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Switchgear, Switchboard Apparatus, Relays, and Industrial Controls - 1997

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Information about the scope of the survey, methodology, explanation of terms, and historical notes for this survey may be found in the introduction of the 1996 Manufacturing Profiles, issued July 1998.

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Summary of Findings

During 1997, the total value of shipments of switchgear and switchboard apparatus was \$6.7 billion, up 4.8 percent from the 1996 value of \$6.4 billion. The 1997 shipments include power circuit breakers valued at \$456.3 million, an increase of 10.6 percent from 1996; low voltage panelboards, valued at \$2.2 billion, an increase of 4.4 percent from 1996; fuses and fuse equipment, valued at \$557.4 million, an increase of 6.7 percent from 1996; molded case circuit breakers, valued at \$1.3 billion, an increase of 5.4 percent from 1996; duct, valued at \$278.1 million, an increase of 9.3 percent from 1996; and switchgear valued at \$1.9 billion, an increase of 2.3 percent from 1996. During 1997, the total value of shipments of relays and industrial controls was \$9.3 billion, up 2.2 percent from the 1996 value of \$9.1 billion. The 1997 shipments include general-purpose relays valued at \$850.8 million, an increase of 8.2 percent from 1996; specific purpose industrial controls, valued at \$3.5 billion, an increase of 2.0 percent from 1996; general purpose industrial controls, valued at \$4.4 billion, an increase of 0.7 percent from 1996; and motor controller accessories valued at \$554.4 million an increase of 7.4 percent from 1996.

Table 1. Value of Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1992 to 1997
 [Millions of dollars]

Product code	Product description	1997	1996	1995	1994	1993	1992
36132	Power circuit breakers.....	456.3	412.7	442.9	550.9	520.8	480.8
36133	Low-voltage panelboards.....	2,186.7	2,093.3	2,025.4	1,750.8	1,687.1	1,531.1
36134	Fuses and fuse equipment.....	557.4	522.2	500.1	382.1	319.9	412.8
36135	Molded case circuit breakers.....	1,283.6	1,218.1	1,173.4	1,132.9	1,009.8	954.7
36136	Duct, 1,000 volts and under.....	278.1	254.5	238.5	227.9	200.1	189.1
36139	Switchgear (except ducts).....	1,911.6	1,868.2	1,758.3	1,663.7	1,581.3	161.5
36251	Relays, general purpose.....	850.8	786.6	808.1	804.0	750.6	781.5
36252	Specific purpose industrial controls.....	3,523.3	3,454.9	3,312.4	2,747.9	2,321.6	1,915.7
36253	General purpose industrial controls.....	4,353.8	4,323.8	4,189.2	3,840.3	3,326.3	2,778.2
36254	Motor controller accessories and parts for industrial controls.....	554.4	516.4	503.3	511.6	476.4	447.9

Table 2. Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1997		1996	
			Quantity	Value	Quantity	Value
3613 --	Switchgear and switchboard apparatus.....	(NA)	(X)	6,673,723	(X)	6,368,948
36132 -	Power circuit breakers, all voltages.....	33	(X)	456,296	(X)	412,680
36132 16	Power circuit breakers (sold separately) for use in metal-clad switchgear, oil and oilless, over 1,000 volts, (number of breakers).....	10	4,246 a/	45,524	3,304	42,908
36132 17	Parts for power circuit breakers for use in metal-clad switchgear 1/.....	5	(X)	(D)	(X)	(D)
36132 21	Power circuit breakers, free standing, oil and oilless, from 15.5 kV through 800 kV and above, (number of breakers).....	8	4,426	165,061	3,238	147,652
36132 22	Parts for power circuit breakers, free standing, oil and oilless, from 15.5 kV through 800 kV and above 1/.....	3	(X)	12,723	(X)	12,602
36132 26	Power circuit breakers (sold separately) in individual enclosures and/or for use in low-voltage switchgear, 1,000 volts and below, excluding molded case circuit breakers) (number of breakers) 2/.....	9	(D)	(D)	(D)	(D)
36132 27	Parts for power circuit breakers in individual enclosures and/or for use in low-voltage switchgear, 1,000 volts and below, excluding molded case circuit breakers) 2/.....	5	(X)	(D)	(X)	(D)
36132 31	All other power circuit breakers (sold separately), oil and oilless, network protectors and automatic circuit reclosers 2/.....	8	(X)	180,972	(X)	175,824
36132 32	Parts for all other power circuit breakers, oil and oilless, network protectors and automatic circuit reclosers.....	14	(X)	52,016	(X) r/	33,694
36133 -	Low voltage panelboards, distribution boards, and other switching and interrupting devices, 1,000 volts and below.....	125	(X)	2,186,671	(X)	2,093,277
	Panelboards, including enclosing cabinets:					
36133 11	Fusible, including combination switch fuse.....	43	(S)	154,516	(S) r/	161,144
36133 12	Circuit breaker.....	53	1,193,896	551,937	1,057,960	483,427
	Distribution switchboards:					
36133 15	Fusible.....	32	34,582	108,510	r/ 36,072	r/ 112,747
36133 17	Circuit breaker.....	45	84,539	343,635	r/ 78,091	323,222
36133 19	Other, including theater switchboards.....	7	4,923	5,208	r/ 3,643	r/ 4,015
	Switches (except switches commonly known as snap, toggle, and rotary switches and switch devices intended primarily to be used with					

Table 2. Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1997		1996			
			Quantity	Value	Quantity	Value		
	electric motor controls):							
	Knife switches, enclosed:							
36133 21	Heavy duty.....	10	1,546,205	181,742	1,794,738	170,864		
36133 22	General duty.....	6	1,382,275	68,621	1,567,589	69,328		
36133 24	Enclosed fusible, service entrance, and branch circuit cutouts.....	8	474,260	28,567	930,081	25,038		
36133 26	Circuit breaker type.....	15	(S)	262,467	(S)	270,810		
	Load centers:							
36133 32	Grouped metering panels (combinations of two or more meters and related switching units with overcurrent protection associated with each meter, including accessory components, excluding single socket load combinations).....	14	(S) a/	35,089	(S)	39,878		
36133 33	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.....	22	(X) a/	163,461	(X)	160,986		
36133 98	Other low voltage switchgear apparatus.....	30	(X) a/	282,918	(X)	271,818		
36134 -	Fuses and fuse equipment, under 2,300 volts (except power distribution cutouts)	24	(X) b/	557,363	(X)	522,201		
36134 31	Nonrenewable plug fuses 3/.....	3	(X)	(D)	(X)	(D)		
36134 51	Nonrenewable cartridge fuses.....	10	(X) b/	261,953	(X)	254,408		
36134 71	Renewable plug and cartridge fuses, including renewable links 3/.....	3	(X) b/	4,382	(X)	5,605		
36134 93	Other fuses and open fuse material, including cutouts, clips, bases, etc.	22	(X) b/	291,028	(X)	262,188		
36135 -	Molded case circuit breakers, 1,000 volts and under.....	33	(D)	1,283,649	(D)	1,218,119		
	Industrial type, assembled as complete units in supporting and enclosing housing of insulating materials, with or without accessories or attachments:							
36135 14	With ground fault detection capability.....	15	a/	75,496	29,291	71,642	r/	27,391
36135 16	Without ground fault detection capability.....	17		31,578,925	680,198	27,808,120		606,674
	Residential or light duty type, (primarily) for load center application, assembled as complete units in supporting and enclosing housing of insulating materials:							
36135 18	With ground fault detection							

Table 2. Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996
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Product code	Product description	No. of cos.	1997		1996	
			Quantity	Value	Quantity	Value
36135 19	capability 4/..... Without ground fault detection	7	(D)	(D)	(D)	(D)
36135 31	capability 4/..... Individually enclosed industrial type, excluding panelboards and busway plugs.....	6	48,710,661	269,478	51,980,001	288,322
	Other molded case circuit breakers:					
36135 91	Marine and Navy type 5/.....	4	(D)	(D)	(D)	(D)
36135 92	Aircraft and aerospace 5/.....	6	1,417,854	127,551	1,293,889	119,165
36135 93	Automotive 6/.....	2	(D)	(D)	(D)	(D)
36135 94	Electronic 6/.....	5	(D)	(D)	(D)	(D)
36135 95	All other types 6/.....	12	66,548,291	160,944	59,535,988	r/ 160,820
36136 -	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.....	22	2,148,413	278,147	1,484,533	254,475
36136 11	Busways 7/.....	20	(D)	(D)	(D)	(D)
36136 31	Trolley-type and lighting distribution duct 7/.....	3	2,148,413	278,147	1,484,533	254,475
36139 -	Switchgear (except ducts).....	129	(X)	1,911,597	(X)	1,868,196
36139 07	Automatic and manual control panels (generators, transformers, feed-controls, etc.).....	68	(X)	307,356	(X)	301,801
36139 09	Metal-clad switchgear (using power circuit breakers, oil and oilless), all voltages above 1,000 volts, up to and including 38 Kv, excluding load interrupter switchgear.....	43	(X) a/	355,286	(X) r/	348,774
36139 10	Metal-enclosed load interrupter switchgear assemblies, all voltages, including parts.....	37	(X)	183,797	(X) r/	201,949
36139 13	Metal-enclosed low-voltage power circuit breaker switchgear assemblies 1,000 volts and below, including parts and excluding load interrupter switchgear.....	33	(X) a/	147,196	(X)	165,116
36139 17	Metal-enclosed bus bars when sold separately, above 1,000 volts, including isolated, segregated, nonsegregated and cable bus bars.....	18	(X) a/	45,670	(X) r/	39,191
	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:					
36139 41	Outdoor, excluding structures.....	28	(X)	372,826	(X)	337,931
36139 45	Indoor.....	9	(X)	7,091	(X)	3,434
36139 51	Power fuses and fuse links for 2,300 volts and over, ac					

Table 2. Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996
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Product code	Product description	No. of cos.	1997		1996	
			Quantity	Value	Quantity	Value
36139 81	service,excluding distribution cut-outs 8/.....	11	(X)	(D)	(X)	(D)
36139 91	Power and ground connectors generally used in substation construction 8/.....	6	(X)	158,741	(X)	143,179
36139 93	Overhead transmission and distribution connectors (clamps, taps, terminals, and splices).....	6	(X)	45,946	(X)	41,729
36139 83	Transmission and distribution connectors, n.e.c., including underground deadends, hot line taps, stirrups, repair sleeves, etc. 9/.....	4	(X)	(D)	(X)	(D)
36139 98	Distribution cutouts.....	9	(X)	83,208	(X)	84,888
3625 --	Other switchgear devices, including regulators and miscellaneous switchboard devices (for sale separately) 9/.....	24	(X)	a/ 204,480	(X)	200,204
36251 -	Relays and industrial controls.....	(NA)	(X)	9,282,244	(X)	9,081,688
36251 01	General purpose and other relays.....	116	(X)	850,771	(X)	786,615
36251 01	Industrial control relays (all voltages), n.e.c.	42	(S)	a/ 247,979	(S)	r/ 229,950
	General purpose electromechanical relays:					
	Over 100 MW actuating power and sealed (either hermetically or environmentally):					
36251 03	0 through 2.0 amps contact rating 10/.....	8	(D)	(D)	(D)	(D)
36251 04	Over 2.0 through 10.0 amps contact rating.....	16	967,769	22,963	r/ 921,178	24,219
36251 05	Over 10.0 amps contact rating 10/.....	6	1,505,079	25,440	(S)	36,690
	Over 100 MW actuating power and not sealed:					
36251 02	0 through 10.0 amps contact rating.....	14	a/ 955,637	a/ 9,376	1,339,791	13,750
36251 10	Over 10.0 amps contact rating 11/.....	12	(D)	(D)	(D)	(D)
36251 11	0 through 100 MW actuating power (both sealed and not sealed 11/.....	2	a/ 859,216	9,842	1,250,927	10,082
	Miniature printed circuit mounted electromechanical relays, excluding reed relays (profile height 1/2 inch max.):					
	Sealed (either hermetically or environmentally):					
36251 12	0 through 2.0 amps contact rating 12/.....	4	(D)	(D)	(D)	(D)
36251 15	Over 2.0 amps contact rating 12/.....	3	11,115,959	13,276	10,235,539	12,305
36251 20	Not sealed.....	4	(D)	(D)	(D)	(D)
36251 19	DIP or SIP footprint Sealed (either hermetically or					

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Product code	Product description	No. of cos.	1997		1996	
			Quantity	Value	Quantity	Value
	environmentally).....	2	(D)	(D)	(D)	(D)
36251 22	Telephone relays, all types: Sealed (either hermetically or environmentally) 13/.....	4	(D)	(D)	(D)	(D)
36251 23	Not sealed 13/.....	4	c/ 12,844,017	c/ 14,205	6,722,880	7,497
36251 30	General purpose solid-state relays, pure solid-state and hybrid solid-state, excluding time delay.....	10	(D)	(D)	(D)	(D)
36251 31	High performance military/aerospace/aircraft relays and contactors generally pertaining to Mil-R5757, 6106, 19523, 25108, and 39016): Round and square can multipole airframe relays and contractors (both sealed and not sealed) (all sizes).....	5	(D)	(D)	(D)	(D)
36251 32	Crystal can types (sealed): Larger than full size.....	5	(S)	25,317	344,030	21,539
36251 33	Full size.....	5	184,164	12,564	174,140	12,522
36251 37	Half size and smaller, including TO-5 package 14/.....	4	(D)	(D)	(D)	(D)
36251 52	RF, antenna and coaxial relays (sealed and not sealed), excluding reed relays 14/.....	7	a/ 1,820,947	89,325	r/ 1,744,353	r/ 69,762
36251 59	Reed relays: Dry reed: Miniature size (glass length less than .85 inches) 15/.....	10	(D)	(D)	(D)	(D)
36251 61	Standard size 15/.....	7	21,888,345	42,432	17,758,964	34,801
36251 66	Mercury wetted reed 16/.....	6	(D)	(D)	(D)	(D)
36251 69	Stepping switches, stepping and impulse relays 16/.....	4	(D)	(D)	(D)	(D)
36251 75	Switchgear and protective relays 16/.....	6	627,338	25,731	572,202	19,818
36251 79	Timing relays (timers): Solid-state/EMR combination.....	24	b/ 1,199,009	b/ 36,050	930,410	25,936
36251 81	Solid-state-pure.....	18	322,272	14,750	250,357	11,050
36251 82	All other timing relays (timers), including pneumatic, motor driven, electronic, etc.	15	450,148	18,829	432,999	17,517
36251 92	All other general purpose and special purpose relays, n.e.c.	25	(X)	169,208	(X)	160,865
36251 96	Parts for general-purpose and special-purpose relays (sold separately).....	9	(X)	b/ 16,796	(X)	28,308
36252 -	Specific-purpose industrial controls.....	250	(X)	3,523,286	(X)	3,454,885
36252 45	U.S. Coast Guard, Navy, and Marine auxiliary controls and accessories.....	24	62,807	137,411	75,612	130,539
36252 47	Metal mill controls and accessories (all voltages).....	8	(D)	(D)	(D)	(D)
36252 48	Crane and hoist controls, constant and adjustable voltage, including operators' desks and stations.....	19	36,392	131,630	44,595	127,078
36252 49	Definite purpose contactors and					

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 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1997		1996	
			Quantity	Value	Quantity	Value
	starters (600 volts and less).....	19	10,789,899	135,262	11,797,777	r/ 160,097
	Machine tool applications (motion controllers):					
	Stand-alone controls for numerically controlled machine tools:					
36252 51	Computer numerical controls (CNC); positioning (point-to-point).....	12	9,523	23,097	9,449	22,262
36252 55	Computer numerical controls (CNC); continuous path (Contouring).....	13	46,732	288,923	35,570	277,992
36252 57	Robotic controls.....	4	(D)	(D)	(D)	(D)
36252 58	Other stand-alone motion controls	13	51,307	92,696	r/ 70,973	r/ 91,891
36252 60	Subordinate motion controls	12	(S)	a/ 15,156	(S)	r/ 15,471
36252 71	Programmable controllers, sold separately.....	56	(S)	1,223,469	(S)	r/ 1,133,627
36252 76	Other specific-or special-purpose ac and dc controllers, other definite purpose devices.....	157	(X)	a/ 1,365,793	(X)	1,377,299
36253 -	General purpose industrial controls and power circuit devices.....	262	(X)	4,353,770	(X)	4,323,798
	General purpose controls:					
36253 01	AC full voltage non-combination magnetic starters (1,000 volts or less)	24	b/ 968,714	155,910	1,153,398	154,856
	AC full voltage combination magnetic starters (1,000 volts or less):					
36253 03	Combination starters, (less pumping panels)	22	106,068	67,983	r/ 129,062	73,427
36253 05	Pumping panels	19	62,505	36,411	38,991	29,572
36253 06	Disconnect switches (600 volts or less).....	19	2,519,221	55,758	1,977,834	56,476
	AC full voltage manual controllers, 1,000 volts or or less:					
36253 23	Designed and rated to U. S. National Standards (NEMA).....	12	1,285,192	48,515	r/ 1,290,669	48,886
36253 25	Designed and rated to International Standards (IEC)	7	(S)	722	(S)	r/ 769
	AC contactors, 1,000 volts or less, excluding controls for packaged adjustable speed drives and synchronous motor control:					
36253 27	Designed and rated to U. S. National Standards (NEMA).....	14	577,622	82,837	r/ 483,249	68,231
36253 29	Designed and rated to International Standards (IEC).....	16	(D)	(D)	(D)	(D)
36253 14	AC reduced voltage controls, 1,000 volts or less, excluding synchronous motor starters.....	21	a/ 89,112	a/ 63,267	77,689	59,024
36253 15	Synchronous motor starters, 1,000					

Continued

Table 2. Shipments of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996
 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1997		1996	
			Quantity	Value	Quantity	Value
	volts or less, including both full and reduced voltage.....	4	(D)	(D)	(D)	(D)
36253 16	Motor control centers, 1,000 volts or less.....	38	(X)	437,495	(X)	422,834
36253 18	Starters and contactors for squirrel cage and wound rotor and synchronous and non-synchronous motors, over 1,000 to 7,200 volts, air break, vacuum, and oil immersed.....	8		43,844		70,354
36253 21	Brakes and clutches.....	20		1,474,894		1,138,134
36253 34	Digital readout systems, including dial or plugboard type.....	22		7,823 a/		7,868 r/
	Presence sensors and motion measurement devices:					
	Limit switches (positioning sensors):					
36253 32	Electromechanical positioning sensors.....	30	(X)	135,698	(X) r/	129,496
36253 33	Movement sensors.....	19	(X)	37,892	(X)	35,815
	Solid-state positioning sensors:					
36253 35	Non-optical proximity sensors.....	18	(X)	90,302	(X)	80,040
36253 36	Optical proximity sensors.....	15	(X)	154,285	(X)	132,925
36253 37	All other pilot circuit devices, excluding relays and limit switches.....	12	(X) c/	15,780	(X)	26,619
36253 38	DC power circuit devices (all voltages).....	12	(X) b/	28,235	(X) r/	26,219
36253 39	Other control sensors (all voltages).....	18	(X)	104,253	(X) r/	109,955
	Pushbuttons and pushbutton stations, excluding operators' desks and stations:					
36253 42	Pushbuttons, 18 mm and smaller.....	14	(X)	7,581	(X) r/	8,536
36253 46	Pushbuttons, 19 mm to 29 mm.....	19	(X)	62,319	(X)	49,178
36253 48	Pushbuttons, 30 mm and larger.....	24	(X)	211,561	(X) r/	208,659
36253 81	Rheostats and resistors (except for electronic applications) sold separately, n.e.c.	14	(X)	24,215	(X)	22,001
	Controls for adjustable speed drives, including electronic and nonelectric and operators' desks and stations:					
36253 83	Controls for AC packaged drives...	37		570,415		549,023 r/
36253 84	Controls for DC packaged drives...	29		218,226		265,329 r/
36253 85	AC drives systems.....	35	b/	70,616	a/	68,502
36253 86	DC drives systems.....	26		359,694	a/	396,683
36253 98	Solid-state motor controllers (all voltages).....	48		1,715,242		252,950 r/
36253 99	All other general industry devices and systems.....	102	(X)	1,287,178	(X) r/	1,184,817
36254 -	Motor controller accessories and parts for industrial controls.....	132	(X)	554,417	(X)	516,390
36254 91	Motor controller accessories,					

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 [Quantity in number of units. Value in thousands of dollars]

Product code	Product description	No. of cos.	1997		1996	
			Quantity	Value	Quantity	Value
	including 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 push buttons, selector switches, pilot lights, separate controller enclosure fittings, reset mechanisms, etc., excluding motor circuit switches sold, separately.....	43	(X)	184,010	(X) r/	164,154
36254 97	Parts for industrial controls.....	107	(X)	370,407	(X)	352,236

D Withheld to avoid disclosing data for individual companies. NA Not available. n.e.c. Not elsewhere classified. r/Revised by 5 percent or more from previously published data. S Does not meet publication standards. X Not applicable.

1/Product code 36132 17 is combined with product code 36132 22 to avoid disclosing data for individual companies.

2/Product codes 36132 26 and 36132 27 are combined with product code 36132 31 to avoid disclosing data for individual companies.

3/Product code 36134 31 is combined with product code 36134 71 to avoid disclosing data for individual companies.

4/Product code 36135 18 is combined with product code 36135 19 to avoid disclosing data for individual companies.

5/Product code 36135 91 is combined with product code 36135 92 to avoid disclosing data for individual companies.

6/Product codes 36135 93 and 36135 94 are combined with product code 36135 95 to avoid disclosing data for individual companies.

7/Product code 36136 11 is combined with product code 36136 31 to avoid disclosing data for individual companies.

8/Product code 36139 51 is combined with product code 36139 81 to avoid disclosing data for individual companies.

9/Product code 36139 93 is combined with product code 36139 98 to avoid disclosing data for individual companies.

10/Product code 36251 03 is combined with product code 36251 05 to avoid disclosing data for individual companies.

11/Product code 36251 10 is combined with product code 36251 11 to avoid disclosing data for individual companies.

12/Product code 36251 12 is combined with product code 36251 15 to avoid disclosing data for individual companies.

13/Product code 36251 22 is combined with product code 36251 23 to avoid disclosing data for individual companies.

14/Product code 36251 37 is combined with product code 36251 52 to avoid disclosing data for individual companies.

15/Product code 36251 59 is combined with product code 36251 61 to avoid disclosing data for individual companies.

16/Product codes 36251 66 and 36251 69 are combined with product code 36251 75 to avoid disclosing data for individual companies.

Note: The percent of estimation of each item is indicated as follows: a/10 to 25 percent of this item is estimated. b/25 to 50 percent of this item is estimated. c/Over 50 percent of this item is estimated.

Table 3. Shipments, Exports, Imports, and Apparent Consumption of Switchgear, Switchboard Apparatus, Relays, and Industrial Controls: 1997 and 1996
 [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/
1997				
36132 16, 21 26, 31	Power circuit breakers.....	388,957	128,324	84546
36132 17, 22 27, 32	Parts for power circuit breakers.....	67,339	180,587	48086
36133 11, 12 15, 17, 19	Low voltage panelboards and distribution boards	1,163,806	117,953	275,231
36133 21, 22	Knife switches.....	250,363	3,587	9,137
36134 00	Fuses and fuse equipment, under 2,300 volts	557,363	162,174	94,889
36135 00	Molded case circuit breakers, 1,000 volts and under	1,283,649	123,817	298484
36136 00	Duct, including plug-in units and accessories	278,147	50,749	6,404
36139 07, 09 10, 13, 17, 41, 45, 83, 98	Switchgear and switchgear assemblies 3/.....	(D)	(D)	(D)
36139 51	Power fuses and fuse links, 2,300 volts and over 3/.....	(D)	(D)	(D)
36139 81, 91 93	Power and ground connectors and transmission and distribution connectors 3/.....	1,911,597	285,980	122,723
36251 01, 03 04, 05, 02, 10, 11, 12, 15, 20, 30, 31, 32, 33, 37, 52, 59, 61, 66, 69, 75, 81, 82, 92	Relays.....	783,690	422,209	737,511
36252 51, 55	Controls for numerically controlled machine tools	312,020	29,750	48,026
36252 71	Programmable controllers.....	1,223,469	136,206	328,126
36253 01, 03 05, 15	Motor starters.....	260,304	43,336	46,462
36253 16	Motor control centers, 1,000 volts or less	437,495	68,618	38,850
36253 21	Brakes and clutches.....	70,047	26,170	65,023
36253 32, 33	Limit switches.....	173,590	10,544	16,767
36253 81	Rheostats and resistors.....	24,215	9,992	10,938
1996				
36132 16, 21 26, 31	Power circuit breakers.....	365,094	125,667	75374
36132 17, 22 27, 32	Parts for power circuit breakers.....	47,586	160,877	41936
36133 11, 12 15, 17, 19	Low voltage panelboards and distribution boards	1,084,555	126,683	211,789
36133 21, 22	Knife switches.....	240,192	2,793	4,031
36134 00	Fuses and fuse equipment, under 2,300 volts	522,201	131,419	82,636
36135 00	Molded case circuit breakers, 1,000 volts and under	1,218,119	92,281	251919
36136 00	Duct, including plug-in units and accessories	254,475	39,007	9,823
36139 07, 09 10, 13, 17, 41, 45, 83, 98	Switchgear and switchgear assemblies 3/.....	(D)	(D)	(D)
36139 51	Power fuses and fuse links, 2,300 volts and over 3/.....	(D)	(D)	(D)
36139 81, 91 93	Power and ground connectors and transmission and distribution connectors 3/.....	1,868,196	270,272	123,049
36251 01, 03 04, 05, 02, 10, 11, 12, 15, 20, 30, 31, 32, 33, 37, 52, 59, 61, 66, 69, 75, 81, 82, 92	Relays.....	724,819	460,285	696,704
36252 51, 55	Controls for numerically controlled machine tools	300,254	25,112	62,605
36252 71	Programmable controllers.....	1,133,627	116,090	273,939
36253 01, 03 05, 15	Motor starters.....	257,855	37,851	49,707
36253 16	Motor control centers, 1,000 volts or less	422,834	53,197	30,640
36253 21	Brakes and clutches.....	66,827	22,503	53,118
36253 32, 33	Limit switches.....	165,311	9,351	29,096
36253 81	Rheostats and resistors.....	22,001	4,649	13,300

D Withheld to avoid disclosing data for individual companies.

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

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

3/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 Standard Industrial Classification-Based Product Codes with
 Schedue B Export Numbers, and HTSUSA Import Numbers: 1997

Product code	Product description	Export number 1/	Import number 2/
36132 16, 21, 26, 31	Power circuit breakers	8535.21.0000	8535.21.0000
		8535.29.0020	8535.29.0020
		8535.29.0040	8535.29.0040
		8536.20.0040	8536.20.0040
36132 17, 22, 27, 32	Parts for power circuit breakers	8538.90.8020	8538.90.8020
36133 11, 12, 15, 17	Low voltage panelboards and distribution boards	8537.10.9050	8537.10.9050
36133 21, 22	Knife switches	8536.50.9045	8536.50.9045
36133 32, 98	Grouped metering panels, including accessory components and other low voltage switchgear appararus	8537.10.9020	8537.10.9020
36134 00	Fuses and fuse equipment, under 2,300 volts	8535.10.0040	8535.10.0040
		8536.10.0020	8536.10.0020
		8536.10.0040	8536.10.0040
36135 00	Molded case circuit breakers, 1,000 volts and under	8536.20.0020	8536.20.0020
36136 00	Duct, including plug-in units and accessories	8536.90.8010	8536.90.8010
36139 07, 09, 10, 13, 41, 45, 83, 98	Switchgear, including switchgear assemblies and power switching equipment, excluding power fuses	8537.20.0020	8537.20.0020
36139 51	Power fuses and fuse links, 2,300 volts and over	8535.10.0020	8535.10.0020
36139 81, 91, 93	Power and ground connectors; and transmission and distribution connectors, n.e.c.	8535.90.8040	8535.90.8040
36251 01, 02, 03, 04, 05, 10, 11, 12, 15, 20, 30, 31, 32, 33,	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

Table 4. Comparison of Standard Industrial Classification-Based Product Codes with Schedule B Export Numbers, and HTSUSA Import Numbers: 1997

Product code	Product description	Export number 1/	Import number 2/
37, 52, 59, 61, 66, 69, 75, 81, 82, 92		8536.41.0060 8536.49.0050 8536.49.0055 8536.49.0065 8536.49.0075 8536.49.0080	8536.41.0060 8536.49.0050 8536.49.0055 8536.49.0065 8536.49.0075 8536.49.0080
36252 51, 55	Controls for numerically controlled machine tools	8537.10.9030	8537.10.9030
36252 71	Programmable controllers	8537.10.9060	8537.10.9060
36253 01, 03, 05, 15	Motor starters	8536.50.4000	8536.50.4000
36253 16	Motor control centers, 1,000 volts or less	8537.10.6000	8537.10.6000
36253 21	Brakes and clutches	8505.20.0000	8505.20.0000
36253 32, 33	Limit switches	8536.50.8055	8536.50.8055
36253 81	Rheostats and resistors	8533.40.0040 8533.40.8040	8533.40.8040

1/Source: 1997 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 (1997).