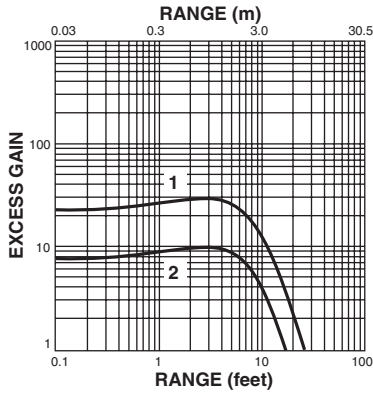
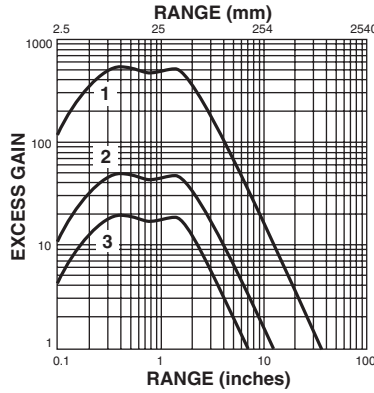


Excess Gain



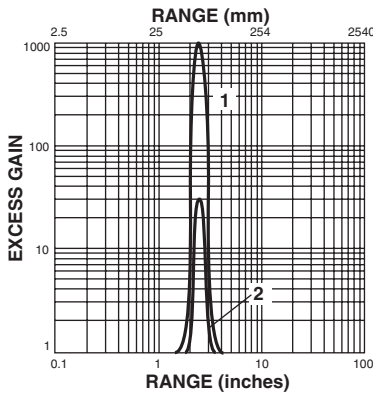
Reflex
(3 Inch diameter Retroreflector)

1. 1470A Sensor Head with 8171B Control Unit
2. 1470A Sensor Head with 8170A, 8771A or 8772A Control Unit



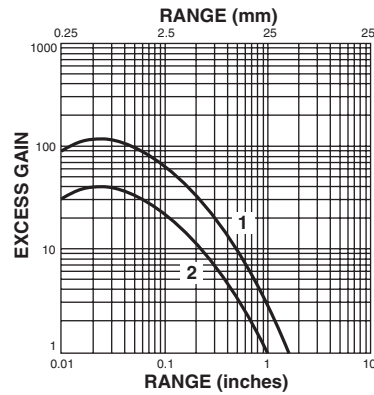
Diffuse Reflectance
(90% Reflective White Card)

1. 1370A with 8171B Control Unit in High Gain Mode
2. 1370A with 8171B Control Unit in Normal Gain Mode
3. 1370A with 8170A, 8771A or 8772A Control Unit



Fixed Focus
(90% Reflectance White Card)

1. 9082A-6501 with 8171B Control Unit in High Gain Mode
2. 9082A-6501 with 8171B in Normal Gain Mode, 8170A, 8771A or 8772A Control Unit





Fiber Optic Diffuse Reflective
(90% Reflectance White Card)

1. 1571A/6276A with 8171B Control Unit in Normal Gain Mode
2. 1571A/6276A with 8170A, 8771A or 8772A Control Unit

Specifications — Sensor Heads and Control Units

	Sensor Heads	Control Units		
		Self-Contained	Modular	DIN Rail Analog
Power Dissipation	—	Analog: 18 VA max. All others: 12 VA max.	2.5 Watts max.	2 Watts max.
Sensitivity Adjustment	—	20:1 ratio	20:1 ratio	—
Sunlight Immunity	Depends upon control unit used (Curtain-of-Light: 7,500 foot-candles when used with 8171B control unit)	10,000 foot-candles	6,000 foot-candles	10,000 foot-candles
Relative Humidity (non-condensing)	Thru-beam, fiber optic: 98% Reflex, diffuse reflective: 95%	98%	90%	90%
Vibration	10g or 0.06 inch displacement, whichever is less, over 10 Hz (20 Hz for slot sensor) to 2 kHz	5g up to 1 kHz	5g up to 4 kHz	—
Shock	15g minimum for 1 mS	—	15g min. for 1 mS	—
Case Material	See Model Selection Table	Aluminum	Lexan® and phenolic	—

Model Selection — Output Devices (Required for Self-Contained Control Units [except analog] and when switching AC loads with Modular Control Units)

	Description	Input		Output					Catalog Number
		Operating Voltage	Current	Type	ON-State Current	OFF-State Leakage	ON-State V Drop	One Cycle Surge A	
	Output Devices for 8170A and 9072A Control Units	DPDT Relay For low frequency general purpose switching of control power loads	Supplied by Control Unit	—	DPDT	Contact Ratings: AC Load: 5A at 115V AC or 230V AC DC Load: 5A at 30V DC Contact Life: 100,000 operations at rated load			8526A-6501
	Isolated Triac For high rate switching of resistive or inductive AC loads	Supplied by Control Unit	—	SPST Normally open triac	2 A _{RMS} continuous	5 mA at 100V AC	1.7 V _{RMS} or less	20A peak	8570A-6501
	Triac, PC Compatible Optically isolated solid-state relay for switching non-capacitive AC loads. Response is 100,000 operations/hour	Supplied by Control Unit	—	SPST Normally open triac	5 – 500 mA _{RMS} at 70°C	1.5 mA at 120V AC	1.7V maximum	6A peak	8574A-6501
	Optical Isolator Driver Drives a user supplied remote optical isolator for a solid-state interface. Isolator can then be used to switch DTL, TTL, CMOS, etc.	Supplied by Control Unit	—	PNP output drive to a remote optical isolator	20 mA	—	—	—	8580A-6501
	Isolated NPN Transistor Optically isolated NPN SPST transistor switch	Supplied by Control Unit	—	Optically isolated NPN transistor switch	20 mA at V _{SAT} less than 0.2V	0.01 mA maximum at 30V DC	—	—	8582A-6501
Output Device for 8172A Control Unit (optional)	Analog Isolation Module Eliminates ground loop problems and induced noise between the control unit and other system components	Supplied by Control Unit	—	Converts the 8172A's output to an isolated analog output, allowing the control unit to interface with solid-state AC motor controllers with control circuitry at the AC line potential. Bi-directional output: 30 mA from E2 to E1; 20 mA from E1 to E2; 10.75V DC ± 1.0V maximum.					8272A-6501
 <p>Polycarbonate Housing (requires an 8-pin panel mount socket Catalog Number 8907A-6501 for installation when used with 8771A or 8772A Control Units, See Page 5-124)</p>	Output Devices for 8171B, 8771A and 8772A Control Units	DPDT Relay Plug-in industrial control relay	12V DC nominal. Supplied by Control Unit	75 mA at 75°F 12V DC	DPDT	Contact Ratings: Resistive Load: 10A, 1/4 hp maximum at 110/220V AC, 10A maximum at 28V DC Inductive Load: 7A maximum at 110/220V AC, 7A maximum at 28V DC Contact Life: 500,000 operations at rated load			8530A-6501
	Isolated Triac Optically isolated, solid-state relay for switching non-capacitive AC loads. Response is 100,000 operations/hour	3 – 20V DC Supplied by Control Unit	—	SPST Normally open triac	2 A _{RMS} at 25°C, 1 A _{RMS} at 65°C	5 mA at 100V AC, 9 mA at 200V	1.7 V _{RMS} or less	60A peak	8572A-6501
	Triac, PC Compatible Optically isolated, solid-state relay for switching non-capacitive AC loads. Response is 100,000 operations/hour	8 – 20V DC Supplied by Control Unit	9.5 – 20 mA	SPST Normally open triac	5 – 500 mA _{RMS} at 70°C	1.5 mA at 120V AC	1.7V maximum	6A peak	8573A-6501
	Isolated NPN Transistor Optically isolated, NPN SPST transistor switch	12V DC nominal	20 mA typical	Optically isolated NPN transistor switch	20 mA at V _{SAT} less than 0.2V, 500 mA at V _{SAT} less than 1V ^①	10 μA maximum at 30V DC ^②	—	—	8586A-6501

① For 3-wire connection. For 2-wire connection, 100mA at V_{SAT} less than 1.2V.

② For 3-wire connection. For 2-wire connection, 0.1 μA maximum at 30V DC.

Fast turn product with typical one business day lead-time to shipment.

Stocked product, typical order quantities guaranteed in stock.

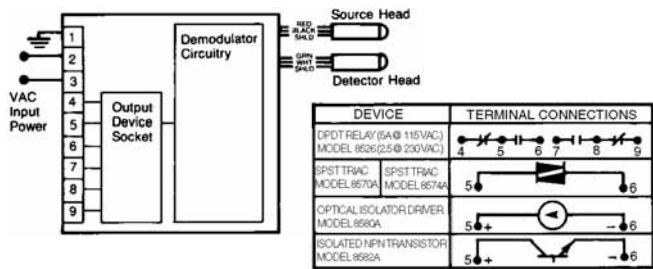
Specifications — Output Devices

	DPDT Relays		Triacs		Others
	8526A-6501	8530A-6501	Isolated	PC Compatible	
Operating Temperature	-40° to 140°F (-40 to 60°C)	-4° to 131°F (-20° to 55°C)	-4° to 149°F (-20° to 65°C)	-4° to 149°F (-20° to 65°C)	-4° to 149°F (-20° to 65°C)
Response Time	15 mS	25 mS maximum	1 mS maximum		Instantaneous
Off-to-On (pull-in)	5 mS	25 mS maximum	1/2 cycle of line voltage		Instantaneous
On-to-Off (drop-out)	5 mS	25 mS maximum	1/2 cycle of line voltage		Instantaneous
Pull-In Voltage	8 – 9.6V	8 – 9.6V	3V minimum	8 – 20V	—
Drop-Out Voltage	1.2 – 2V	1.2 – 2V	0.8V maximum	—	—

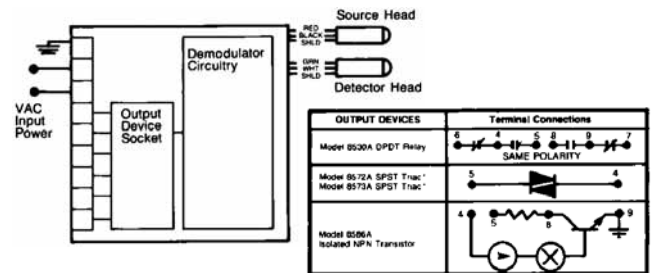
August 2007

Wiring Diagrams — Self-Contained Control Units

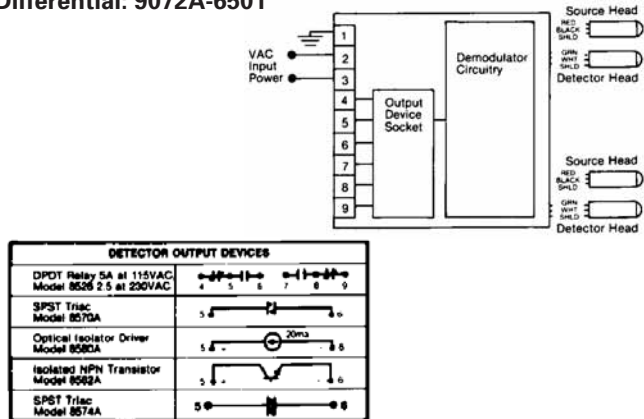
Standard: 8170A-6501, -6502, -6504 and -6505



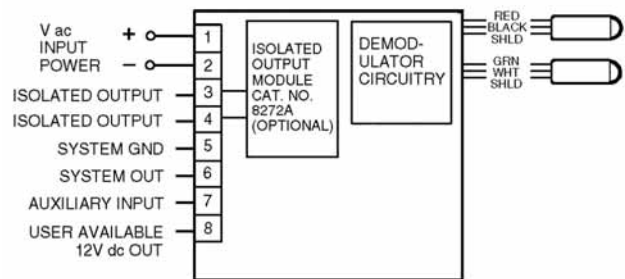
High Power: 8171B-6501 and -6502



Differential: 9072A-6501

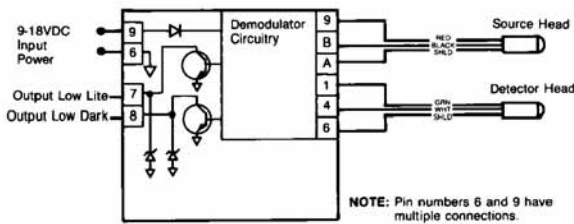


Analog: 8172A-6501 and -6502

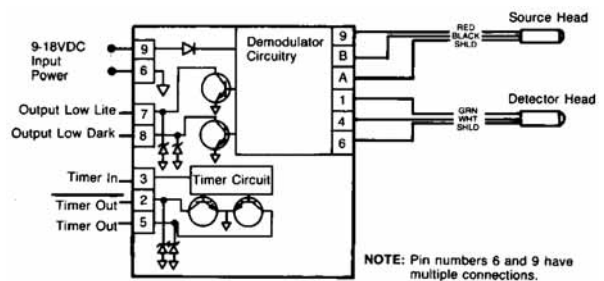


Wiring Diagrams — Modular Control Units

Standard: 8771A-6501

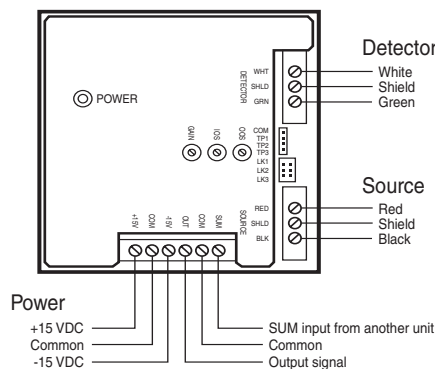


Enhanced with Time Delay or One-Shot: 8772A-6501



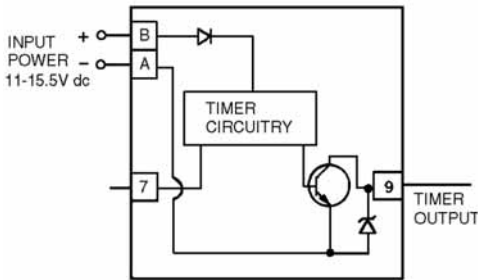
Wiring Diagram — DIN Rain Mount Analog Control Unit

8173A-6507

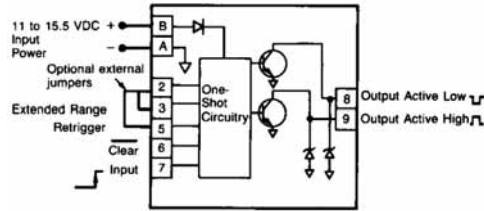


Wiring Diagrams — Logic Modules

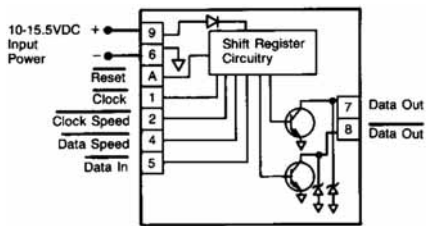
Time Delay: 8712A-6501



One-Shot: 8713A-6501



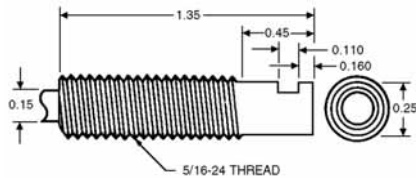
Shift Register: 8730A-6501



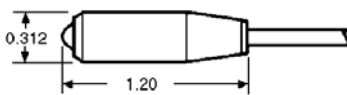
When connecting to relay contacts for clock and data signals, clock and data inputs have 15 mS of debounce filtering. Clock speed and data speed bypass the debounce filter but a jumper from clock speed to clock is required if a pull-up resistor is desired. The same applies to data speed and data inputs.

Approximate Dimensions in Inches — Thru-Beam Sensor Heads

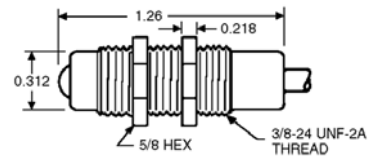
Right-Angle Viewing: 1179A-6501 and 1279A-6501



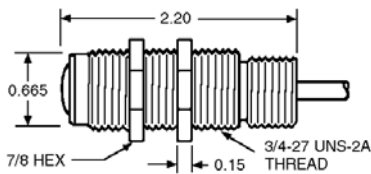
Forward Viewing: 1170A-300 and 1270A-300



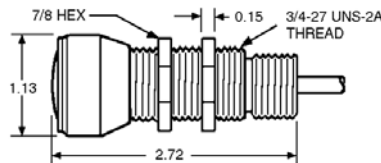
Forward Viewing: 1173A-300 and 1273A-300



Forward Viewing: 1173A-100 and 1273A-100



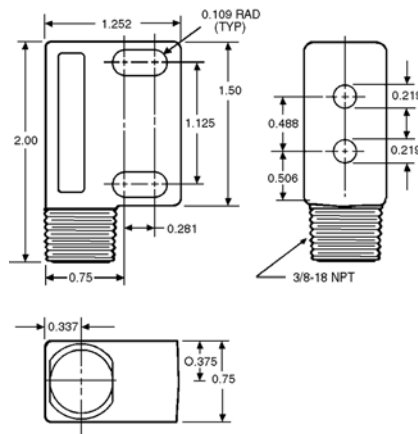
Forward Viewing: 1173A-200 and 1273A-200



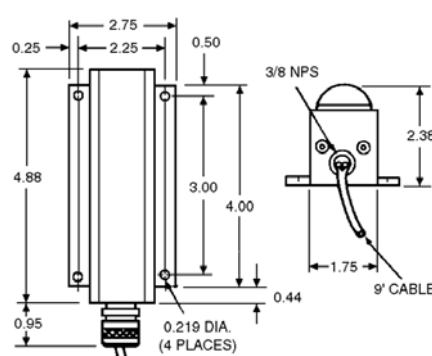
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Approximate Dimensions in Inches — Reflex Sensor Heads

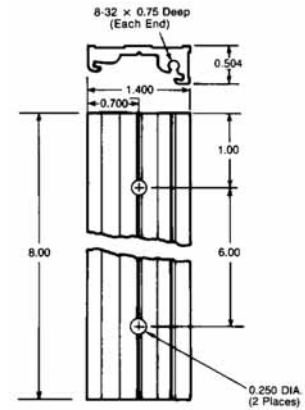
Standard: 1370A-6501



Curtain-of-Light: 1471A-6501

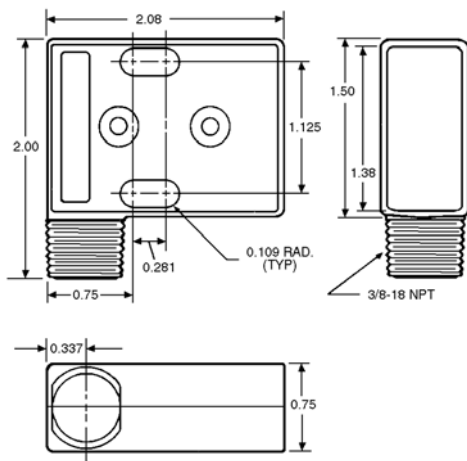


For Retroreflector
Curtain-of-Light: 6210-6501

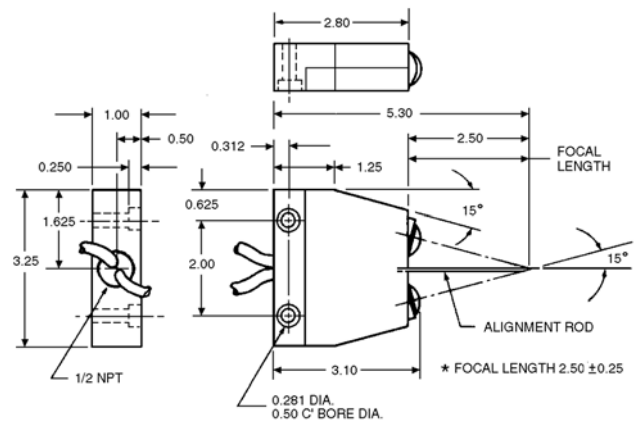


Approximate Dimensions in Inches — Diffuse Reflective Sensor Heads

Standard: 1470A-6501

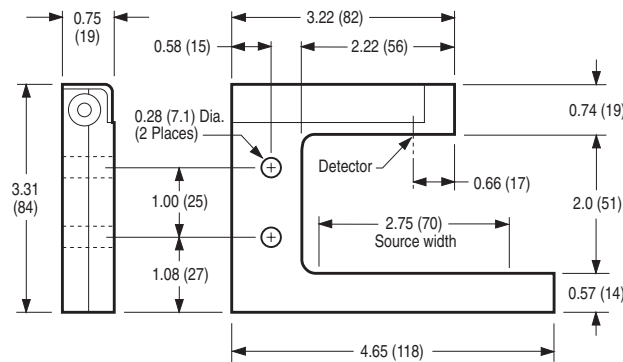


Fixed Focus: 9082A-6501



Approximate Dimensions in Inches (mm) — Slot Sensor Heads

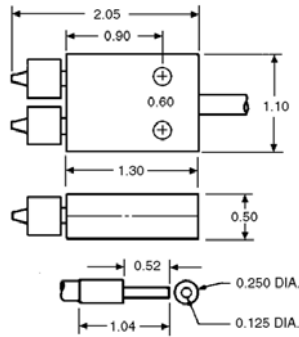
1372A-6501



Approximate Dimensions in Inches (mm) Except Where Noted — Fiber Optic Sensor Heads

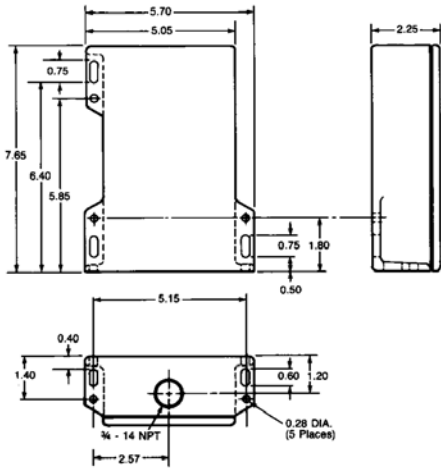
Glass Fiber Optic: 1571A-6501 and 6276A-6501

NOTE: Dimensions in Inches

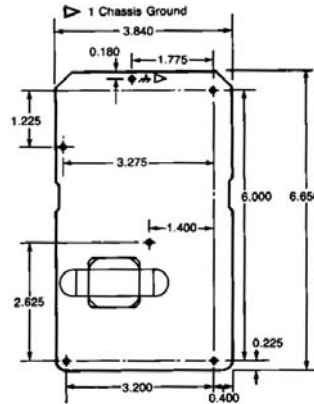


Approximate Dimensions Shown in Inches — Self-Contained Control Units

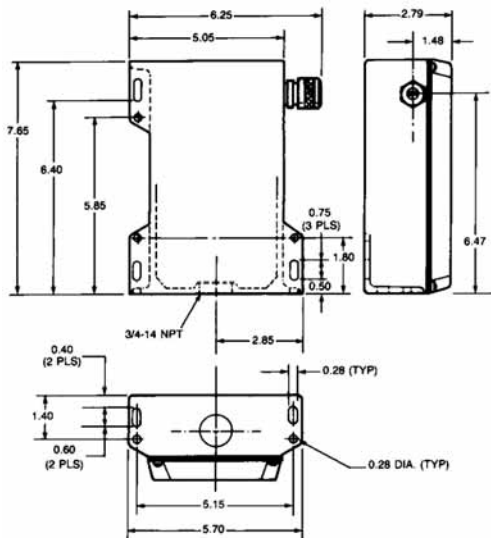
Standard: 8170A-6501 and -6502



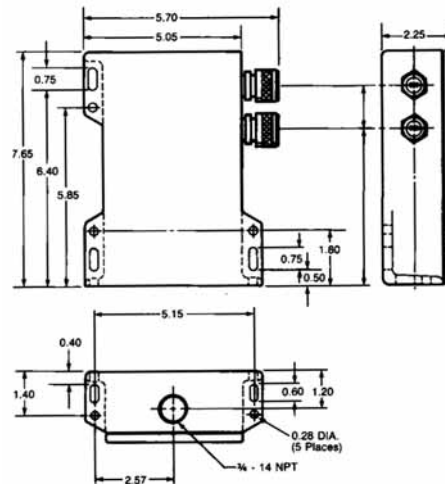
Standard without Enclosure: 8170A-6504 and -6505



High Power and Analog: 8171B-6501 and -6502;
8172A-6501 and -6502



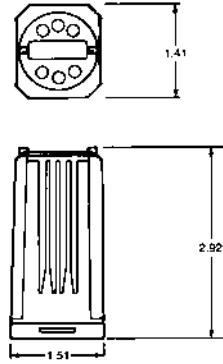
Differential: 9072A-6501



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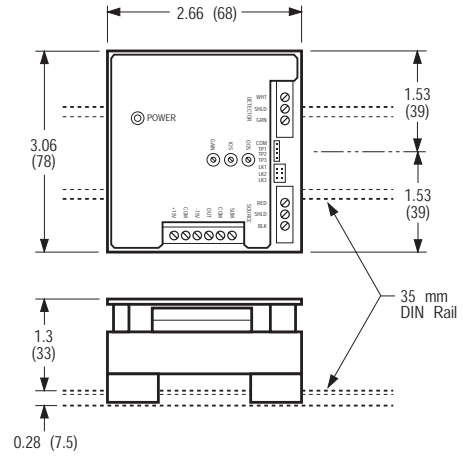
**Approximate Dimensions in Inches —
Modular Control Units**

8771A-6501 and 8772A-6501



**Approximate Dimensions in Inches (mm) Except Where Noted —
DIN Rail Mount Analog Control Unit**

8173A-6507



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Approximate Dimensions in Inches — Logic Modules

8712A-6501, 8713A-6501 and 8730A-6501

