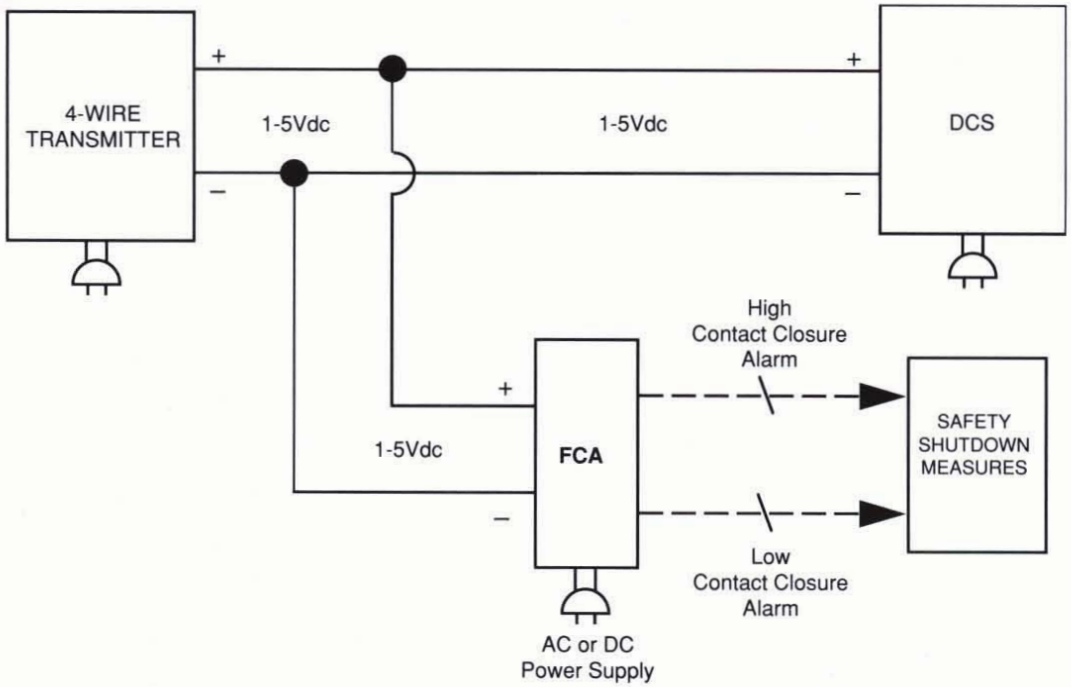


Figure 2. *The FCA provides a hard-alarm backup in the event of DCS common mode failure.*

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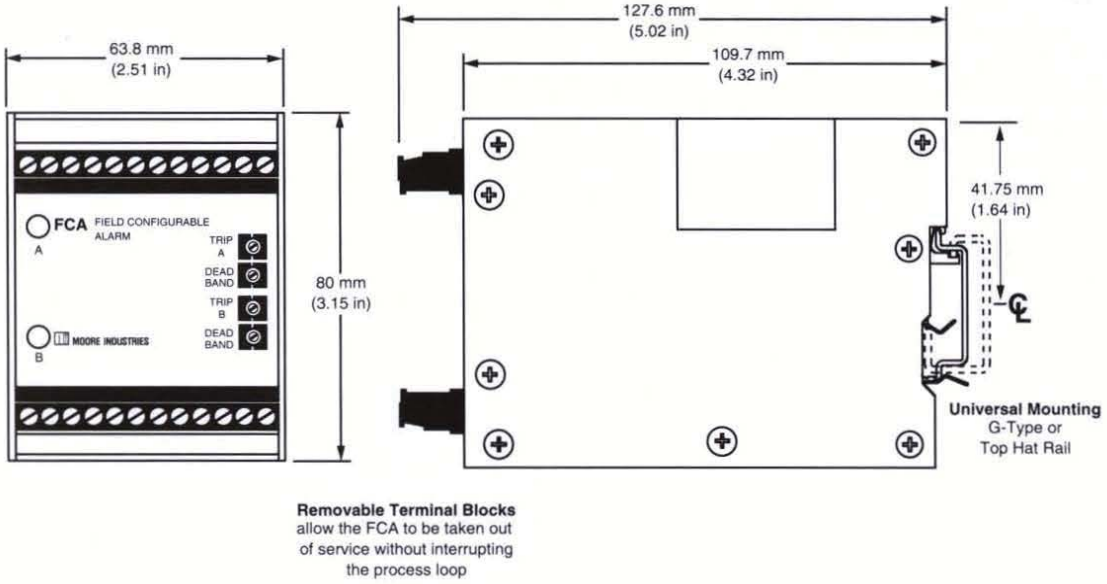

Figure 3. *Outline Dimensions*

Table 1. *Terminal Designations*

Unit	Top Terminals (left to right)											
	1	2	3	4	5	6	7	8	9	10*	11*	12
Standard	–IN	50MA	20MA	5V				TX		POWER or AC	POWER or ACC	GND
-DA Option	COM	+REF	+IN							POWER or AC	POWER or ACC	GND
-MR Option	–IN	50MA	20MA	5V	AMR	COM MR	BMR	TX		POWER or AC	POWER or ACC	GND
-DA & -MR	COM	+REF	+IN		AMR	COM MR	BMR			POWER or AC	POWER or ACC	GND

Bottom Terminals (left to right)

All Units	Relay A						Relay B					
	13	14	15	16	17	18	19	20	21	22	23	24
	NC1	CM1	NO1	NC2	CM2	NO2	NC1	CM1	NO1	NC2	CM2	NO2

* Linear Power Configurations are labeled: "AC / ACC / GND". Universal Power units are labeled: "Power / Power / GND".

Table 1a. *Key to Abbreviations*

Key	Description
AMR	Manual Reset Terminal, Relay A
BMR	Manual Reset Terminal, Relay B
CM	Common
COM MR	Manual Reset Terminal, Common
TX	Transmitter Excitation, 4-20mA output, Use with -IN
NC	Normally Closed
NO	Normally Open
5V	1-5V input
20MA	4-20mA input
50MA	10-50mA input

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