

MA334C(05)-1

**Current  
Industrial  
Reports**

## NOTICE

**The 2005 new MA334C, Current Industrial Report (CIR) survey includes related product classes previously published in the discontinued MA335A, "Switchgear, Switchboard Apparatus, Relays, and Industrial Controls," and MA334B, "Selected Instruments and Related Products surveys.**

Current data are released electronically on Internet for all individual surveys as they become available. Use: <http://www.census.gov/mcd/>. Individual reports can be accessed by choosing "Current Industrial Reports (CIR)," clicking on "CIRs by Subsector;" then choose the survey of interest. Follow the menu to view the PDF file or to download the worksheet file (XLS format) to your personal computer.

These data are also available on Internet through the U.S. Department of Commerce and STAT-USA by subscription. The Internet address is: [www.stat-usa.gov/](http://www.stat-usa.gov/). Follow the prompts to register. Also, you may call 202-482-1986 or 1-800-STAT-USA, for further information.

### SUMMARY OF FINDINGS

During 2005, the total value of shipments of control instruments was slightly over \$23 billion. The 2005 shipments include controls for monitoring residential and commercial environments valued at \$2,179.7 billion, an increase of almost 4 percent from 2004; process

control instruments, valued at \$7,061.8 billion, an increase of 9 percent from 2004; power circuit breakers, valued at \$600.5 million, an increase of 7 percent from 2004; low voltage panelboards, valued at \$2,258.5 billion, a decline of 2 percent from 2004; fuses and fuse equipment, valued at \$336.6 million, a decline of 19 percent from 2004; molded case circuit breakers, valued at \$922.6 million, an increase of 6 percent from 2004; duct, valued at \$227.4 million, an increase of 14 percent from 2004; switchgear (except ducts), valued at \$2,447.1 billion, an increase of 22 percent from 2004; general-purpose relays, valued at \$543.9 million, a decline of 9 percent from 2004; specific-purpose industrial controls, valued at \$2,714.1 billion, a decline of 5 percent from 2004; general-purpose industrial controls, valued at \$3,461.5 billion, an increase of a half of percent from 2004; and motor controller accessories and parts for industrial controls, valued at \$369.0 million, a decline of almost 6 percent from 2004.

For general CIR information, explanation of general terms and historical note, see the appendix.

Address inquiries concerning these data to Investment Goods Industries Branch, Manufacturing and Construction Division (MCD), Washington, DC 20233-6900, or call Michael D. Perkinson, 301-763-4828.

For mail or fax copies of this publication, please contact the Information Services Center, MCD, Washington, DC 20233-6900, or call 301-763-4673.

# U S C E N S U S B U R E A U

*Helping You Make Informed Decisions*

U.S. Department of Commerce  
Economics and Statistics Administration  
U.S. CENSUS BUREAU

Table 1. Value of Shipments of Control Instruments: 2005  
 [Millions of dollars]

Product class code	Product description	2005	2004
3345120	Controls for monitoring residential and commercial environments.....	2,179.7	2,099.5
3345130	Process control instruments.....	7,061.8	6,485.0
3353131	Power circuit breakers.....	600.5	559.1
3353133	Low voltage panelboards.....	2,258.5	2,315.1
3353135	Fuses and fuse equipment.....	336.6	417.6
3353137	Molded case circuit breakers.....	922.6	868.8
3353139	Duct, 1,000 volts and under.....	227.4	199.2
335313A	Switchgear (except ducts).....	2,447.1	2,003.1
3353141	Relays, general-purpose.....	543.9	599.5
3353143	Specific-purpose industrial controls.....	2,714.1	2,872.0
3353146	General-purpose industrial controls.....	3,461.5	3,445.6
3353147	Motor controller accessories and parts for industrial controls.....	369.0	392.2

Table 2a. Shipments of Control Instruments: 2005  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2005	
			Quantity	Value
3345120	Controls for monitoring residential and commercial environments.....	105	(X)	2,179,684
	Automatic controls of the type principally used as components of air-conditioning, refrigeration, and comfort heating, including pneumatic controls:			
3345120102	Temperature responsive (thermostats) 1/.....	35		433,892
3345120115	Igniters 1/.....	5		173,292
3345120221	Computerized energy control systems for buildings.....	11		284,259
3345120224	Other automatic controls.....	58	(X)	786,073
3345120225	Temperature responsive 1/.....	13		165,448
3345120227	All other controls for appliances 1/.....	11		189,348
3345120229	Parts and components for controls monitoring residential and commercial environments.....	31	(X)	147,372
3345130	Process control instruments.....	414	(X)	7,061,779
	General-purpose control system instruments (commonly called receiver-type), operating from standardized transmission signals (electrical types ac or dc milliampere, millivolt, or millivolt, or telemetering signals; pneumatic types, 3 to 15 and 3 to 27 p.s.i. signals):			
	Electronic systems - unified architecture type:			
3345130101	Controllers (recording, indicating, or blind).....	30		721,452
3345130106	Other unified electronic systems.....	24		93,408
3345130107	Auxiliary stations and analog computing devices associated with the above, including manual loaders, auto-to-manual stations, ratio stations, adders, multi-pliers, integrators, etc. ....	6		190,447
3345130109	Electronic systems - nonunified architecture type.....	45	(X)	773,187
3345130111	Industrial multifunction process computers.....	41	(X)	357,623
	Pneumatic systems, including all system-type control, display and computing instruments actuated from standardized pneumatic transmission signals:			
3345130127	Pneumatic systems and annunciators.....	22	(X)	47,509
334513022G	Other industrial type instruments.....	58	(X)	647,355
334513021F	Continuous process instruments.....	78	(X)	803,403
334513021V	Instruments for all process variables not listed above.....	36	(X)	211,959
334513032S	Parts for process control instruments.....	71	(X)	273,191
3345130240	Temperature measuring instruments: electrical and electronic measuring types.....	66	(X)	261,145
3345130248	Other temperature measuring instruments.....	46	(X)	211,059
	Primary temperature sensors, excluding aircraft types:			
3345130249	Thermocouples and thermocouple lead wire.....	50	(X)	204,707
3345130251	All other types (resistance temperature detectors, radiation and optical sensors, thermistors, etc.).....	44	(X)	154,881
3345130264	Pressure and draft measuring instruments.....	53	(X)	466,598
3345130290	Flow and liquid level measuring instruments: differential pressure types.....	124	(X)	1,604,878
3345130293	Humidity instruments (controlling, recording, indicating and transmitting, and associated primary humidity elements, excluding home and general-purpose type).....	11		38,977

Table 2a. Shipments of Control Instruments: 2005  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2005	
			Quantity	Value
3353131	Power circuit breakers, all voltages.....	40	(X)	600,453
3353131101	Power circuit breakers (sold separately) for use in metal-clad switchgear, oil and oilless, over 1,000 volts, (number of breakers).....	15	6,097	59,943
3353131103	All other power circuit breakers (sold separately).....	31	(S)	502,010
3353131129	Parts for all power circuit breakers.....	19	(X)	38,500
3353133	Low voltage panelboards, distribution boards, and other switching and interrupting devices, 1,000 volts and below.....	126	(X)	2,258,505
	Panelboards, including enclosing cabinets:			
3353133201	Fusible, including combination switch fuse.....	42	(S)	92,027
3353133104	Circuit breaker.....	71	(S)	763,772
	Distribution switchboards:			
3353133207	Fusible.....	25	28,980	102,993
3353133211	Circuit breaker.....	49	235,247	506,442
	Knife switches, enclosed:			
3353133216	Heavy duty.....	9	1,195,407	157,075
3353133225	Circuit breaker type.....	8	(S)	247,582
3353133227	Other.....	8	926,237	52,131
3353133233	Other switches.....	33	(X)	211,946
3353133237	Other low voltage switchgear apparatus.....	24	(X)	124,537
3353135	Fuses and fuse equipment, under 2,300 volts (except power distribution cutouts).....	16	(X)	336,567
3353135109	Nonrenewable plug and cartridge fuses.....	9	(X)	127,939
3353135113	Other fuses and open fuse material, including renewable, cutouts, clips, bases, etc. ....	14	(X)	208,628
3353137	Molded case circuit breakers, 1,000 volts and under.....	43	(X)	922,551
3353137105	Industrial type.....	34	(X)	361,536
3353137112	Residential or light duty type.....	8	(X)	328,132
	Other molded case circuit breakers:			
3353137117	Marine, Navy, aircraft and aerospace type.....	9	(S)	116,071
3353137131	All other types, including automotive and electronic.....	13	(S)	116,812
3353139	Duct, including plug-in units and accessories, 1,000 volts and under, consisting of enclosed sectionalized pre-fabricated bus bars rated 20 amperes or more and associated structures and fittings.....	18	(X)	227,364
335313A	Switchgear (except ducts).....	124	(X)	2,447,115
335313A101	Automatic and manual control panels (generators, transformers, feed-controls, etc.).....	51	(X)	350,392
335313A204	Metal-clad switchgear (using power circuit breakers, oil and oilless), all voltages above 1,000 volts, up to and including 38kV, excluding load interrupter switchgear.....	30	(X)	470,322
335313A307	Metal-enclosed load interrupter switchgear assemblies, all voltages, including parts.....	35	(X)	301,325
335313A311	Metal-enclosed low voltage power circuit breaker switchgear assemblies 1,000 volts and below, including parts and excluding load interrupter switchgear.....	31	(X)	269,844

Table 2a. Shipments of Control Instruments: 2005  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2005	
			Quantity	Value
335313A313	Metal-enclosed bus bars when sold separately, above 1,000 volts, including isolated, segregated, nonsegregated and cable bus bars.....	14	(X)	31,760
	Power switching equipment, 2,300 volts and over, including attachments, auxiliaries, bus supports and fittings, and accessories, but excluding power fuses, sold separately. Also includes single-phase circuit reclosers:			
335313A321	Indoor and outdoor, excluding structures.....	28	(X)	493,598
335313A332	Power and ground connectors, overhead transmission and distribution, all types.....	10	(X)	129,493
335313A335	Power fuses, fuse links, and distribution cutouts.....	13	(X)	307,134
335313A337	Other switchgear devices, including regulators and miscellaneous switchboard devices (for sale separately) 2/.....	20	(X)	93,247
3353141	General-purpose and other relays.....	82	(X)	543,871
3353141101	Industrial-control relays (all voltages), n.e.c. ....	40	(D)	188,163
	General-purpose electromechanical relays:			
3353141112	Over 100 MV and sealed.....	14	(X)	29,956
3353141117	Over 100 MV and NOT sealed.....	16	(X)	20,103
3353141153	High performance military/aerospace/aircraft relays and contactors (generally pertaining to Mil-\$5757, 6106, 19523, 25108, and 39016).....	5	(X)	103,649
3353141180	Timing relays (timers).....	31	2,520,356	40,268
3353141183	All other general-purpose and special-purpose relays, including parts.....	41	(X)	161,732
3353143	Specific-purpose industrial controls.....	175	(X)	2,714,050
3353143301	U.S. Coast Guard, Navy, and Marine auxiliary controls and accessories.....	20	45,532	151,689
3353143307	Crane and hoist controls, constant and adjustable voltage, including operators' desks and stations.....	14	44,700	153,054
3353143311	Definite-purpose contactors and starters (600 volts and less).....	16	(S)	50,874
	Machine tool applications (motion controllers):			
	Stand-alone controls for numerically controlled machine tools:			
3353143317	Computer numerical controls (CNC).....	11	(X)	209,167
3353143323	Other stand-alone motion controls (include robotic controls).....	17	(X)	170,520
3353143328	Programmable controllers, sold separately.....	41	(S)	791,005
3353143333	Other specific- or special-purpose ac and dc controllers, other definite-purpose devices.....	116	(X)	1,187,741
3353146	General-purpose industrial controls and power circuit devices.....	211	(X)	3,461,517
	General-purpose controls:			
3353146101	Ac full voltage noncombination magnetic starters (1,000 volts or less).....	23	(S)	51,799
3353146109	Ac full voltage combination magnetic starters (1,000 volts or less).....	18	98,596	46,069
3353146111	Disconnect switches (600 volts or less).....	28	(S)	83,393
3353146117	Ac full voltage manual controllers, 1,000 volts or less.....	12	(X)	27,495
3353146123	Ac contactors, 1,000 volts or less, excluding controls for packaged adjustable speed drives and synchronous motor controls.....	19	(X)	52,920
3353146131	Motor control centers, 1,000 volts or less.....	30	(X)	488,642

Table 2a. Shipments of Control Instruments: 2005  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2005	
			Quantity	Value
3353146137	Brakes and clutches.....	17	(X)	90,058
3353146142	Other general purpose controls.....	27	(X)	126,969
	Limit switches (positioning sensors):			
3353146143	Electromechanical positioning sensors.....	22	(X)	80,554
3353146146	Movement sensors.....	21	(X)	50,158
	Solid-state positioning sensors:			
3353146149	Nonoptical proximity sensors.....	20	(X)	67,371
3353146152	Optical proximity sensors.....	20	(X)	183,639
3353146169	Pushbuttons, under 30mm.....	20	(X)	33,985
3353146171	Pushbuttons, 30 mm and larger.....	26	(X)	47,850
	Controls for adjustable speed drivers, including electronic and nonelectric and operators' desks and stations:			
3353146176	Controls for a.c. packaged drives.....	34		627,742
3353146179	Controls for d.c. packaged drives.....	26		89,999
3353146182	A.c. drives systems.....	36		37,814
3353146185	D.c. drives systems.....	20		823,535
3353146188	Solid-state motor controllers (all voltages).....	33		525,433
3353146192	All other general industry devices.....	95	(X)	1,000,909
3353147	Motor controller accessories and parts for industrial controls.....	101	(X)	369,048
3353147102	Motor controller accessories.....	46	(X)	187,724
3353147104	Parts for industrial controls.....	79	(X)	181,324

(D) Withheld to avoid disclosing data for individual companies. n.e.c. Not elsewhere classified.  
 S Does not meet publication standards. X Not applicable.

1/The quantity for this product code is in thousands of units.

2/Product codes 335313A328, 335313A331, and 335313A337 are combined to avoid disclosing data for individual companies.

Table 2b. Shipments of Control Instruments: 2004  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
3345120	Controls for monitoring residential and commercial environments and appliance regulating controls.....	108	(X)	2,099,535
	Automatic controls of the type principally used as components of air-conditioning, refrigeration, and comfort heating, including pneumatic controls:			
3345120102	Temperature responsive (thermostats) 1/.....	35		381,492
3345120105	Pressure responsive (pressurestats) 1/.....	10	(D)	7,871
3345120107	Hydronic responsive 1/.....	4		14,102
3345120113	Liquid level 1/.....	10	(D)	39,159
3345120115	Igniters 1/ 7/.....	7		146,866
3345120219	Microprocessor-based load programmers for buildings energy control 1/.....	12	(D)	59,363
3345120221	Computerized energy control systems for buildings.....	10		637,635
3345120222	Lighting controls, including occupancy and motion sensors, lighting control panels, dimming control systems, timing devices, etc 7/.....	6		501,984
3345120223	Other.....	31	(X)	634,211
	Controls for major appliances such as domestic laundry and cooking appliances, refrigerators and freezers, vending machines, air-conditioners, etc.:			
3345120225	Temperature responsive 1/.....	13		110,231
3345120227	All other controls for appliances 1/.....	12		49,100
3345120229	Parts and components for controls monitoring residential and commercial environments and for appliance regulating controls, sold separately.....	24	(X)	79,797
3345130	Process control instruments.....	481	(X)	6,484,995
	General-purpose control system instruments (commonly call receiver-type), operating from standardized transmission signals (electrical types ac or dc milliampere, millivolt, or telemetering signals; pneumatic types, 3 to 15 and 3 to 27 p.s.i. Signals):			
	Electronic systems - unified architecture type:			
3345130101	Controllers (recording, indicating, or blind).....	30		471,481
3345130103	Recorders, with or without self-contained set-point stations.....	10		89,844
3345130105	Indicators, with or without self-contained set-point stations.....	17		113,477
3345130107	Auxiliary stations and analog computing devices associated with the above, including manual loaders, auto-to-manual stations, ratio stations, adders, multipliers, integrators, etc. ....	5	(D)	(D)

Table 2b. Shipments of Control Instruments: 2004  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
3345130109	Electronic systems - nonunified architecture type.....	54	(X)	791,242
3345130111	Industrial multifunction process computers.....	43	(X)	409,455
	Pneumatic systems, including all system-type control, display and computing instruments actuated from standardized pneumatic transmission signals:			
3345130113	Controllers (recording, indicating, or blind) 8/.....	8	(D)	(D)
3345130119	Auxiliary stations and analog computing devices associated with the above, including manual loaders, auto-to-manual stations, ratio stations, adders, multipliers, integrators, etc. 8/.....	2	(D)	(D)
3345130122	Other pneumatic systems, including recorders, indicators, and receiver-type gauges 8/.....	9	(D)	30,238
3345130123	Annunciators, industrial; electro-mechanical and solid-state types.....	6	40,698	20,564
	Temperature measuring instruments, excluding general-purpose receiver-type instruments:			
	Electrical and electronic measuring types (thermocouple, resistance temperature detector, radiation, optical, thermistor, and other electrical sensors):			
3345130225	Direct-deflecting types (controllers for all types of electrical temperature sensors) 9/.....	5	(D)	(D)
3345130227	Direct-deflecting types (indicators and recorders for all types of electrical temperature sensors) 9/.....	5	(D)	15,295
3345130231	Electromechanical self-balancing types (indicators, recorders, and integrators for all types of electrical temperature sensors).....	4	(D)	5,661
3345130233	Electronic controllers for all types of electrical temperature sensors.....	20	691,718	144,228
3345130235	Digital indicators for all types of electrical temperature sensors, excluding data loggers.....	21	58,546	16,823
	Transmitters, producing standardized electric or pneumatic analog transmission signals for all types of electrical temperature sensors:			
3345130237	Electric 10/.....	20	(D)	(D)
3345130239	Pneumatic 10/.....	2	(D)	41,587
	Mechanical measuring types, filled systems (liquid filled, vapor pressure, gas filled, and mercury filled types):			
3345130241	Indicating or recording controllers.....	8	(D)	11,382
3345130243	Recorders, noncontrol.....	11	(D)	11,274
3345130245	Indicators only, excluding indoor-outdoor and other household or appliance type thermometers.....	11	386,861	10,567
3345130247	Transmitters producing standardized electric or pneumatic analog transmission signals.....	8	9,446	3,577

Table 2b. Shipments of Control Instruments: 2004  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
	Primary temperature sensors, excluding aircraft types:			
3345130249	Thermocouples and thermocouple lead wire.....	49	(X)	217,000
3345130251	All other types (resistance temperature detectors, radiation and optical sensors, thermistors, etc.).....	46	(X)	147,676
	Pressure (gauge, absolute vacuum) and draft measuring instruments, excluding general-purpose receiver-type instruments:			
3345130253	Indicating or recording controllers 1/ 11/.....	17	(D)	(D)
3345130255	Recorders, noncontrol 11/.....	7	(D)	84,815
	Indicators only, excluding receiver-type gauges:			
3345130257	3-inch diameter and over 1/.....	18		75,301
3345130259	Under 3-inch diameter 1/.....	14		74,184
	Transmitters producing standardized analog transmission signals:			
3345130261	Transmitters producing standardized electronic analog transmission signals 1/.....	27		196,151
	Flow and liquid level measuring instruments, excluding general-purpose receiver-type instruments:			
	Differential pressure types:			
3345130265	Indicating or recording controllers.....	6		11,809
3345130267	Recorders, noncontrol, and indicators, noncontrol.....	8		24,190
	Transmitters producing standardized analog transmission signals:			
3345130269	Transmitters producing standardized electronic analog transmission signals.....	16	(D)	(D)
3345130271	Transmitters producing standardized pneumatic analog transmission signals.....	5	(D)	(D)
3345130273	Primary pressure sensors (load cells, strain gauges, etc.).....	10		18,514
3345130275	Primary flow elements, including orifice plates, venturi tubes, low tubes, flow nozzles, pitot tubes, etc. ....	16		57,340
	Electromagnetic flowmeters:			
3345130277	Primary device (magnetic flow tube).....	10		51,642
3345130279	Secondary device (magnetic transmitter, recorder, indicator or controller which receives signal directly from primary directly from primary device).....	9		28,330
3345130281	Capacitance, ultrasonic, and other electronic types, including magnetic resonance, vortex-precession, and vortex-shedding type elements.....	34		146,284
3345130283	Variable area-controlling, recording, indicating, and transmitting instruments and associated primary flow elements 1/.....	13	(D)	103,637
3345130285	Float and displacement (controlling, recording, indicating, and transmitting instruments and associated primary flow elements) 1/.....	25		109,099
3345130287	Turbine and propeller: controlling, recording, indicating, and transmitting instruments and associated primary flow elements.....	12		33,589

Table 2b. Shipments of Control Instruments: 2004  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
3345130289	Mass flow, i.e., controlling, thermal-controlling, recording indicating, and transmitting instruments and associated primary flow elements.....	12	129,800	259,453
3345130291	Other types: controlling, recording, indicating, and transmitting instruments and associated primary flow elements.....	21	949,346	161,187
3345130293	Humidity instruments (controlling, recording, indicating, and transmitting, and associated primary humidity elements, excluding home and general-purpose type).....	10	34,667	37,146
	Continuous process instruments for on-stream gas and liquid analysis, including indicators, recorders, controllers, and analysis electrodes and cells, excluding laboratory analysis types:			
3345130295	Chromatographic analyzers.....	12	5,927	67,038
3345130297	Infrared analyzers.....	7	(D)	25,030
3345130299	Oxygen analyzers.....	16	39,335	78,331
334513021A	Other gas analyzers.....	23	82,920	165,702
334513021C	Ph analyzers.....	9	167,848	30,334
334513021E	Other liquid analyzers.....	19	126,105	75,413
	Instruments for all process variables not listed above (speed, weight, position, sequence, density, specific gravity, mechanical load, electrical load, millivolts):			
	Electrical and electronic measuring types:			
334513011G	Direct-deflecting type controllers, indicators, and recorders.....	7	(D)	67,071
334513021L	Digital indicators.....	14	68,067	35,559
334513021M	Transmitters producing standardized electric or pneumatic analog transmission signals.....	9	(D)	11,270
	Mechanical measuring types:			
334513021P	Indicating or recording controllers and recorders, noncontrol.....	5	(D)	2,043
334513021R	Indicators only.....	5	(D)	12,362
334513021T	Transmitters producing standardized electric or pneumatic analog transmission signals.....	9	(D)	41,875
	All other industrial process instruments:			
334513022A	Other temperature instruments.....	23	(X)	152,326
334513022C	Other flow and liquid level instruments.....	24	(X)	173,146
334513022E	Other continuous process instruments.....	32	(X)	171,911
334513022G	Other industrial type instruments.....	52	(X)	558,793
	Parts, supplies, accessories, other primary sensors, n.e.c., panelboards, and other equipment associated with process control instrumentation:			
334513032J	Primarily designed for temperature instruments.....	13	(X)	33,741
334513032L	Primarily designed for flow and liquid level instruments.....	27	(X)	106,641
334513032N	Primarily designed for continuous process instruments.....	17	(X)	45,071
334513032P	Primarily designed for industrial type instruments.....	25	(X)	50,578
335313	Switchgear and switchboard apparatus.....	(NA)	(X)	6,362,974
3353131	Power circuit breakers, all voltages.....	33	(X)	559,135

Table 2b. Shipments of Control Instruments: 2004  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
3353131101	Power circuit breakers (sold separately) for use in metal-clad switchgear, oil and oilless, over 1,000 volts, (number of breakers).....	11	5,885	43,993
3353131103	All other power circuit breakers (sold separately).....	25	(S)	484,299
3353131129	Parts for all power circuit breakers.....	18	(X)	30,843
3353133	Low voltage panelboards, distribution boards, and other switching and interrupting devices, 1,000 volts and below.....	108	(X)	2,315,093
3353133201	Panelboards, including enclosing cabinets: Fusible, including combination switch fuse.....	40	(S)	121,233
3353133104	Circuit breaker.....	52	(S)	660,516
3353133207	Distribution switchboards: Fusible.....	28	27,137	103,873
3353133211	Circuit breaker.....	38	205,580	449,917
3353133213	Other, including theater switchboards.....	6	3,108	3,334
	Switches (except switches commonly known as snap, toggle, and rotary switches and switch devices intended primarily to be used with electric motor controls):			
	Knife switches, enclosed:			
3353133216	Heavy duty.....	8	1,084,346	139,684
3353133219	General duty.....	3	540,748	44,834
3353133222	Enclosed fusible, service entrance, and branch circuit cutouts.....	6	514,091	4,687
3353133225	Circuit breaker type.....	11	(S)	288,865
3353133228	Load centers: Grouped metering panels (combinations of two or more meters and related switching units with over-current protection associated with each meter, including accessory components, excluding single socket load combinations).....	14	(S)	59,076
3353133231	Other switches, excluding snap, bolted, toggle, push, etc., including open knife switches, motor contact, motor disconnect, meter service equipment other than metermounting, and test devices.....	19	(X)	110,497
3353133234	Other low voltage switchgear apparatus.....	22	(X)	328,577
3353135	Fuses and fuse equipment, under 2,300 volts (except power distribution cutouts).....	16	(X)	417,632
3353135101	Nonrenewable plug fuses.....	5	(X)	(D)
3353135104	Nonrenewable cartridge fuses.....	6	(X)	(D)
3353135107	Renewable plug and cartridge fuses, including renewable links.....	2	(X)	(D)
3353135111	Other fuses and open fuse material, including cutouts, clips, bases, etc. ....	13	(X)	(D)
3353137	Molded case circuit breakers, 1,000 volts and under.....	33	(X)	868,771
	Industrial type, assembled as complete units in supporting and enclosing housing of insulating materials, with or without accessories or attachments:			
3353137101	With ground fault detection capability.....	14	375,009	42,478
3353137104	Without ground fault detection capability.....	20	18,763,082	263,712

Table 2b. Shipments of Control Instruments: 2004  
[Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
	Residential or light duty type, (primarily) for load center application, assembled as complete units in supporting and enclosing housing of insulating materials:			
3353137107	With ground fault detection capability.....	4	(D)	(D)
3353137111	Without ground fault detection capability.....	4	(D)	(D)
3353137113	Individually enclosed industrial type, excluding panelboards and busway plugs.....	10	(S)	(D)
	Other molded case circuit breakers:			
3353137117	Marine, Navy, aircraft and aerospace type....	8	(S)	122,002
3353137131	All other types, including automotive and electronic.....	13	(S)	191,518
3353139	Duct, including plug-in units and accessories, 1,000 volts and under, consisting of enclosed sectionalized prefabricated bus bars rated 20 amperes or more and associated structures and fittings.....	18	(X)	199,202
335313A	Switchgear (except ducts).....	112	(X)	2,003,141
335313A101	Automatic and manual control panels (generators, transformers, feed-controls, etc.).....	52	(X)	212,827
335313A204	Metal-clad switchgear (using power circuit breakers, oil and oilless), all voltages above 1,000 volts, up to and including 38kV, excluding load interrupter switchgear.....	34	(X)	353,978
335313A307	Metal-enclosed load interrupter switchgear assemblies, all voltages, including parts.....	34	(X)	215,902
335313A311	Metal-enclosed low voltage power circuit breaker switchgear assemblies 1,000 volts and below, including parts and excluding load interrupter switchgear.....	31	(X)	225,271
335313A313	Metal-enclosed bus bars when sold separately, above 1,000 volts, including isolated, segregated, nonsegregated and cable bus bars.....	14	(X)	35,762
	Power switching equipment, 2,300 volts and over, including attachments, auxiliaries, bus supports and fittings, and accessories, but excluding power fuses, sold separately. Also includes single-phase circuit reclosers:			
335313A316	Outdoor, excluding structures.....	24	(D)	427,436
335313A319	Indoor.....	9	(D)	22,516
335313A322	Power fuses and fuse links for 2,300 volts and over, ac service, excluding distribution cutouts .....	8	(X)	(D)
335313A325	Power and ground connectors generally used in substation construction.....	5	(X)	(D)
335313A328	Overhead transmission and distribution connectors (clamps, taps, terminals, and splices) 1/.....	3	(X)	(D)
335313A331	Transmission and distribution connectors, n.e.c., including underground deadends, hot line taps, stirrups, and repair sleeves, etc. 1/.....	4	(D)	(D)
335313A334	Distribution cutouts.....	6	(D)	62,374
335313A337	Other switchgear devices, including regulators and miscellaneous switchboard devices (for sale separately) 1/.....	16	(X)	211,124
335314	Relays and industrial controls.....	(NA)	(X)	6,917,072
3353141	General-purpose and other relays.....	97	(X)	599,507

Table 2b. Shipments of Control Instruments: 2004  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
3353141101	Industrial-control relays (all voltages), n.e.c. ....	39	(D)	203,367
	General-purpose electromechanical relays:			
	Over 100 MW actuating power and sealed (either hermetically or environmentally):			
3353141104	0 through 2.0 amperes contact rating 2/....	6	(D)	(D)
3353141107	Over 2.0 through 10.0 amperes contact rating 2/.....	15	(D)	(D)
3353141111	Over 10.0 amperes contact rating 2/.....	7	(S)	36,721
	Over 100 MW actuating power and not sealed:			
3353141113	0 through 10.0 amperes contact rating.....	14	(S)	9,522
3353141116	Over 10.0 amperes contact rating 3/.....	10	(S)	12,806
3353141119	0 through 100 MW actuating power (both sealed and not sealed) 3/.....	1	(D)	(D)
	Miniature printed circuit mounted electro-mechanical relays, excluding reed relays (profile height 1/2-inch max.):			
	Sealed (either hermetically or environmentally): 4/.....	1	(D)	(D)
3353141141	General-purpose solid-state relays, pure solid-state and hybrid solid-state, excluding time delay.....	7	(D)	(D)
	High performance military/aerospace/aircraft relays and contactors (generally pertaining to Mil-R5757, 6106, 19523, 25108, and 39016):			
3353141143	Round and square can multipole airframe relays and contractors (both sealed and not sealed) (all sizes).....	2	(D)	(D)
	Crystal can types (sealed): 5/.....	2	(D)	(D)
3353141155	RF, antenna and coaxial relays (sealed and not sealed), excluding reed relays.....	1	(D)	(D)
	Reed relays 6/.....	1	(D)	(D)
3353141167	Stepping switches, stepping and impulse relays.....	3	(D)	(D)
3353141171	Switchgear and protective relays.....	5	1,413	891
	Timing relays (timers):			
3353141173	Solid-state/EMR combination.....	20	2,722,909	30,303
3353141176	Solid-state-pure.....	13	855,762	17,585
3353141179	All other timing relays (timers), including pneumatic, motor driven, electronic, etc. ....	13	242,785	5,701
3353141182	All other general-purpose and special-purpose relays, n.e.c. ....	16	(X)	90,548
3353141185	Parts for general-purpose and special-purpose relays (sold separately).....	6	(X)	11,349
3353143	Specific-purpose industrial controls.....	191	(X)	2,872,006
3353143301	U.S. Coast Guard, Navy, and Marine auxiliary controls and accessories.....	18	49,623	165,041
3353143104	Metal mill controls and accessories (all voltages).....	5	(D)	(D)
3353143307	Crane and hoist controls, constant and adjustable voltage, including operators' desks and stations.....	16	47,966	157,169
3353143311	Definite-purpose contactors and starters (600 volts and less).....	15	(S)	55,343
	Machine tool applications (motion controllers):			
	Stand-alone controls for numerically controlled machine tools:			
3353143313	Computer numerical controls (CNC); postioning (point-to-point).....	5	(S)	19,931

Table 2b. Shipments of Control Instruments: 2004  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
3353143316	Computer numerical controls (CNC); continuous path (contouring).....	7	24,095	185,101
3353143319	Robotic controls .....	2	(D)	(D)
3353143322	Other stand-alone motion controls.....	16	(S)	186,671
3353143325	Subordinate motion controls .....	12	25,937	9,431
3353143228	Programmable controllers, sold separately.....	45	(S)	953,209
3353143331	Other specific- or special-purpose ac and dc controllers, other definite-purpose devices.....	101	(X)	1,111,839
3353146	General-purpose industrial controls and power circuit devices.....	209	(X)	3,445,559
	General-purpose controls:			
3353146101	Ac full voltage noncombination magnetic starters (1,000 volts or less).....	26	(S)	46,590
	Ac full voltage combination magnetic starters (1,000 volts or less):			
3353146104	Combination starters (less pumping panels).....	16	101,757	39,097
3353146107	Pumping panels.....	18	72,484	46,209
3353146111	Disconnect switches (600 volts or less).....	21	(S)	56,457
	Ac full voltage manual controllers, 1,000 volts or less:			
3353146113	Designed and rated to U.S. National Standards (NEMA) 7/.....	10	2,307,572	30,767
3353146116	Designed and rated to International Standards (IEC) 7/.....	5	(D)	(D)
	Ac contactors, 1,000 volts or less, excluding controls for packaged adjustable speed drives and synchronous motor controls:			
3353146119	Designed and rated to U.S. National Standards (NEMA).....	14	273,311	42,832
3353146122	Designed and rated to International Standards (IEC).....	15	(D)	(D)
3353146125	Ac reduced voltage controls, 1,000 volts or less, excluding synchronous motor starters.....	11	(S)	14,962
3353146128	Synchronous motor starters, 1,000 volts or less, including both full and reduced voltage.....	3	(D)	(D)
3353146131	Motor control centers, 1,000 volts or less.....	31	(X)	424,106
3353146134	Starters and contactors for squirrel cage and wound rotor and synchronous and nonsynchronous motors, over 1,000 to 7,200 volts, air break, vacuum, and oil immersed.....	5	11,936	55,552
3353146137	Brakes and clutches.....	18	(S)	78,366
3353146141	Digital readout systems, including dial or plugboard type.....	15	2,610	2,265
	Presence sensors and motion measurement devices:			
	Limit switches (positioning sensors):			
3353146143	Electromechanical positioning sensors.....	23	(X)	102,293
3353146146	Movement sensors.....	22		41,447
	Solid-state positioning sensors:			
3353146149	Nonoptical proximity sensors.....	18	(X)	68,696
3353146152	Optical proximity sensors.....	17	(X)	183,582
3353146155	All other pilot circuit devices, excluding relays and limit switches.....	12	(X)	4,092
3353146158	Dc power circuit devices (all voltages).....	11	(X)	9,251
3353146161	Other control sensors (all voltages).....	17	(X)	50,189

Table 2b. Shipments of Control Instruments: 2004  
 [Quantity in thousands of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	2004	
			Quantity	Value
	Pushbuttons and pushbutton stations, excluding operators' desks and stations:			
3353146164	Pushbuttons, 18 mm and smaller.....	10	(X)	1,823
3353146167	Pushbuttons, 19 mm to 29 mm.....	20	(X)	33,455
3353146171	Pushbuttons, 30 mm and larger.....	27	(X)	47,692
3353146173	Rheostats and resistors (except for electronic applications) sold separately, n.e.c. ....	7	(X)	14,770
	Controls for adjustable speed drivers, including electronic and nonelectric and operators' desks and stations:			
3353146176	Controls for ac packaged drives.....	33		617,644
3353146179	Controls for dc packaged drives.....	26		75,557
3353146182	Ac drives systems.....	31		40,621
3353146185	Dc drives systems.....	20		707,096
3353146188	Solid-state motor controllers (all voltages)....	31		498,753
3353146191	All other general industry devices and systems.....	78	(X)	1,017,888
3353147	Motor controller accessories and parts for industrial controls.....	97	(X)	392,224
3353147101	Motor controller accessories, including those items that are sold separately, but become part of a motor controller. Includes overload relays, auxiliary contacts, heater elements, mechanical interlocks, control transformers, kits to add push buttons, selector switches, pilot lights, separate controller enclosure fittings, reset mechanisms, etc., excluding motor circuit switches, sold separately.....	37	(X)	202,383
3353147104	Parts for industrial controls.....	77	(X)	189,861

D Withheld to avoid disclosing data for individual companies. NA Not available.  
 n.e.c. Not elsewhere classified. S Does not meet publication standards.  
 X Not applicable.

- 1/The quantity for this product code is in thousands of units.
- 2/Product codes 3353141104, 3353141107, and 3353141111 are combined to avoid disclosing data for individual companies.
- 3/Product codes 3353141116 and 3353141119 are combined to avoid disclosing data for individual companies.
- 4/Includes product codes 3353141122, 3353141125, 3353141128, 3353141131, 3353141134, and 3353141137.
- 5/Includes product codes 3353141146, 3353141149, and 3353141152 to avoid disclosing data for individual companies.
- 6/Includes product codes 3353141158, 3353141161, and 3353141164 to avoid disclosing data for individual companies.
- 7/Product codes 3353146113 and 3353146116 are combined to avoid disclosing data for individual companies.

Table 3. Shipments, Exports, Imports, and Apparent Consumption of Control Instruments: 2005  
 [Value in thousands of dollars]

Product code	Product description	Manufacturers' shipments (value f.o.b. plant)	Exports of domestic merchandise (value at port) 1/	Imports for consumption 2/
3345120102, 225	Temperature responsive automatic controls (thermostats).....	599,340	126,935	535,356
3345120115, 221, 224, 227	Pressure responsive automatic, hydraulic automatic, pneumatic automatic, and automatic control, n.e.c. ....	1,432,972	1,000,152	1,733,287
3345120229	Parts and components for automatic controls, sold separately.....	147,372	(S)	610,425
3345130	Process control instruments.....	7,061,779	1,000,904	873,279
3353131101, 103	Power circuit breakers.....	561,953	44,265	47,852
3353131129	Parts for power circuit breakers.....	38,500	(S)	113,115
3353133104, 207, 211	Low voltage panelboards and distribution boards.....	1,373,207	(NA)	152,014
3353133216, 225, 227	Knife switches.....	456,788	175,168	508,320
3353133237	Other low voltage switchgear apparatus.....	124,537	16,518	16,544
3353135109, 113	Fuses and fuse equipment, under 2,300 volts.....	336,567	148,106	191,878
3353137105, 112, 117, 131	Molded case circuit breakers, 1,000 volts and under 2,300 volts....	922,551	366,366	507,232
3353139100	Duct, including plug-in units and accessories.....	227,364	39,881	(NA)
335313A101, 204, 307, 311, 313, 321, 337	Switchgear and switchgear assemblies 3/.....	2,010,488	32,501	(NA)
335313A335	Power fuses, fuse links, and distribution cutouts.....	307,134	9,430	9,587
335313A332	Power and ground connectors and transmission and distribution connectors, all types 3/.....	129,493	(S)	97,088
3353141101, 112, 117, 153, 180, 183	Relays.....	543,871	507,975	844,378
3353143328	Programmable controllers.....	791,005	268,771	592,963
3353146131	Motor control centers, 1,000 volts or less.....	488,642	97,840	133,943
3353146137	Brakes and clutches.....	90,058	54,487	146,615
3353146143, 146	Limit switches.....	130,712	(NA)	(NA)

NA Not available. n.e.c. Not elsewhere classified. S Does not meet publication standards.

1/Source: Census Bureau report EM 545, U.S. Exports.

2/Source: Census Bureau report IM 145, U.S. Imports for Consumption.

3/"Manufacturers' shipments (value f.o.b. plant)" data for "Switchgear and switchgear assemblies" and "Power fuses and fuse links" are combined with "Power and ground connectors" and "Transmission and distribution connectors" to avoid disclosing data for individual companies.

Table 4. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes and HTSUSA Import Codes: 2005

Product code	Product description	Export code 1/	Import code 2/
3345120102, 225	Temperature responsive automatic controls thermostates.....	9032.10.0000	9032.10.0030 9032.10.0060 9032.10.0090
3345120115, 221, 224, 227	Pressure responsive automatic, hydraulic automatic pneumatic automatic, and automatic controls, n.e.c. ....	9032.20.0000 9032.81.0080 9032.89.6020 9032.89.6085	9032.20.0000 9032.81.0080 9032.89.6015 9032.89.6025 9032.89.6085
3345120229	Parts and components for automatic controls, sold separately.....	9032.90.0000	9032.90.2000 9032.90.4000 9032.90.6020 9032.90.6040 9032.90.6060 9032.90.6080
3345130	Process control instruments.....	9032.81.0040 9032.81.0080 9032.89.6030 9032.89.6040 9032.89.6050 9032.89.6060 9032.89.6070 9032.89.6075	9032.81.0020 9032.81.0060 9032.89.6030 9032.89.6040 9032.89.6050 9032.89.6060 9032.89.6070 9032.89.6075
3353131101, 103	Power circuit breakers.....	8535.21.0000 8535.29.0020	8535.21.0000 8535.29.0020
3353131129	Parts for power circuit breakers.....	8535.29.0040 8536.20.0040	8535.29.0040 8536.20.0040
3353133104, 201, 207, 211	Low voltage panelboards and distribution boards.....	8538.90.8020	8538.90.8020
3353133216, 225, 227	Knife switches.....	8537.10.9050	8537.10.9050
3353133237	Other low voltage switchgear apparatus.....	8536.50.9045	8536.50.9045
3353135109, 113	Fuses and fuse equipment, under 2,300 volts.....	8535.10.0040 8536.10.0020 8536.10.0040	8535.10.0040 8536.10.0020 8536.10.0040
3353137105, 112, 117, 131	Molded case circuit breakers, 1,000 volts and under 2,300 volts.....	8536.20.0020	8536.20.0020
3353139100	Duct, including plug-in units and accessories.....	8536.90.8010	8536.90.8010
335313A101, 204, 307, 311, 313, 321, 337	Switchgear and switchgear assemblies 3/.....	8537.20.0020	8537.20.0020

Table 4. Comparison of North American Industry Classification System (NAICS)-Based Product Codes with Schedule B Export Codes and HTSUSA Import Codes: 2005

Product code	Product description	Export code 1/	Import code 2/
335313A335	Power fuses, fuse links, and distribution cutouts.....	8535.10.0020	8535.10.0020
335313A332	Power and ground connectors and transmission and distribution connectors 3/.....	8535.90.8040	8535.90.8040
3353141101, 112, 117, 153, 180, 183	Relays.....	8536.41.0005	8536.41.0005
		8536.41.0020	8536.41.0020
		8536.41.0030	8536.41.0030
		8536.41.0045	8536.41.0045
		8536.41.0050	8536.41.0050
		8536.41.0060	8536.41.0060
		8536.49.0050	8536.49.0050
		8536.49.0055	8536.49.0055
		8536.49.0065	8536.49.0065
3353143328	Programmable controllers.....	8536.49.0075	8536.49.0075
		8536.49.0080	8536.49.0080
		8537.10.9060	8537.10.9060
3353146131	Motor control centers, 1,000 volts or less.....	8537.10.6000	8537.10.6000
3353146137	Brakes and clutches.....	8505.20.0000	8505.20.0000
3353146143, 146	Limit switches.....	8536.50.9055	8536.50.9055

n.e.c. Not elsewhere classified.

1/Source: 2005 edition, Harmonized System-based Schedule B, Statistical Classification of Domestic and Foreign Commodities Exported from the United States.

2/Source: Harmonized Tariff Schedule of the United States, Annotated (2005).

# Appendix.

## General CIR Survey Information, Explanation of General Terms and Historical Note

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### GENERAL

The CIR program has been providing monthly, quarterly, and annual measures of industrial activity for many years. Since 1904, with its cotton and fats and oils surveys, the CIR program has formed an essential part of an integrated statistical system involving the quinquennial economic census, manufacturing sector, and the annual survey of manufactures. The CIR surveys, however, provide current statistics at a more detailed product level than either of the other two statistical programs.

The primary objective of the CIR program is to produce timely, accurate data on production and shipments of selected products. The data are used to satisfy economic policy needs and for market analysis, forecasting, and decision making in the private sector. The product-level data generated by these surveys are used extensively by individual firms, trade associations, and market analysts in planning or recommending marketing and legislative strategies, particularly if their industry is significantly affected by foreign trade. Although production and shipments information are the two most common data items collected, the CIR program collects other measures also such as inventories, orders, and consumption. These surveys measure manufacturing activity in important commodity areas such as textiles and apparel, chemicals, primary metals, computer and electronic components, industrial equipment, aerospace equipment, and consumer goods.

The CIR program uses a unified data collection, processing, and publication system. The U.S. Census Bureau updates the survey panels for most reports annually and reconciles the estimates to the results of the broader-based annual survey of manufactures and the economic census, manufacturing sector. The manufacturing sector provides a complete list of all producers of the products covered by the CIR program and serves as the primary source for CIR sampling. Where a small number of producers exist, CIR surveys cover all known producers of a product. However, when the number of producers is too large, cutoff and random sampling techniques are used. Surveys are continually reviewed and modified to provide the most up-to-date information on products produced. The CIR program includes a group of mandatory and voluntary surveys. Typically the monthly and quarterly surveys are conducted on a voluntary basis. Those companies that choose not to respond to the voluntary surveys are required to submit a mandatory annual counterpart corresponding to the more frequent survey.

### NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS), 1997

The adoption of the North American Industry Classification System (NAICS) in the 1997 Economic Census has had a major impact on the comparability of current and historic data. Approximately half of the industries in the manufacturing sector of NAICS do not have comparable industries in the Standard Industrial Classification (SIC) system that was used in the past.

While most of the change affecting the manufacturing sector was change within the sector, some industries left manufacturing and others came into manufacturing. Prominent among those that left manufacturing are logging and portions of publishing. Prominent among the industries that came into the manufacturing sector are bakeries, candy stores where candy is made on the premises, custom tailors, makers of custom draperies, and tire retreading. The net effect of the classification changes are such that if the 1997 value of shipments data for all manufacturers were tabulated on an SIC basis, it would be approximately 3 percent higher.

Listed below are the NAICS sectors:

- 21 Mining
- 22 Utilities
- 23 Construction
- 31–33 Manufacturing
- 42 Wholesale Trade
- 44–45 Retail Trade
- 48–49 Transportation and Warehousing
- 51 Information
- 52 Finance and Insurance
- 53 Real Estate and Rental and Leasing
- 54 Professional, Scientific, and Technical Services
- 55 Management of Companies and Enterprises
- 56 Administrative and Support and Waste Management and Remediation Services
- 61 Educational Services
- 62 Health Care and Social Assistance
- 71 Arts, Entertainment, and Recreation
- 72 Accommodation and Foodservices
- 81 Other Services (except Public Administration)

(Not listed above are the Agriculture, Forestry, Fishing, and Hunting sector (NAICS 11), partially covered by the census of agriculture conducted by the U.S. Department of Agriculture, and the Public Administration sector (NAICS 92), covered by the census of governments conducted by the Census Bureau.)

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The 20 NAICS sectors are subdivided into 96 subsectors (three-digit codes), 313 industry groups (four-digit codes), and, as implemented in the United States, 1170 industries (five- and six-digit codes).

## FUNDING

The Census Bureau funds most of the surveys. However, a number of surveys are paid for either fully or partially by other Federal Government agencies or private trade associations. A few surveys are mandated, but all are authorized by Title 13 of the United States Code.

## RELIABILITY OF DATA

Survey error may result from several sources including the inability to obtain information about all cases in the survey, response errors, definitional difficulties, differences in the interpretation of questions, mistakes in recording or coding the reported data, and other errors of collection, response, coverage, and estimation. These nonsampling errors also occur in complete censuses. Although no direct measurement of the biases due to these nonsampling errors has been obtained, precautionary steps were taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

A major source of bias in the published estimates is the imputing of data for nonrespondents, for late reporters, and for data that fail logic edits. Missing figures are imputed based on period-to-period movements shown by reporting firms. A figure is considered to be an impute if the value was not directly reported on the questionnaire, directly derived from other reported items, directly available from supplemental sources, or obtained from the respondent during the analytical review phase. Imputation generally is limited to a maximum of 10 percent for any one data cell. Figures with imputation rates greater than 10 percent are suppressed or footnoted. The imputation rate is not an explicit indicator of the potential error in published figures due to nonresponse, because the actual yearly movements for nonrespondents may or may not closely agree with the imputed movements. The range of difference between the actual and imputed figures is assumed to be small. The degree of uncertainty regarding the accuracy of the published data increases as the percentage of imputation increases. Figures with imputation rates above 10 percent should be used with caution.

## DATA REVISIONS

Statistics for previous years may be revised as the result of corrected figures from respondents, late reports for which imputations were originally made, or other corrections. Data that have been revised by more than 5 percent from previously published data are indicated by footnotes.

## DISCLOSURE

The Census Bureau collects the CIR data under the authority of Title 13, United States Code, which specifies that the information can only be used for statistical purposes and cannot be published or released in any manner that would identify a person, household, or establishment. "D" indicates that data in the cell have been suppressed to avoid disclosure of information pertaining to individual companies.

## EXPLANATION OF GENERAL TERMS

**Capacity.** The maximum quantity of a product that can be produced in a plant in 1 day if operating for 24 hours. Includes the capacity of idle plants until the plant is reported to be destroyed, dismantled, or abandoned.

**Consumption.** Materials used in producing or processing a product or otherwise removing the product from the inventory.

**Exports.** Includes all types of products shipped to foreign countries, or to agents or exporters for reshipment to foreign countries.

**Gross shipments.** The quantity or value of physical shipments from domestic establishments of all products sold, transferred to other establishments of the same company, or shipped on consignment, whether for domestic or export sale or use. Shipments of products purchased for resale are omitted. Shipments of products made under toll arrangements are included.

**Interplant transfers.** Shipments to other domestic plants within a company for further assembly, fabrication, or manufacture.

**Inventories.** The quantity or value of finished goods, work in progress, and materials on hand.

**Machinery in place.** The number of machines of a particular type in place as of a particular date whether the machinery was used for production, prototype, or sampling, or was idle. Machinery in place includes all machinery set up in operating positions.

**Net receipts.** Derived by subtracting the materials held at the end of the previous month from the sum of materials used during the current month.

**Production.** The total volume of products produced, including: products sold; products transferred or added to inventory after adjustments for breakage, shrinkage, and obsolescence, plus any other inventory adjustment; and products that undergo further manufacture at the same establishment.

**Quantities produced and consumed.** Quantities of each type of product produced by a company for internal consumption within that same company.

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**Quantity and value of new orders.** The sales value of orders received during the current reporting period for products and services to be delivered immediately or at some future date. Also represents the net sales value of contract change documents that increase or decrease the sales value of the orders to which they are related, when the parties concerned are in substantial agreement as to the amount involved. Included as orders are only those that are supported by binding legal documents such as signed contracts or letter contracts.

**Quantity and value of shipments.** The figures on quantity and value of shipments represent physical shipments of all products sold, transferred to other establishments of the same 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 a company's own branches are assigned the same value as comparable appropriate allocation of company overhead and profit. Products bought and resold without further manufacture are excluded.

**Stocks.** Total quantity of ending finished inventory.

**Unfilled orders (backlog).** Calculated by adding net new orders and subtracting net sales from the backlog at the end of the preceding year.

#### **HISTORICAL NOTE**

Data on switchgear, switchboard apparatus, relays, and industrial controls have been collected by the Census Bureau since 1971 on survey MA335A.

Data on selected instruments and related products have been collected by the Census Bureau since 1961 on survey MA334B.

Beginning in 2005, data for MA335A, Switchgear, Switchboard Apparatus, Relays, and Industrial Controls, and a portion of MA334B, Selected Instruments and Related Products, will be published under the new survey MA334C, Control Instruments. Additional data for MA334B can be found on surveys MA334A, Analytical and Biomedical Instruments, MA334D, Defense, Navigational and Aerospace Electronics, and MA334T, Meters and Test Devices. Historical data may be obtained from Current Industrial Reports available at your local Federal Depository Library.