

AT30 Series

Microprocessor Controlled Float Battery Chargers

Advanced technology
microprocessor control

BATTERY CHARGER RANGE SUMMARY



AT30 Microprocessor Controlled Float Battery

What is the AT30?

Combining the performance and accuracy of a microprocessor with the reliability of SCR power conversion technology makes the AT Series the standard in stationary battery chargers. AT30s are easy to install, operate and maintain. The AT30 is packed with the most standard features and best warranty in the industry.

What are the most common applications for the AT30?

Utility & Communications

Power Generation
Substations
Microwave Relay Sites
Switchgear

Manufacturing

Emergency DC Power
DC Operated Breakers
Alarm Systems

Commercial

Alarm Systems
Uninterrupted Power
Systems
DC Control Systems

Transportation

Signal Systems
Switchgear
Alarm Systems

Specifications

AC Input

- **Voltage:**
208 Vac 60Hz
240 Vac 60Hz
480 Vac 60Hz
550-600 Vac 60Hz
220 Vac 50/60Hz
380 Vac 50/60Hz
416 Vac 50/60Hz
- **Input Voltage Tolerance:**
+10%, -12%
- **Input Frequent Tolerance:**
±5%
- **Efficiency:**
85-90% typical for 130Vdc at 50-100% load

DC Output

- **Voltage Ratings:**
12, 24, 48, or 130Vdc nominal
- **Current Ratings (A_{dc}):**
25, 30, 40, 50, 75, 100, 125, 150, 200,
250, 300, 400, 500, 600, 800, 1000
- **Continuous Rating:**
110% rated current at maximum
equalize voltage at 122°F (50°C)
- **Current Limit Adjustment Range:**
50% to 110% rated output
- **Voltage Regulation:**
±0.25% for line, load and temperature
variations

**Regulation at maximum equalize voltages
may not meet ±0.25%*

- **Electrical Noise:**
32dB_{rnc}
- **Ripple:**
12/24/48Vdc
· Unfiltered on battery 1% V_{rms}
· Filtered on battery 30mV_{rms}
· Filtered off battery 1% V_{rms}
· Battery Eliminator 30mV_{rms}
130Vdc
· Unfiltered on battery 2% V_{rms}
· Filtered on battery 100mV_{rms}
· Filtered off battery 2% V_{rms}
· Battery Eliminator 100mV_{rms}
- **Surge Withstand Capability:**
Meets IEEE-472, ANSI C37.90a

Environmental

- Operating Ambient Temperature 0°F (-18°C) to 122°F (50°C) without derating
- Operating Altitude 10,000 ft (3,000 meters) above sea level without derating
- Relative Humidity 0% to 95% (without condensation)
- Audible Noise Less than 65 dBA at any point 5ft (1.5m) from any vertical surface of enclosure
- Made in the United States of America

Safety and Acceptance

- Meets NEMA PE 5-1997 specification
- NEMA-1/IP20 type standard enclosure

Third party agency approvals:



CSA C22.2 - compliant (up to and including 400A)
-NRTL/C UL 1012/UL 1564 compliant
Seismic qualified (5018/5030 cabinet styles only)
ABS or CE certification available upon request.

Standard Features

- 5 year product warranty
- Universal main control board operates in any AT Series charger
- Alarm assembly with local LEDs and summary relay contact for AC Failure, DC Failure, High Vdc, Low Vdc, Positive(+) and Negative(-) ground fault
- High DC voltage shutdown
- Forced load share during parallel operation
- Float/equalize selector switch with indicating lights
- Manual equalize timer (0-255 hr.) with indicating lights
- AC line failure automatic equalize timer (0-255 hr.) with indicating light
- AC On indicating light
- 1% Digital LED meter for Vdc, A_{dc}, timer hours and alarm settings
- 6 pulse rectification
- AC input and DC output circuit breakers
- Membrane front panel
- Front panel controls can be disabled for security
- A redundant analog circuit for LVDC alarm, independent of the microprocessor
- Redundant control loops for higher reliability
- Local or remote voltage sense with redundancy to protect against remote sense failure
- Self-diagnostics
- Input & output MOV surge suppressors
- Reverse polarity protection via free wheeling diodes
- CU-AL I/O compression lugs
- Switchboard wire, UL VW-1
- Enclosure pre-treated using a 5-stage iron phosphate process with baked epoxy powder coating in ANSI 61 gray

Summary of Options

- DC output filtering: per NEMA PE5 1996, standard and battery eliminator
- Medium & High Amp Interrupting Capacity Breakers
- AC Input/DC output fuses
- Auxiliary alarm relay board
- Copper ground bus
- AC lightning arrestor
- Fungus proofing (tropicalization)
- Static proofing
- Forced load share cable
- Communications module: DNP3 Level 2 or MODBUS protocols
- Battery temperature compensation
- Custom Paint
- NEMA 4 (12) type enclosure with fan
- NEMA Type 2 Drip Shield
- Barrier type alarm terminal block
- End of discharge alarm
- Battery discharge alarm
- Zero-center ground detection meter
- Analog AC voltmeter
- Analog AC ammeter
- Cabinet heater assembly
- CE marking upon request
- ABS certification upon request
- Fan control contactor
- Custom drawing package with optional CAD and PDF files

Filtering

Standard



Output filtering is essential whenever there is need for low AC ripple and low noise on the DC bus for critical loads. The standard DC output filtering limits ripple to no more than 30mV RMS on 12, 24 & 48Vdc units, and 100mV RMS on 130Vdc units, measured at the battery terminals. This feature meets the specifications of NEMA standard PE5-1996, and is recommended for installations using Valve Regulated Lead Acid (VRLA) or gelled electrolyte batteries.

Battery Eliminator

An additional "battery eliminator" feature is also available, meeting the specifications of NEMA standard PE5-1996 with no battery connected, measured at the DC output terminals. This feature is recommended for sites where the battery may occasionally be disconnected from the DC bus for maintenance. Additional filtering is essential to limit AC ripple and noise for critical DC loads.

Ordering

Factory Installation YES	Factory Installation use Specification Table on page 10
Available for field installation YES	Contact manufacturer with serial number of original unit and type of filtering upgrade.

Medium and High AIC Breaker



This feature provides thermal-magnetic circuit breakers with higher AIC ratings than the standard. See the tables on Page 10 for medium and high AIC breaker ratings.

Ordering

Factory Installation YES	Factory Installation use Specification Table on page 10
Available for field installation YES	Contact manufacturer with serial number of original unit and type of breaker upgrade for proper field kit parts.

AC Input and/or DC Output Fuses



Default protection devices for the AT30 are molded case circuit breakers. Fuses may also be ordered to augment them, wired in series with the breakers. Three (3) AC input fuses provide 200 kAIC protection. Two (2) DC output fuses provide 20 kAIC protection. Fuses may also be ordered in conjunction with standard breakers as a cost-saver. If an AT30 is ordered without breakers, fuses must be ordered.

Ordering

Factory Installation YES	Factory Installation use Specification Table on page 10
Available for field installation YES	Contact manufacturer with serial number of original unit and type of fuses (AC and/or DC) for proper field kit parts.

Summary of Options

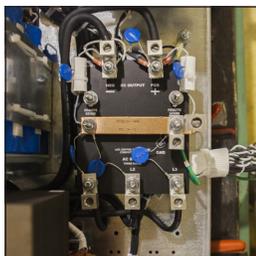


Auxiliary Alarm Relay Board

The AT30 features several industry-standard alarms, with individual LED indicators on the front instrument panel, and are accessible to the user via one (1) Summary Alarm contact on the Main Control PC Board. This feature provides a separate user-accessed PC board, featuring discreet two (2) form-C relay contacts for all six (6) alarms.

Ordering

Factory Installation YES	Factory Installation use Specification Table on page 10
Available for field installation YES	Field Installation use Part Number Style 5018: EI0213-02 Style 5030: EI0213-03 Style 163: EI0213-04 Style 198: EI0213-05



Copper Ground Bus

This option provides a convenient means to tie the AT30 to the site building ground. A copper ground bus bar is provided with an extra CU-AL compression box lug.

Ordering

Factory Installation YES	Factory Installation use Specification Table on page 10
Available for field installation YES	Field Installation use Part Number Style 5018: EI0195-02 Style 5030: EI0195-03 Style 163: EI0195-04 Style 198: EI0195-04



AC Lightning Arrestor

This option features an industrial-grade surge arrester in polycarbonate housing, rated for 20,000 A. It is recommended for installations with risk of frequent AC surges, such as high elevations or severe weather.

Ordering

Factory Installation YES	Factory Installation use Specification Table on page 10
Available for field installation YES	Field Installation use Part Number EJ1074-02



Fungus Proofing

This treatment is also referred to as "tropicalization". It coats electrical components and internal wiring connections with a fungus-resistant, non-conductive film (approximately 1 mil thickness). User termination points are not coated, nor are relay contacts and any electrical connectors where the spray would interfere with functionality. The application is fully cured at time of shipment.

Ordering

Factory Installation YES	Factory Installation use Specification Table on page 10
Available for field installation NO	Not available for field installation.



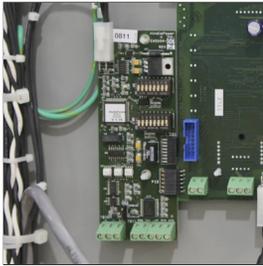
Static Proofing

Used in "arid" environments, this treatment coats electrical components and connections with a static-resistant, non-conductive film (approximately 1 mil thickness). User termination points are not coated, nor are relay contacts and any electrical connectors where the spray would interfere with functionality. The application is fully cured at time of shipment.

Ordering

Factory Installation YES	Factory Installation use Specification Table on page 10
Available for field installation NO	Not available for field installation.

Summary of Options



Communications

This option allows full remote monitoring of the AT30 and control of the front panel features, using MODBUS or DNP3 Level 2 protocols. Standard serial connections are provided for use with local SCADA systems.

Ethernet or Fiber Optic Modem interfaces are also available for use with the AT Communications option. Contact factory for part number.

Ordering

Factory Installation YES	Factory Installation use Part Number when ordering 12Vdc: EJ5037-01 24Vdc: EJ5037-02 48Vdc: EJ5037-03 130Vdc: EJ5037-04
Available for field installation YES	Field Installation use Part Number 12Vdc: EJ5037-11 24Vdc: EJ5037-12 48Vdc: EJ5037-13 130Vdc: EJ5037-14



Temperature Compensation

Supplied in a kit, this option adjusts the AT30 DC output voltage up or down, in response to battery temperature fluctuations. Temperature is measured by an epoxy-enclosed thermistor. This probe is mounted on or near the battery, and connected by a cable to the Main Control PC Board. It is compatible with both lead-acid and nickel-cadmium batteries, and recommended for VRLA batteries. Cable lengths of 25, 50, 100 and 200 ft are available.

Ordering

Factory Installation NO	Can be ordered with charger but must be field installed.
Available for field installation YES	Field Installation use Part Number 25ft: EJ5033-00 50ft: EJ5033-01 100ft: EJ5033-02 200ft: EJ5033-03



Barrier Type Alarm Terminal Blocks

This option features a separate molded phenolic terminal block, wired directly to the Auxiliary Alarm Relay PC Board. It allows the user to connect remote alarm wiring with ring or spade type lugs. The #6-32 binder head screw terminals are rated for 20A at 150 Vac/Vdc, and accept wire sizes #16 to #14 AWG.

Ordering

Factory Installation YES	Factory & Field installation use Part Number when ordering (1) FCRM-C EJ5130-01 (2) FCRM-C EJ5130-02
Available for field installation YES	



Mechanical Lock for Front Door

The AT30 front panel controls can be disabled by setting a jumper on the back of the Main Control PC board. For installations where extra security is required, the front instrument panel, or door, can be physically locked closed. This option provides a locking provision on the enclosure, a padlock and two (2) keys. A fully installed door keylock is also available.

Ordering

Factory Installation YES	Factory and Field installation use Part Number when ordering Padlock Style 5018: EI0215-00 Padlock Style 5030: EI0215-01 Padlock Style 163: EI0215-02 Padlock Style 198: EI0215-03 Keylock Style 5018: EI0215-11 Keylock Style 5030: EI0215-12 Keylock Style 163: EI0215-13 Keylock Style 198: EI0215-14
Available for field installation Padlock -YES Keylock -NO	



Custom Paint

AT30 NEMA Type 1 enclosures feature an ANSI 61 gray epoxy powdercoat finish. Custom exterior and interior (e.g. semigloss white) colors are available in ANSI, PMS and RAL color codes to meet specific requirements.

Ordering

Factory Installation YES	EI5064-00 Specify when placing order using your specific paint requirements.
Available for field installation NO	Not available for field installation.

Summary of Options



Wall Mounting Brackets or Rack Mounting

AT30 Chargers in Style-5018 enclosures can be wall or rack mounted. Wall-mounting brackets (EI5080-00) are shipped as a field kit. Use of this option increases the vertical footprint of the charger by 14 in. Anchor bolts are not supplied.

The Style-5018 enclosure is also EIA 23 in or 24 in rack mountable. Mounting brackets (EI0193-03) are factory installed. Relay rack mounting hardware is not supplied.

Ordering

Factory Installation Wall - NO Rack - YES	Factory & Field Installation use Part Number when ordering Wall Mounting Style 5018: EI5008-00 Rack Mounting Style 5018 (23/24in): EI0193-03
Available for field installation YES	



NEMA Type 2 Drip Shield

Standard AT30 battery chargers are supplied in NEMA Type 1 vented enclosures. The optional drip shield prevents overhead water and small falling particles from entering the top vented panels, protecting internal equipment from damage. The combined standard enclosure and drip shield meets the NEMA Type 2 specification.

Ordering

Factory Installation YES	Factory & Installation use Part Number when ordering Style 5018: EI0191-02 Style 5030: EI0191-03 Style 163: EI0191-04 Style 198: EI0191-05
Available for field installation YES	



NEMA Type 4 Cabinet

With this accessory, a fully assembled standard AT30 NEMA-1 vented enclosure is installed within another gasketed, sealed cabinet. The combined assembly meets the NEMA Type 4 (and therefore Type 12 and 13) enclosure specification. All ratings feature forced cooling, with user-supplied 120Vac for the fan.

Ordering

Factory Installation YES	Factory Installation use Part Number when ordering Style 5018: EI5037-00 Style 5030: EI5057-00 Style 163: EB5039-00 Style 198: EB5046-00
Available for field installation YES	Field Installation use Part Number Style 5018: EI5037-00 Style 5030: EI5057-00



SUPPLEMENTAL PRODUCT

Fan Control Contractor

Lead-acid batteries produce hydrogen gas. This small wall-mounted external accessory provides a relay contactor to activate a battery installation vent or exhaust fan. Available in 10A or 20A models, the accessory is factory-set to provide relay closure when the AT30 enters into Equalize mode.

Ordering

Factory Installation NO	Can be ordered with charger but must be field installed.
Available for field installation YES	Field Installation use Part Number 10 Amp Rating: EJ5017-0# 20 Amp Rating: EJ5017-1# <i>Contact manufacturer for specific part number.</i>



SUPPLEMENTAL PRODUCT

AT-DC Distribution Panel

This product augments AT30 with a customized dc distribution panel for user-specified loads. The AT-DC is configurable to various combinations of main and branch breakers. The AT-DC panel is optimally supplied from the factory, mounted to the AT30 and pre-wired to the charger's DC output terminals. For further details, contact the manufacturer.

Ordering

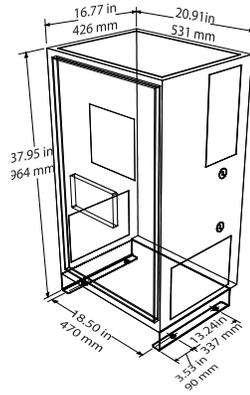
Factory Installation YES	Factory & Field Installation use Part Number when ordering EJ5110-## Refer to document (JF5032-00) for model specific part number.
Available for field installation YES	

AT30 Specification Chart

DC Output Rating		AC Input Ampere Rating									Battery Charger AC Circuit Breaker Ampere Rating								DC Circuit Breaker Rating	Cabinet Style	Approx. Shipping Weights lbs. (kg)	Heat Loss Watts (BTU/hr)
		Based on maximum rms value of the input current delivered to the charger under all operating conditions within manufacturer's specifications									(standard AIC breakers)											
Volts	Amps	208 VAC	220 VAC	240 VAC	380 VAC	416 VAC	440 VAC	480 VAC	600 VAC	208 VAC	220 VAC	240 VAC	380 VAC	416 VAC	440 VAC	480 VAC	600 VAC					
(12Vdc) Float Adjust 11.0-14.5Vdc	12Vdc	50	5	5	4	3	3	2	2	2	10	10	10	5	5	5	5	15	80	5018	260 (118)	229 (783)
		75	7	6	6	4	3	3	3	3	10	10	10	5	5	5	5	15	100	5018	330 (150)	340 (1160)
		100	9	8	8	5	5	4	4	4	15	10	15	10	10	5	5	15	150	5018	380 (173)	448 (1529)
		125	12	11	10	6	6	5	5	5	15	15	15	10	10	10	10	15	175	5030	450 (205)	560 (1911)
		150	13	13	12	9	7	6	6	6	20	20	20	15	15	10	10	15	200	5030	550 (250)	668 (2279)
		200	16	16	14	9	9	8	7	6	20	20	20	15	15	10	15	15	250	5030	590 (268)	890 (3039)
		250	22	20	19	12	11	10	9	8	30	25	30	15	15	15	15	15	350	5030	610 (277)	1113 (3799)
(24Vdc) Float Adjust 22.0-29.5Vdc	24Vdc	50	9	9	8	5	5	6	4	4	15	15	15	10	10	10	15	80	5018	280 (127)	289 (987)	
		75	12	11	10	7	6	5	5	5	15	15	15	10	10	10	15	100	5018	340 (154)	427 (1457)	
		100	16	15	14	9	8	7	7	6	20	20	20	15	15	10	15	150	5018	390 (177)	560 (1911)	
		125	21	20	18	11	10	9	9	8	30	25	30	15	15	15	15	175	5030	540 (245)	700 (2309)	
		150	23	24	21	12	12	11	11	10	35	30	35	20	20	15	15	15	200	5030	580 (263)	833 (2843)
		200	27	28	25	16	14	13	13	11	40	35	40	25	25	20	20	15	250	5030	610 (277)	1101 (3759)
		250	39	37	34	22	20	19	17	15	50	50	50	30	30	25	25	20	350	5030	650 (295)	1376 (4699)
		300	51	44	44	25	23	22	22	19	70	60	70	35	35	30	30	25	400	5030	690 (313)	1652 (5638)
		400	59	59	51	34	32	30	27	24	80	80	80	50	50	40	40	35	600	163	1150 (522)	2202 (7518)
		500	72	72	63	42	38	36	32	29	90	90	90	60	60	50	40	40	700	163	1300 (590)	2730 (9319)
		600	88	87	76	51	46	44	40	35	125	125	125	70	70	60	50	50	800	163	1530 (694)	3275 (11183)
(24Vdc) Equalize Adjust 23.4-31.0Vdc	24Vdc	800	122	119	107	67	62	57	55	48	175	175	175	90	90	80	70	1200	198	2020 (916)	4367 (14910)	
		1000	152	148	133	84	77	72	68	60	200	200	200	125	125	100	90	80	FUSE	198	2440 (1107)	5459 (18638)
		50	15	13	13	8	8	7	7	6	20	20	20	15	15	10	10	15	80	5018	310 (141)	398 (1358)
		75	20	19	16	11	10	10	9	8	25	25	25	15	15	15	15	15	100	5018	390 (177)	584 (1994)
		100	26	25	24	13	13	12	12	10	35	35	35	20	20	15	15	15	150	5018	500 (227)	762 (2602)
		125	35	33	29	19	18	17	15	13	50	50	50	25	25	25	20	20	175	5030	550 (250)	953 (3253)
		150	37	35	32	20	19	18	16	14	50	50	50	25	25	25	20	20	200	5030	600 (272)	1131 (3860)
		200	53	50	46	29	27	25	23	20	70	70	70	40	40	35	30	25	250	5030	660 (299)	1491 (5091)
		250	69	66	58	38	35	33	30	26	100	100	100	50	50	50	40	40	350	5030	720 (327)	1864 (6363)
		300	78	74	68	43	39	37	34	30	100	100	100	60	60	50	50	40	400	5030	760 (345)	2237 (7636)
		400	100	96	88	56	51	48	44	39	125	125	125	70	70	60	60	50	600	163	1100 (499)	2949 (10068)
(48Vdc) Float Adjust 44.0-58.0Vdc	48Vdc	500	128	120	110	70	64	60	55	48	175	175	175	90	90	80	70	700	163	1350 (612)	3686 (12585)	
		600	157	149	135	85	79	75	69	60	200	200	200	125	125	100	90	800	198	1600 (726)	4424 (15102)	
		800	209	198	181	113	106	99	91	79	300	300	300	150	150	125	125	100	1200	198	2020 (916)	5898 (20137)
		1000	261	248	225	143	132	125	113	99	350	350	350	200	200	175	150	125	FUSE	198	2400 (1089)	7373 (25171)
		25	17	16	14	10	9	9	8	7	25	20	25	15	15	15	10	15	40	5018	370 (168)	361 (1232)
		30	20	20	18	12	11	10	9	8	25	25	25	15	15	15	15	15	50	5018	380 (172)	416 (1421)
		40	26	23	22	14	13	12	12	10	35	30	35	20	20	15	15	15	60	5018	390 (177)	532 (1817)
(130Vdc) Float Adjust 110.0-141.0Vdc	130Vdc	50	33	30	28	18	16	15	15	12	50	40	50	25	25	20	20	15	80	5018	400 (182)	647 (2208)
		75	48	44	43	26	25	24	22	18	70	60	70	35	35	30	30	25	100	5018	490 (222)	928 (3169)
		100	64	60	57	35	32	30	29	24	100	80	100	50	50	40	40	35	150	5030	650 (295)	1201 (4099)
		125	80	75	69	44	40	42	38	33	125	100	125	60	60	60	50	50	175	5030	740 (336)	1478 (5045)
		150	93	87	80	52	46	46	42	37	125	125	125	70	70	60	60	50	200	5030	750 (340)	1773 (6054)
		200	125	120	110	70	62	60	55	48	175	150	175	100	100	80	70	60	250	5030	820 (372)	2327 (7946)
		250	158	150	137	79	72	68	68	59	200	200	200	125	125	100	100	80	350	163	1130 (513)	2909 (9932)
		300	180	170	160	93	85	80	80	72	250	225	250	125	125	100	100	100	400	163	1330 (603)	3436 (11731)
		400	255	235	220	127	116	110	110	96	300	300	300	175	175	150	150	125	600	163	1580 (717)	4582 (15641)
		500	320	300	280	160	148	140	140	120	400	400	400	200	200	200	200	150	700	198	2150 (975)	5727 (16552)
		600	378	354	331	200	180	177	169	145	500	500	500	250	250	250	250	200	800	198	2650 (1202)	6872 (23462)
		800	503	473	439	266	241	233	224	194	N/A	N/A	N/A	350	350	300	300	250	1200	198	3250 (1474)	9163 (31283)
		1000	628	590	547	330	300	291	279	240	N/A	N/A	N/A	450	450	400	350	300	FUSE	198	4200 (1905)	11271 (38479)

Cabinet Styles and Dimensions

Cabinet Style 5018

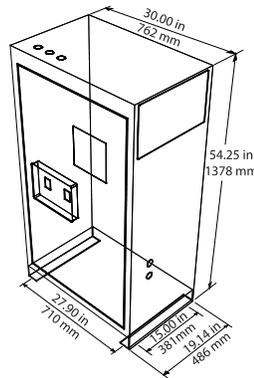


How to size your charger
(simplified formula)

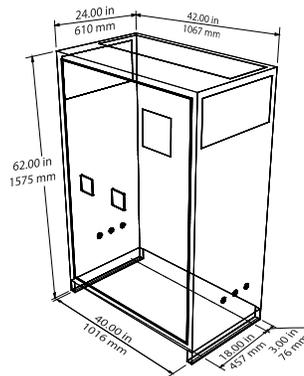
$$\frac{Ah \times 1.R}{t} + L = \text{Continuous Charge Output Rating}$$

Ah = Ampere hours removed
 R = Recharge factor (1 = Pb) or (3 = NiCd)
 L = Additional standing load
 t = Recharge time in hours

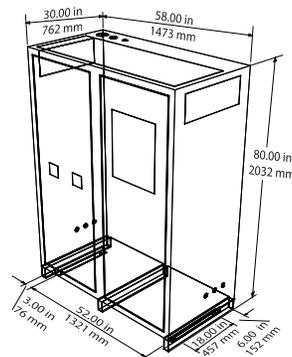
Cabinet Style 5030



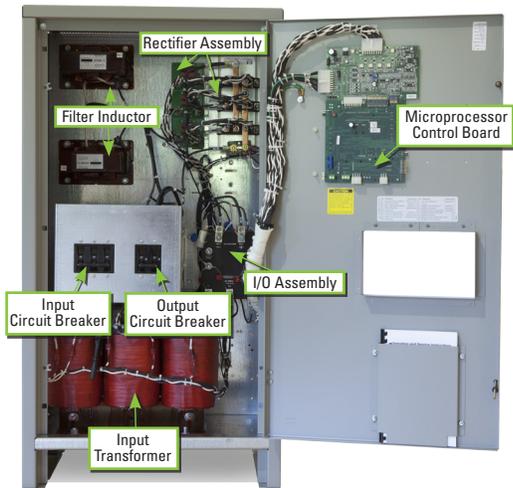
Cabinet Style 163



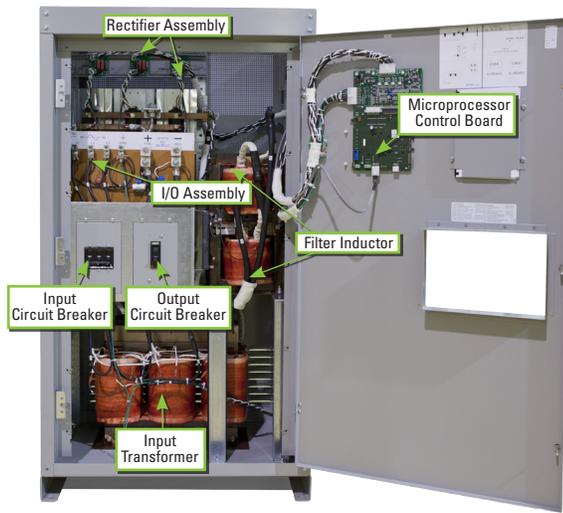
Cabinet Style 198



Standard Internal Layout by Cabinet



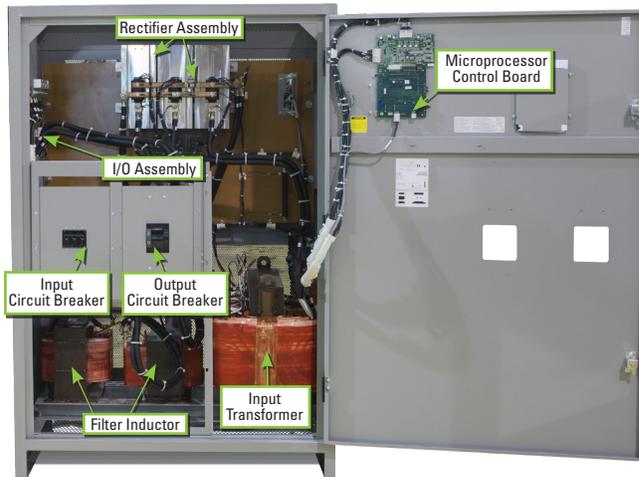
Style 5018 Cabinet



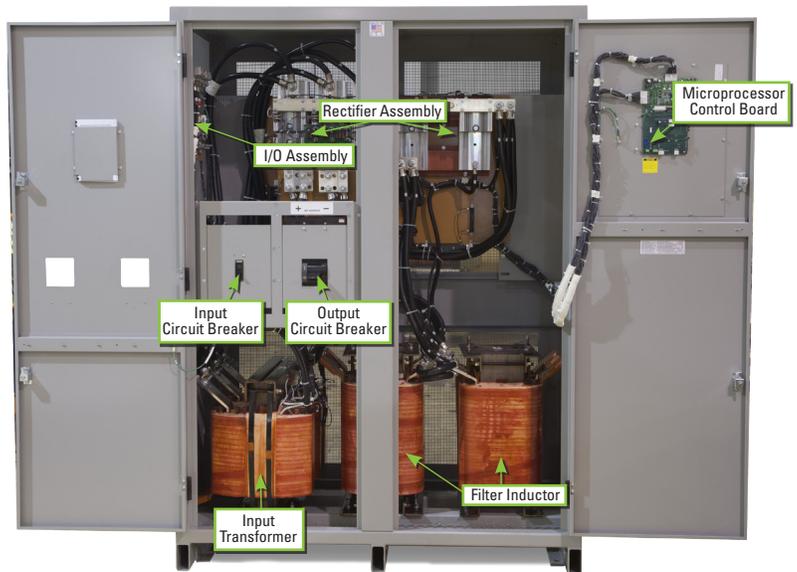
Style 5030 Cabinet



Style 163 Cabinet



Style 198 Cabinet



AT30 Specification Table

Sample

A	B			C			D	E			F	G	H	J	K	L	M	N	P
AT30	1	3	0	0	5	0	F	4	8	0	S	X	S	X	A	X	X	X	X

Your Code

AT30																			
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	DESCRIPTION	CODE	FEATURE		DESCRIPTION	CODE	FEATURE
A		AT30	AT30 SERIES				
B	Nominal DC Output Voltage	012	12Vdc	F	AC Input Circuit Breaker Rating***	S	Standard AIC
		024	24Vdc			M	Medium AIC
		048	48Vdc			H	High AIC
		130	130Vdc			0	No Breaker
C	Nominal DC Output Current	025	25Adc	G	AC Input Fuses	F	Installed
		030	30Adc			X	Not Supplied
		040	40Adc	H	DC Output Circuit Breaker Rating***	S	Standard AIC
		050	50Adc			M	Medium AIC
		075	75Adc			H	High AIC
		100	100Adc			0	No Breaker
		125	125Adc	J	DC Output Fuses	F	Installed
		150	150Adc			X	Not Supplied
		200	200Adc	K	Auxiliary Alarm Relay Board	A	Installed
		250	250Adc			X	Not Supplied
		300	300Adc	L	Copper Ground Bus	G	Installed
		400	400Adc			X	Not Supplied
		500	500Adc	M	AC Lightning Arrestor	L	Installed
		600	600Adc			X	Not Supplied
		800	800Adc	N	Fungus Proofing	F	Applied
		1K0	1000Adc			X	Not Supplied
D	DC Output Filtering	U	Unfiltered	P	Static Proofing	S	Applied
		F	Filtered			X	Not Supplied
		E	Eliminator				
E	AC Input Voltage* (3~)	208	208V 60Hz	* Contact factory for other AC input voltages not listed ** Applicable for 550 & 600Vac *** If you do not order an AC input or DC output circuit breaker, fuses will be provided.			
		240	240V 60Hz				
		480	480V 60Hz				
		550**	550V 60Hz				
		220	220V 50/60Hz				
		380	380V 50/60Hz				
		416	416V 50/60Hz				

Circuit Breaker AC & DC Ratings

STANDARD Input: 5kAIC - 120/208/240/480Vac 14kAIC - 600Vac Output: 5kAIC - 125Vdc	MEDIUM Input: 25kAIC - 120/208/240/480Vac 18kAIC - 600Vac Output: 10kAIC - 250Vdc	HIGH Input: 65kAIC - 120/208/240/480Vac N/A - 600Vac Output: 20kAIC - 250Vdc
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