

# CURRENT INDUSTRIAL REPORTS SERIES

2007

## MA334C — CONTROL INSTRUMENTS

### DEFINITIONS AND SPECIAL INSTRUCTIONS

#### 1. Scope of this survey

This survey covers the manufacture of control instruments.

#### 2. Figures to be reported

Companies with more than one establishment manufacturing the products covered by this survey are requested to complete a separate report form for each location. If you have not received a separate form for each of your establishments, please call the contact shown on the report form or write to the U.S. Census Bureau for additional forms.

##### a. Quantity and Value of Shipments

The figures on quantity and value of shipments should include the physical shipments of all products sold, transferred to other establishments within your company, or shipped on consignment, whether for domestic or export sale. The value represents the net sales price, f.o.b. plant, to the customer or branch to which the products are shipped, net of discounts, allowances, freight charges and returns. Shipments to your own branches should be assigned the same value as comparable sales to unaffiliated customers, i.e., the value includes an appropriate allocation of company overhead and profit. Products bought and resold without further manufacture should not be included in shipments.

##### b. Unit of measure

When posting your figures to the original report, please be sure to report information in the correct columns. These are:

*Column 1* – Quantity of shipments

*Column 2* – Value (Report shipments in thousands of dollars. (Example: \$1,000,000, report as \$1,000)

Report value figures in thousands of dollars. Each product should be reported separately. Do not combine product lines.

#### 3. Definitions

Many of the products are listed separately, either as control components or as control assemblies. Report separate data for such products, but do not report separate control components which are sold as an integral part of a control assembly.

*Relay*—A device that is operative by a variation in the conditions of one circuit to effect the operation of other devices in the same or another electric circuit.

*Control relay*—A relay which functions to initiate or to permit the next desired operation in a control circuit or scheme.

*Overload relay*—A relay which functions at a predetermined value of current (overcurrent relay).

*Busway*—A prefabricated electric distribution system consisting of bus bars in a protective enclosure, together with associated fittings. All busways include as a minimum: bus bars, some supporting means for these bars, and a housing around them.

*Industrial control relays (all voltages)*—A.c. and d.c. operated electromagnetic relays rated for resistive loads and used to perform logic functions in industrial electronic applications. Includes plug-in, ice cube, printed circuit card mounted and base mounted relays with mounted timer attachments. Excludes timer attachments sold separately, relays designed for use with metal mill or crane control, and relays incorporated in products covered by other categories. Also excludes solid-state relays and relays designed for military applications, or for the appliance or telephone industry.

#### 3. Definitions—Continued

*Electronic relays (all voltages)*—A.c. and d.c. operated electromagnetic relays rated for resistive loads and used to perform logic functions in industrial electronic applications. Includes plug-in, ice cube, printed circuit card mounted and base mounted relays with mounted timer attachments. Excludes timer attachments sold separately, relays designed for use with metal mill or crane control, and relays incorporated in products covered by other categories. Also excludes solid-state relays and relays designed for military applications.

*Solid-state relays (all voltages)*—Solid-state relays sold as individual items. Typically, these are single circuit devices that use a logic level signal to control a 120 volt circuit. Excludes overcurrent relays and output devices of logic systems sold separately, mill and crane accessories, and similar items incorporated in a product covered by any other category.

*Solid-state industrial control timers (all voltages)*— Interval and time-delay relays that have their timing period controlled by a circuit using semiconductors, regardless of output means. Excludes relays with solid-state timer attachments and timers designed as solid-state logic units or for metal mill or crane applications or incorporated in products covered by other categories.

*Nonsolid-state industrial control timers (all voltages)*—Mechanically or electrically operated a.c. or d.c. timers designed primarily to operate in logic and

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control circuits of industrial applications. Includes mechanically programmed timers, timing attachments used with contactors or relays, motor driven, and pneumatic timing relays, time delay relays (nonelectric), interval timers and under voltage time delay relays. Excludes solid-state timers, relays with timer attachments mounted and timers designed as solid-state logic units or for metal mill or crane applications or incorporated in products covered by other categories.

## SPECIFIC APPLICATION OR SPECIFIC INDUSTRY CONTROLS:

*Metal mill controls and accessories (all voltages)*—Any a.c. or d.c. power or control circuit device designed for and sold separately for metal mill applications. Includes master switches, limit switches (power or control circuits), timers, relays, etc.

*Crane and hoist controls (all voltages)*—A.c. or d.c. control assemblies designed to control hoist, trolley, and/or bridge motion for application in mines, traffic carrying bridges, elevators, and general industry. Includes crane protective panels, hoist or crane master switches and adjustable speed drives for these purposes, except those for marine applications. Excludes crane and hoist controls for marine applications, pendant control stations, and other accessories sold separately.

*Definite purpose contactors and starters (600 volts or less)*—Definite purpose full voltage contactors and starters, including open and enclosed devices. Including, but not limited to, heating loads, lighting loads, refrigeration, solid-state starters and contact, etc.

*Computer numerical controls*—A computer-based motion control device programmable in numerical word address format, such as EIA RS-274D, RS-494, or equivalent international standard. A computer numerical control (CNC) product typically includes a CPU module, associated panel and processor rack equipment, operator interface devices, input/output signal and data devices, software and related peripheral apparatus.

*Robotic controls*—A computer-based motion control device primarily designed to control the motion of a robot. A robot is defined as a “reprogrammable multifunctional manipulator designed to move material, parts, tools, or specialized devices through variable program motions for the performance of a variety of tasks.”

*Other stand alone motion controls*—Self-contained, processor-based motion/positioning control devices for single axis and multiaxis applications, programmable in various languages, for control of servo or stepper drives and motors.

*Subordinate motion controls*—Processor-based devices which internally execute motion programs, yet rely on

connection to an external bus or rack for power, communications, and supervisor control.

*Programmable control motion module*—A subordinate motion control device which is intended for use in or with a programmable controller.

*Bus motion module*—A subordination motion control device which is intended for use with general purpose computers, such as personal computers, VME, STD, Multibus.

*Chip-level device*—Integrated circuit-based motion control devices intended for incorporation in circuit board designs.

*Other specific purpose equipment (all voltages)*—Any industrial control equipment designed for a specific application which is not covered by any other category, such as aircraft contactors and controllers rated 601V up to 2,200V, dynamic braking controls sold separately, dimmers, and automatic transfer switches.

## 3. Definitions—Continued

### SPECIFIC APPLICATION OR SPECIFIC INDUSTRY CONTROLS—Continued

*A.c. or d.c. control panels (all voltages)*—Assemblies of components in which the principal power circuits are a.c. or d.c., for applications other than welding, marine auxiliaries, crane, hoist, or adjustable speed drives. Also excluded are panels which have been the outputs controlled by solid-state digital logic. Specifically included are analog controllers, furnace and lifting magnet controls, regulators, and motor controls which provide for plugging and/or dynamic braking.

### GENERAL PURPOSE CONTROLS:

*A.c. full voltage, noncombination magnetic starters (1,000 volts or less)*—Electromagnetic switches with overload protection rated in amperes, horsepower, or kilowatts for application at full voltage with nonsynchronous motors. Includes open and enclosed; single and multispeed; reversing and nonreversing; electrically, mechanically, or magnetically held; a.c. or d.c. operated; and controls for one or more squirrel cage or wound rotor motors. Excludes those starters which qualify for any “Specific application” item.

*A.c. full voltage combination magnetic starters (1,000 volts or less)*—Electromagnetic switches with or without overload protection combined with a disconnect device, rated in amperes, horsepower, or kilowatts for application at full voltage with nonsynchronous motors. Includes open and enclosed; single and multispeed; reversing and nonreversing; electrically, mechanically, or magnetically held; a.c. or d.c. operated; and controls for one or more squirrel cage or wound rotor motors. Variations include those with fusible or nonfusible

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disconnect switch or circuit breaker; all those for oil well, irrigation, or other pumping application. Excludes those starters which qualify for any "Specific application" item.

*Disconnect switches (600 volts or less)*—A 600 volt rated switch intended primarily to be used with electric motor controls, and where available, fault currents greater than 10 KA RMS symmetrical are likely to be encountered. The device may be HP and ampere rated, and may meet the requirements for service entrance disconnecting means. "Safety Switches" are not included in this category.

*A.c. full voltage manual controllers (1,000 volts or less)*—Manual switches with or without overload protection, with or without disconnect devices, rated in amperes, horsepower, or kilowatts for application at full voltage with nonsynchronous motors. Includes open and enclosed; single and multispeed; reversing and nonreversing; electrically, mechanically, or magnetically held; a.c. or d.c. operated; and controls for one or more squirrel cage or wound rotor motors. Variations include toggle switches, drum switches, and loop switches. Excludes those starters which qualify for any "Specific application" item.

*A.c. magnetic contactors (1,000 volts or less)*—Electromagnetic switches without overload protection, and without disconnect devices, rated in amperes, horsepower, or kilowatts for application at full voltage with nonsynchronous motors. Includes open and enclosed; single and multispeed; reversing and nonreversing; electrically, mechanically, or magnetically held; a.c. or d.c. operated, for lighting, heating, motor, power distribution, or high frequency applications.

*A.c. reduced voltage magnetic or manual controllers (1,000 volts or less)*—Magnetic switches without overload protection, with or without disconnect devices, rated in amperes, horsepower, or kilowatts, which start nonsynchronous motors. Includes open and enclosed, single and multispeed, reversing and nonreversing types. Variations include controllers with a primary or secondary resistor, reactor, auto-transformer, part-winding, and stardelta starters. Excludes those devices which qualify for any "Specific application" item.

*Synchronous motor controllers (1,000 volts or less)*—Armature and field controls for synchronous motors, starting at full or reduced voltage. Excludes those devices which qualify for any "Specific application" item.

*Motor control centers (1,000 volts or less)*—Factory-built customer-assembled control centers, including the sections and units sold separately.

*Medium voltage nonsynchronous and synchronous motor controllers (over 1,000 through 7,200 volts)*—Manual and magnetic devices for the control of squirrel cage, wound

rotor, and synchronous motors. Includes open and enclosed; combination and noncombination starters and contractors; full or reduced voltage; and reversing and nonreversing air break, vacuum break, and immersed. Excludes those devices which qualify for any "Specific application" item.

*A.c. or d.c. friction brakes and clutches (all voltages)*—All devices used to engage or control motion by slowing or stopping, provided the clutch or brake is operated or released electrically. Braking or clutch action may be controlled mechanically, hydraulically, or magnetically, using shoes or discs. Excludes dynamic braking controls.

### 3. Definitions—Continued

#### GENERAL PURPOSE CONTROLS—Continued

*Electromechanical positioning sensors (all voltages)*—A.c. or d.c. switches and sensors which respond to movement or position. Includes mechanical and air operated limited switches, and rotating CAM switches. Excludes those devices used in or covered by "solid state digital control systems" or are classified as "precision (1/8" gap or less) snap-acting switches."

*Movement sensors (all voltages)*—A device that detects if an object is moving in relation to the sensors. Such devices would include speed switches, encoders, resolvers, tachometers, etc.

*Non-optical proximity sensors*—An a.c. or d.c. device that detects a specified change in the energy field within the sensing zone of the switch, and causes the output to change its state. The energy field may be magnetic, electromagnetic, acoustical or dielectric.

*Optical proximity sensors (all voltages) (photo-electrics)*—A device that detects a specified change in light sensitivity (i.e., absence, presence, intensity) within the sensing zone of the switch, and causes output to change its state.

*D.c. power circuit devices (all voltages)*—Manual and magnetic devices sold separately for the control of d.c. power. Includes open and enclosed, combination and noncombination, full or reduced voltage, reversing or nonreversing, air brake oil immersed. Excludes those devices which qualify for any "Specific application" item.

*Industrial control pushbuttons, selector switches, pilot lights, and foot switches (all voltages)*—A.c. or d.c. manually operated devices designed primarily to operate in the control circuits or industrial applications. Includes control stations, reed devices, and rotary switches with control circuit ratings. Excludes metal mill and crane accessories and similar items incorporated in products covered by other categories, such as conversion kits to starters, and those designed for aircraft, appliances, business machines, computers, or elevator applications.

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*Resistors and rheostats*—Separate components and assemblies of carbon and metal resistors designed to function in a power or motor field circuit. Includes manual and motor operated rheostats, cast and wound metal resistors, and carbon pile resistors. Excludes resistors designed for use in electronics circuits.

*A.c. and d.c. adjustable speed drive controls (all voltages)*—The control portion of adjustable (regulated) speed drives, controlling motors by adjusting voltage or adjusting frequency. Includes single and multimotor drive controls, eddy current coupling drives, all elements of the power units (except motor generators), and all auxiliary controls sold as part of the drive system. Excludes all rotating equipment.

*Packaged a.c. adjustable speed drive*—All equipment required to adjust the speed or torque of an a.c. electric motor(s) by controlling both frequency and voltage applied to the motor(s). Includes rotating equipment.

*Packaged d.c. adjustable speed drive*—All equipment required to adjust the speed or torque of a d.c. electric motor(s) by controlling both frequency and voltage applied to the armature and/or field of the motor(s). Excludes rotating equipment.

*A.c. and d.c. drive systems*—An engineering system built to meet customer specifications, incorporating one or more power conversion modules; may control several motors in a coordinated manner. Includes a.c. and d.c. types. Excludes rotating equipment.

*Solid-state contactors*—All primarily solid-state devices designed to be used in the power circuit or control of ovens, furnaces, lighting, or other power consuming devices. This group also includes power switching devices used for turning motors on and off only. This does not include resistance welding controls, adjustable speed drive controls, and any other product which qualifies for inclusion in other “Specific application” or “General industry control” categories.

This group also includes solid-state braking devices. This does not include resistance welding controls, adjustable speed drive controls, and any other product which qualifies for inclusion in other “Specific application” or “General industry control” categories.

*All other general industry devices and systems*—Solid-state digital panels using either wired or retentive memory logic to provide data or control processes or machine functions systems, n.e.c.

*Motor controller accessories*—Those items which are sold separately but become part of a motor controller. Includes overload relays, auxiliary contacts, heater elements, mechanical interlocks, control transformers, kits to add pushbuttons, selector switches, pilot lights, separate controller enclosure and enclosure fittings, reset mechanisms, etc. Excludes motor circuit switches sold separately.

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## 4. Comparability

Data reported in this survey should correspond to data reported in the Economic Census - Manufacturing Sector form. The sum of values for item codes shown in column (a) should correspond to dollar values reported under product codes indicated in column (b) below.

Current Industrial Reports (Form MA334C) Item codes (a)	Economic Census - Manufacturing Sector Product codes (b)
2005 through 2035	3345120000
3007 through 3085	3345130000
3108 through 3118	3353131000
3305 through 3345	3353133000
3505 through 3510	3353135000
3705 through 3720	3353137000
3805	3353139000
3905 through 3945	335313A000
4105 through 4130	3353141000
4305 through 4335	3353143000
4505 through 4595	3353146000
4708 and 4713	3353147000

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## REFERENCE LIST

FORM <b>MA334C</b>		<b>CONTROL INSTRUMENTS</b>
Product code	Item code	Item Description
<b>CONTROLS FOR MONITORING RESIDENTIAL AND COMMERCIAL ENVIRONMENTS</b>		
3345120102	<b>2005</b>	Temperature responsive (thermostats)
3345120115	<b>2010</b>	Igniters
3345120221	<b>2015</b>	Computerized energy control systems for buildings
3345120224	<b>2020</b>	Other automatic controls
3345120225	<b>2025</b>	Temperature responsive controls for major appliances
3345120227	<b>2030</b>	All other controls for appliances
3345120229	<b>2035</b>	Parts and components for controls for monitoring residential and commercial environments
<b>3345120000</b>	<b>2097</b>	<b>Total controls for monitoring residential and commercial environments (<i>sum of item codes 2005–2035</i>)</b>
<b>PROCESS CONTROL INSTRUMENTS</b>		
3345130101	<b>3007</b>	Unified electronic systems: controllers
3345130106	<b>3010</b>	Unified electronic systems: other
3345130107	<b>3017</b>	Unified electronic systems: auxiliary stations and analog computer devices
3345130109	<b>3020</b>	Nonunified electronic systems
3345130111	<b>3025</b>	Industrial multifunction process computers
3345130127	<b>3030</b>	Pneumatic systems and annunciators
334513022G	<b>3035</b>	Other industrial type instruments
334513021F	<b>3040</b>	Continuous process instruments
334513021V	<b>3045</b>	Instruments for all process variables not listed above
334513032S	<b>3050</b>	Parts for process control instruments
3345130240	<b>3055</b>	Temperature measuring instruments: electrical and electronic measuring types
3345130248	<b>3060</b>	Other temperature measuring instruments
3345130249	<b>3065</b>	Primary temperature sensors, excluding aircraft types: thermocouples
3345130251	<b>3070</b>	Primary temperature sensors, excluding aircraft types: other
3345130264	<b>3075</b>	Pressure and draft measuring instruments
3345130290	<b>3080</b>	Flow and liquid level measuring instruments: differential pressure types
3345130293	<b>3085</b>	Humidity instruments
<b>3345130000</b>	<b>3097</b>	<b>Total process control instruments (<i>sum of item codes 3005–3085</i>)</b>
<b>POWER CIRCUIT BREAKERS</b>		
3353131101	<b>3108</b>	Power circuit breakers (sold separately) for use in metal-clad switchgear (oil and oil-less), over 1,000 volts (report in number of breakers)
3353131103	<b>3110</b>	All other power circuit breakers, sold separately
3353131129	<b>3118</b>	Parts for all power circuit breakers
<b>3353131000</b>	<b>3197</b>	<b>Total power circuit breakers (<i>sum of item codes 3105–3115</i>)</b>
<b>LOW VOLTAGE PANELBOARDS, DISTRIBUTION BOARDS, AND OTHER SWITCHING AND INTERRUPTING DEVICES</b>		
3353133104	<b>3305</b>	Panelboards (include enclosing cabinets), circuit breaker
3353133201	<b>3310</b>	Panelboards (include enclosing cabinets), fusible



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## REFERENCE LIST—Continued

FORM MA334C		
Product code	Item code	Item Description
		<b>LOW VOLTAGE PANELBOARDS, DISTRIBUTION BOARDS, AND OTHER SWITCHING AND INTERRUPTING DEVICES—Continued</b>
3353133207	<b>3315</b>	Distribution switchboards, fusible
3353133211	<b>3320</b>	Distribution switchboards, circuit breaker
3353133216	<b>3325</b>	Knife switches, enclosed: heavy duty
3353133225	<b>3330</b>	Knife switches, enclosed: circuit breaker
3353133227	<b>3335</b>	Knife switches, enclosed: other
3353133233	<b>3340</b>	Other switches
3353133237	<b>3345</b>	Other low voltage switchgear apparatus
<b>3353133000</b>	<b>3397</b>	<b>Total low voltage panelboards, distribution boards, and other switching and interrupting devices (sum of item codes 3305–3345)</b>
		<b>FUSES AND FUSE EQUIPMENT</b>
3353135109	<b>3505</b>	Nonrenewable plug and cartridge fuses
3353135113	<b>3510</b>	Other fuses and open fuse material (including renewable, cutouts, clips, bases, etc.)
<b>3353135000</b>	<b>3597</b>	<b>Total fuses and fuse equipment (sum of item codes 3505 and 3510)</b>
		<b>MOLDED CASE CIRCUIT BREAKERS</b>
3353137105	<b>3705</b>	Molded case circuit breakers, industrial type
3353137112	<b>3710</b>	Molded case circuit breakers, residential or light duty type
3353137117	<b>3715</b>	Other: Marine, Navy, aircraft, and aerospace
3353137131	<b>3720</b>	All other types, including automotive and electronic
<b>3353137000</b>	<b>3797</b>	<b>Total molded case circuit breakers (sum of item codes 3705–3720)</b>
<b>3353139000</b>	<b>3805</b>	<b>Ducts, including plug-in units and accessories (not exceeding 1,000 volts), consisting of enclosed sectionalized prefabricated bus bars rated 20 amperes or more and associated structures and fittings (report quantity in number of units)</b>
		<b>SWITCHGEAR, EXCEPT DUCTS</b>
335313A101	<b>3905</b>	Automatic and manual control panels
335313A204	<b>3910</b>	Metal clad switchgear (using power circuit breakers, oil and oil-less), all voltages above 1,000 volts, up to and including 38kV, excluding load interrupter switchgear
335313A307	<b>3915</b>	Metal enclosed load interrupter switchgear
335313A311	<b>3920</b>	Metal enclosed low voltage power circuit breaker
335313A313	<b>3925</b>	Metal enclosed bus when sold separately
335313A321	<b>3930</b>	Power switching equipment, indoor and outdoor
335313A332	<b>3935</b>	Connectors, all types (power and ground, overhead transmission and distribution, and transmission and distribution)
335313A335	<b>3940</b>	Power fuses, fuse links, and distribution cutouts
335313A337	<b>3945</b>	Other switchgear devices
<b>335313A000</b>	<b>3997</b>	<b>Total switchgear, except ducts (sum of item codes 3905–3945)</b>

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## REFERENCE LIST—Continued

FORM <b>MA334C</b>		
Product code	Item code	Item Description
<b>RELAYS</b>		
3353141101	<b>4105</b>	Industrial control relays (all types)
3353141112	<b>4110</b>	General purpose: Over 100 MV and sealed
3353141117	<b>4115</b>	General purpose: Over 100 MV and NOT sealed
3353141153	<b>4120</b>	High performance military/aerospace/aircraft relays
3353141180	<b>4125</b>	Timing relays (timers)
3353141183	<b>4130</b>	All other general purpose and special purpose relays, including parts
<b>3353141000</b>	<b>4197</b>	<b>Total general purpose and other relays (sum of item codes 4105–4130)</b>
<b>SPECIFIC PURPOSE INDUSTRIAL CONTROLS</b>		
3353143301	<b>4305</b>	U.S. Coast Guard/Marine auxiliary controls and accessories
3353143307	<b>4310</b>	Crane and hoist controls, constant and adjustable voltage (including operators' desks and stations)
3353143311	<b>4315</b>	Definite purpose contactors and starters
3353143317	<b>4320</b>	Stand alone motion controllers: computer numerical controls
3353143323	<b>4325</b>	Stand alone motion controllers: other (include robotic controls)
3353143328	<b>4330</b>	Programmable controllers
3353143333	<b>4335</b>	Other specific or special purpose a.c. and d.c. controllers, other definite purpose devices (Specify kind)
<b>3353143000</b>	<b>4397</b>	<b>Total specific purpose industrial controls and power circuits devices (sum of item codes 4305–4335)</b>
<b>GENERAL PURPOSE CONTROLS</b>		
3353146101	<b>4505</b>	A.c. full voltage noncombination magnetic starters (1,000 volts or less)
3353146109	<b>4510</b>	A.c. full voltage combination magnetic starters (1,000 volts or less)
3353146111	<b>4515</b>	Disconnect switches
3353146117	<b>4520</b>	A.c. full voltage manual controllers (1,000 volts or less)
3353146123	<b>4525</b>	A.c. contactors (1,000 volts or less)
3353146131	<b>4530</b>	Motor control centers
3353146137	<b>4535</b>	Brakes and clutches
3353146142	<b>4540</b>	Other general purpose controls
3353146143	<b>4545</b>	Electromedical positioning switches
3353146146	<b>4550</b>	Movement sensors
3353146149	<b>4553</b>	Nonoptical proximity sensors
3353146152	<b>4555</b>	Optical proximity sensors
3353146169	<b>4560</b>	Pushbuttons, under 30mm
3353146171	<b>4565</b>	Pushbuttons, 30mm and larger
3353146176	<b>4570</b>	Controls for a.c. packaged drives
3353146179	<b>4575</b>	Controls for d.c. packaged drives
3353146182	<b>4580</b>	A.c. drives systems
3353146185	<b>4585</b>	D.c. drives systems
3353146188	<b>4590</b>	Solid state motor controllers
3353146192	<b>4595</b>	All other general industry devices
<b>3353146000</b>	<b>4598</b>	<b>Total general purpose industrial controls and power circuit devices (sum of item codes 4505–4595)</b>



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FORM <b>MA334C</b>		
Product code	Item code	Product description
<b>MOTOR CONTROLLER ACCESSORIES</b>		
3353147102	<b>4708</b>	Motor controller accessories
3353147104	<b>4713</b>	Parts for industrial controls
<b>3353147000</b>	<b>4797</b>	<b>Total motor controller accessories and parts for industrial controls (<i>sum of item codes 4708 and 4713</i>)</b>
<b>SELECTED NONMANUFACTURING REVENUES</b>		
999998900	<b>8500</b>	Resales—Sales of products bought and sold without further manufacture, processing, or assembly
999998041	<b>8501</b>	Research and development
999998045	<b>8504</b>	Process control software products
<b>NOTES:</b>		

10/31/07

**REPORT FOR CALENDAR YR 2007**

U.S. DEPARTMENT OF COMMERCE  
BUREAU OF THE CENSUS  
FORM **MA334C**  
**CURRENT INDUSTRIAL REPORTS**

CONTROL INSTRUMENTS  
Annual Report

The 8-digit number that appears above indicates that the Office of Management and Budget has approved this survey. If that number is not displayed, do not complete this form. YOUR RESPONSE IS REQUIRED BY LAW (Title 13, United States Code). By section 9 of the same law, YOUR REPORT IS CONFIDENTIAL. It may be seen only by persons sworn to uphold the confidentiality of Census Bureau information and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

**In correspondence pertaining to this establishment's report, please refer to the 11 digit Identification Number (ID) 01234567890**



ID 01234567890 575 00 0701 17 MA334C  
00 2007A1 MA334C

SEQ: 1

ATTN: Controller  
TEST FORM

SUITLAND MD 20850

If you have questions regarding this report form please contact:  
MICHAEL PERKINSON X1  
1(800)201-4647

**EMPLOYER IDENTIFICATION (EI) NUMBER.** Identification number used on Employer's Quarterly Federal Tax Return (U.S. Treasury Department Form 941) **(Enter if not shown, correct if wrong.)**

**CONTACT PERSON** (Enter information if not shown, correct if wrong.)

Name ATTN: Controller

Area code Number

Fax number

(Please correct any error in name and address including ZIP Code)

Enter or correct email address: [ ]

**PART I FOR EACH ITEM LISTED BELOW, ENTER FIGURES OR "0" for current period. (The figures shown in the shaded areas were reported for the previous two periods.) PLEASE REFER TO THE INSTRUCTIONS BEFORE COMPLETING THIS REPORT FORM.**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}			
			Quantity {no. of units}	Value {\$1000}				
			1	2	3	4	5	6
CONTROLS FOR MONITORING RESIDENTIAL AND COMMERCIAL ENVIRONMENTS								
3345120102-Temperature responsive {thermostats}	2005	2007						
		2006						
		2005						
3345120115-Igniters	2010	2007						
		2006						
		2005						
3345120221-Computerized energy control systems for buildings	2015	2007						
		2006						
		2005						

\* Figures not received when form was prepared. PLEASE ENTER, if not previously submitted.

**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}					
			Quantity {no. of units}	Value {\$1000}						
			1	2	3	4	5	6		
3345120224-Other automatic controls	2020	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3345120225-Temperature responsive controls for major appliances	2025	2007								
		2006								
		2005								
3345120227-All other controls for appliances	2030	2007								
		2006								
		2005								
3345120229-Parts & components for controls for monitoring residential and commercial environments	2035	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3345120000-Total controls monitoring residential and commercial environments {sum of items 2005-2035}	2097	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
PROCESS CONTROL INSTRUMENTS										
3345130101-Unified electronic systems: controllers	3007	2007								
		2006								
		2005								
3345130106-Unified electronic systems: other	3010	2007								
		2006								
		2005								
3345130107-Unified electronic systems: auxiliary stations and analog computer devices	3017	2007								
		2006								
		2005								
3345130109-Nonunified electronic systems	3020	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							

**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}					
			Quantity {no. of units}	Value {\$1000}	3	4	5	6		
3345130111-Industrial multi-function process computers	3025	2007	XXXXX	2	3	4	5	6		
		2006	XXXXX							
		2005	XXXXX							
3345130127-Pneumatic systems and annunciators	3030	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
334513022G-Other industrial type instruments	3035	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
334513021F-Continuous process instruments	3040	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
334513021V-Instruments for all process variables not listed above	3045	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
334513032S-Parts for process control instruments	3050	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3345130240-Temperature measuring instruments: electrical and electronic measuring types	3055	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3345130248-Other temperature measuring instruments	3060	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3345130249-Primary temperature sensors, excluding aircraft types: thermocouples	3065	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3345130251-Primary temperature sensors, excluding aircraft types: other	3070	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							

**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}					
			Quantity {no. of units}	Value {\$1000}						
			1	2	3	4	5	6		
3345130264-Pressure and draft measuring instruments	3075	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3345130290-Flow and liquid level measuring instruments: differential pressure types	3080	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3345130293-Humidity instruments	3085	2007								
		2006								
		2005								
3345130000-Total process control instruments {sum of items 3007-3085}	3097	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
POWER CIRCUIT BREAKERS										
3353131101-For use in metal-clad switchgear, sold sep., {oil & oilless} over 1000 volts {rep. no. of breakers}	3108	2007								
		2006								
		2005								
3353131103-All other power circuit breakers, sold separately	3110	2007								
		2006								
		2005								
3353131129-Parts for all power circuit breakers	3118	2007								
		2006								
		2005								
3353131000-Total power circuit breakers {sum of items 3108-3118}	3197	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
LOW VOLTAGE PANELBOARDS, DISTRIBUTION BOARDS, AND OTHER SWITCHING AND INTERRUPTING DEVICES										

**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}					
			Quantity {no. of units}	Value {\$1000}						
			1	2	3	4	5	6		
3353133104-Panelboards {include enclosing cabinets}, circuit breaker	3305	2007								
		2006								
		2005								
3353133201-Panelboards {include enclosing cabinets}, fusible	3310	2007								
		2006								
		2005								
3353133207-Distribution switchboards, fusible	3315	2007								
		2006								
		2005								
3353133211-Distribution switchboards, circuit breaker	3320	2007								
		2006								
		2005								
3353133216-Knife switches, enclosed: heavy duty	3325	2007								
		2006								
		2005								
3353133225-Knife switches, enclosed: circuit breaker	3330	2007								
		2006								
		2005								
3353133227-Knife switches, enclosed: other	3335	2007								
		2006								
		2005								
3353133233-Other switches	3340	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353133237-Other low voltage switchgear apparatus	3345	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353133000-Total low voltage panelbds, distrn bds, & other swtchg & intrpt'g devices {sum of items 3305-3345}	3397	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							



**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}			
			Quantity {no. of units}	Value {\$1000}				
			1	2	3	4	5	6
FUSES AND FUSE EQUIPMENT								
3353135109-Nonrenewable plug and cartridge fuses	3505	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
3353135113-Other fuses & open fuse material {including renewable, cutouts, clips, bases, etc.}	3510	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
3353135000-Total fuses and fuse equipment {sum of items 3505 and 3510}	3597	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
MOLDED CASE CIRCUIT BREAKERS								
3353137105-Molded case circuit breakers, industrial type	3705	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
3353137112-Molded case circuit breakers, or light duty type	3710	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
3353137117-Other molded case circuit breakers: Marine, Navy, aircraft and aerospace type	3715	2007						
		2006						
		2005						
3353137131-All other types, including automotive and electronic	3720	2007						
		2006						
		2005						
3353137000-Total molded case case circuit breakers {sum of items 3705-3720}	3797	2007						
		2006						
		2005						

## CURRENT INDUSTRIAL REPORTS - Continued

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## PART I - Continued

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}					
			Quantity {no. of units}	Value { \$1000 }					1	2
3353139000-Ducts, including plug-in units & accessories {see manual}	3805	2007								
		2006								
		2005								
SWITCHGEAR, EXCEPT DUCTS										
335313A101-Automatic & manual control panels	3905	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
335313A204-Metal clad switch- gear {using power circuit breakers, oil & oil-less} {see manual}	3910	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
335313A307-Metal enclosed load interrupter switchgear	3915	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
335313A311-Metal enclosed low voltage power circuit breaker	3920	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
335313A313-Metal enclosed bus when sold separately	3925	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
335313A321-Power switching equipment, indoor & outdoor	3930	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
335313A332-Connectors, all types {power & ground, over- head transmission & distri- bution, & trans. & dist.	3935	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
335313A335-Power fuses, fuse links, and distribution cutouts	3940	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							

**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}			
			Quantity {no. of units}	Value {\$1000}				
			1	2	3	4	5	6
335313A337-Other switchgear devices	3945	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
335313A000-Total switchgear, except ducts {sum of items 3905-3945}	3997	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
RELAYS								
3353141101-Industrial control relays {all types}	4105	2007						
		2006						
		2005						
3353141112-General purpose: Over 100 MV and sealed	4110	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
3353141117-General purpose: Over 100 MV and NOT sealed	4115	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
3353141153-High performance military/aerospace/aircraft relays	4120	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
3353141180-Timing relays {timers}	4125	2007						
		2006						
		2005						
3353141183-All other general purpose and special purpose relays, including parts	4130	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					
3353141000-Total general purpose and special purpose relays {sum of items 4105-4130}	4197	2007	XXXXX					
		2006	XXXXX					
		2005	XXXXX					

**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}						
			Quantity {no. of units}	Value {\$1000}					1	2	3
SPECIFIC PURPOSE INDUSTRIAL CONTROLS											
3353143301-U.S. Coast Guard/ Marine auxiliary controls and accessories	4305	2007									
		2006									
		2005									
3353143307-Crane & hoist controls, constant and adjustable voltage {include operators' desks & stations}	4310	2007									
		2006									
		2005									
3353143311-Definite purpose contactors and starters	4315	2007									
		2006									
		2005									
3353143317-Stand alone motion controllers: computer numerical controls	4320	2007	XXXXX								
		2006	XXXXX								
		2005	XXXXX								
3353143323-Stand alone motion controllers: other {include robotic controls}	4325	2007	XXXXX								
		2006	XXXXX								
		2005	XXXXX								
3353143328-Programmable controllers {sold separately}	4330	2007									
		2006									
		2005									
3353143333-Other specific or special purpose a.c. & d.c. controllers, other definite purp. devices {specify kind}	4335	2007	XXXXX								
		2006	XXXXX								
		2005	XXXXX								
3353143000-Total specific purpose industrial controls & power circuit devices {sum of items 4305-4335}	4397	2007	XXXXX								
		2006	XXXXX								
		2005	XXXXX								
GENERAL PURPOSE CONTROLS											

**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}					
			Quantity {no. of units}	Value {\$1000}	3	4	5	6		
3353146101-A.C. full voltage noncombination magnetic starters {1000 V or less}	4505	2007	1	2	3	4	5	6		
		2006								
		2005								
3353146109-A.C. full voltage combination magnetic starters {1000 V or less}	4510	2007								
		2006								
		2005								
3353146111-Disconnect switches	4515	2007								
		2006								
		2005								
3353146117-A.C. full voltage manual controllers {1000 V or less}	4520	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146123-A.C. contactors {1000 V or less}	4525	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146131-Motor control centers	4530	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146137-Brakes and clutches	4535	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146142-Other general purpose controls	4540	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146143-Electromedical positioning switches	4545	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146146-Movement sensors	4550	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							

**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}					
			Quantity {no. of units}	Value {\$1000}						
			1	2	3	4	5	6		
3353146149-Nonoptical proximity sensors	4553	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146152-Optical proximity sensors	4555	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146169-Pushbuttons, under 30mm	4560	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146171-Pushbuttons, 30mm and larger	4565	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							
3353146176-Controls for a.c. packaged drives	4570	2007								
		2006								
		2005								
3353146179-Controls for d.c. packaged drives	4575	2007								
		2006								
		2005								
3353146182-A.C. drives systems	4580	2007								
		2006								
		2005								
3353146185-D.C. drives systems	4585	2007								
		2006								
		2005								
3353146188-Solid-state motor controllers	4590	2007								
		2006								
		2005								
3353146192-All other general industry devices	4595	2007	XXXXX							
		2006	XXXXX							
		2005	XXXXX							



**CURRENT INDUSTRIAL REPORTS - Continued**

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**PART I - Continued**

Item (Product code - Description)	Item code	Report period	SHIPMENTS		{Do not report imported or purchased products on which your company performed no further fabrication or significant assembly.}				
			Quantity {no. of units}	Value {\$1000}					1
3353146000-Total general purpose industrial controls & power circuit devices {sum of items 4505-4595}	4598	2007	XXXXX						
		2006	XXXXX						
		2005	XXXXX						
MOTOR CONTROLLER ACCESSORIES									
3353147102-Motor controller accessories	4708	2007	XXXXX						
		2006	XXXXX						
		2005	XXXXX						
3353147104-Parts for industrial controls	4713	2007	XXXXX						
		2006	XXXXX						
		2005	XXXXX						
3353147000-Total motor controller accessories & parts for industrial controls {sum of items 4708 and 4713}	4797	2007	XXXXX						
		2006	XXXXX						
		2005	XXXXX						
SELECTED NONMANUFACTURING REVENUES									
9999998900-Resales-Sales of products bought & sold w/o further manufacture, processing, or assembly	8500	2007	XXXXX						
		2006	XXXXX						
		2005	XXXXX						
9999998041-Research and development	8501	2007							
		2006							
		2005							
9999998045-Process control software products	8504	2007							
		2006							
		2005							

**PART I - Continued**

Item (Product code - Description)	Item code	Report period							
			1	2	3	4	5	6	

**If all your items are not listed, please use additional lines or a blank sheet of paper.**

**PART II Has there been any change in the ownership or operation of this establishment during this period?**  
 Yes - Indicate type of change below.  No - Skip to Part III.

	Name of company	Address (Number and street, city, State, ZIP Code)	Date of change
<b>A.</b> <input type="checkbox"/> Purchased from			
<b>B.</b> <input type="checkbox"/> Sold to			
<b>C.</b> <input type="checkbox"/> Plant discontinued all operations		Date	
<b>D.</b> <input type="checkbox"/> Plant operations no longer covered by this survey - Describe in "Remarks" the products currently produced.			
<b>E.</b> <input type="checkbox"/> Reorganized - Describe in "Remarks;" e.g., partnership change or change in corporate status.			

**PART III Do the figures shown on this report and on your last report cover the identical establishments?**  
 Yes  No - Indicate reasons for difference in "Remarks."

**PART IV** Remarks

**PART V CERTIFICATION** - This report is substantially accurate and has been prepared in accordance with instructions.

Signature of authorized official	Title	Date
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Complete and return this form in the envelope provided or to:	<b>Bureau of the Census 1201 East Tenth Street Jeffersonville, IN 47132</b>	<b>NOTE:</b> Please make a photocopy of this for your records.
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