Picture shown may not reflect actual configuration

Cat® CS Series

The CS Series is equipped with an intuitive full-color touchscreen HMI and is compatible with Ekip Connect software to ease commissioning and operation, maximize flexibility with a wide 200-480V range and an array of standard programmable functions and IO, and finally, simplify service with unique modular components that are easier to stock and replace in the field.

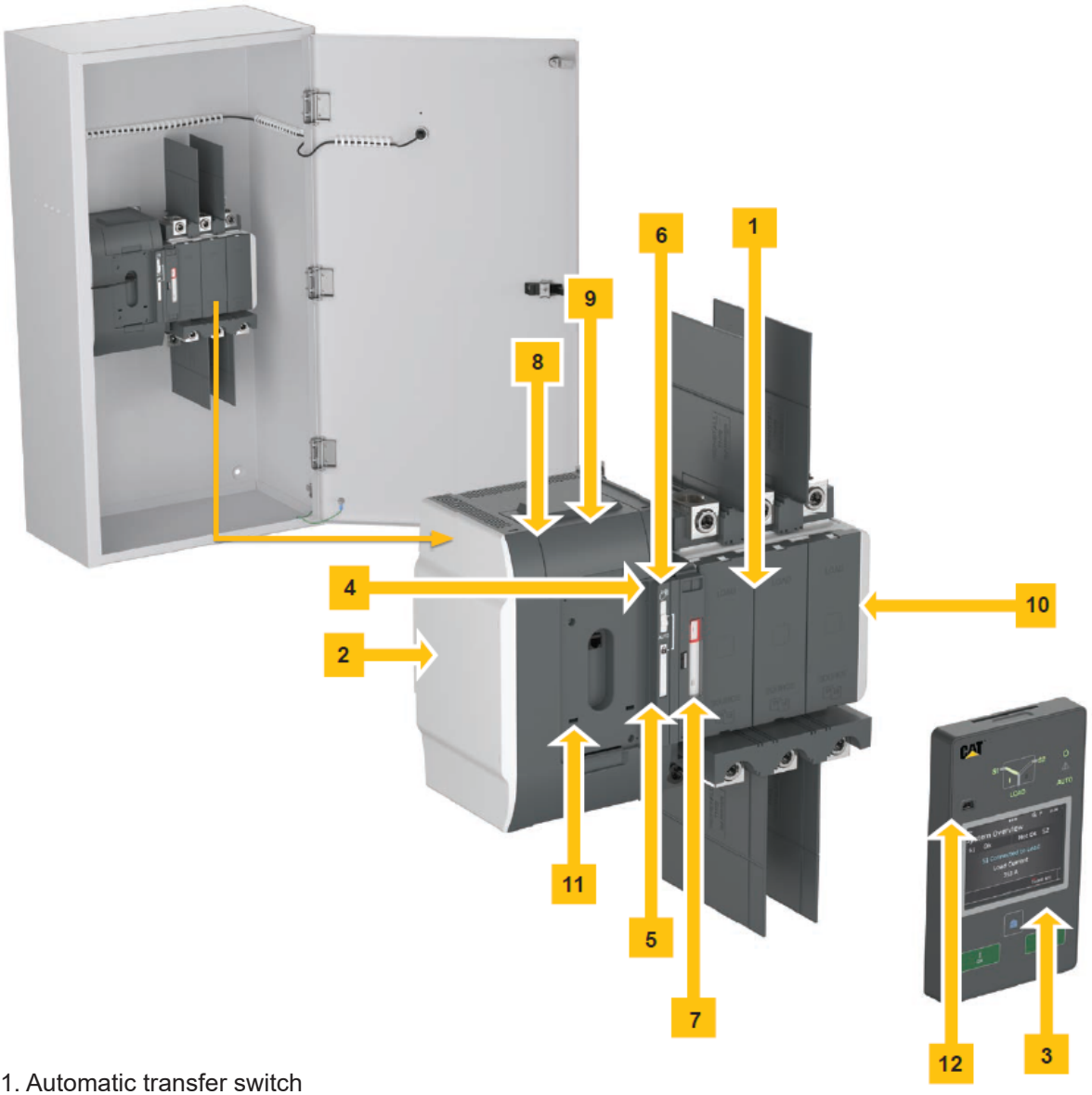
The CS Series is built for high performance and incorporates design elements for simple service. Taking it to the next level, this advanced ATS range takes a proactive outage mitigation approach by monitoring temperature and contact health 24/7 and alerting to any anomalies, helping to ensure power keeps fl owing.

Model variants within the CS lineup include the 'CS' - Open Transition type, the 'CSD' - Delayed Transition type, and at 1600A and greater the 'CSCT' - Closed Transition type ATS.

Features

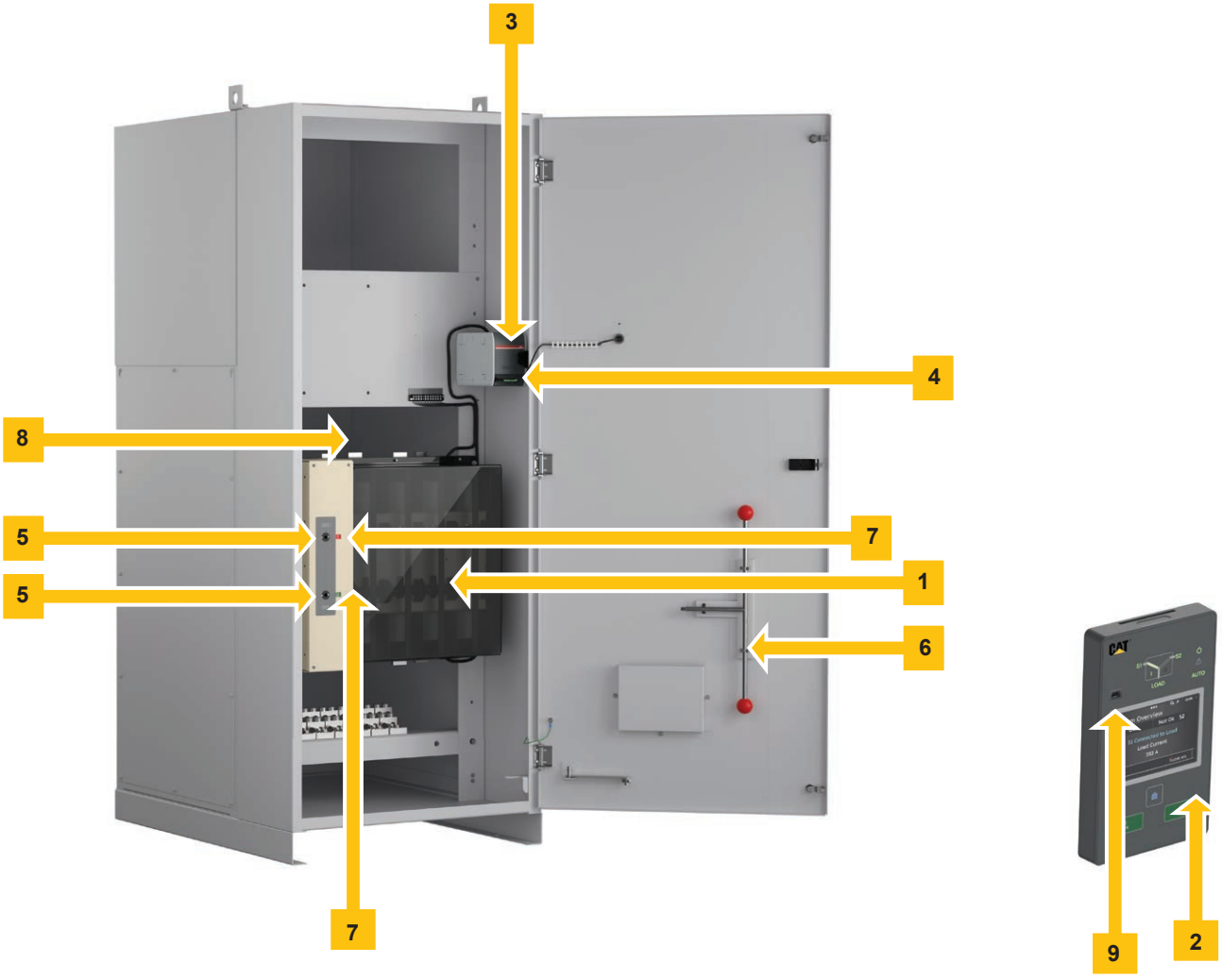
- Contact wear monitoring including real-time status and predicted contact end-of-life (30-1200A only)
- Minimum of 3 embedded temperature sensors
- High current protection and alarm
- Ekip Connect software helps reduce commissioning time by 50%
- Color touchscreen HMI with intuitive menu navigation, measurements display, and 250 event log
- Wide 200-480V range with auto-configuration of system settings for 30-1200A range
- Five factory programmed packages available; IO can be re-programmed in seconds
- High time-based withstand and closing ratings (WCR) and even higher coordinated WCR can be achieved with specifically coordinated circuit breakers
- Short-time withstand ratings in every frame (CS, CSD, and CSCT models)
- Fast controller response to outage recovery and fast switching (<50ms)

30-1200A Open And Delayed Transition Construction



1. Automatic transfer switch
2. Embedded ATS control unit and mechanism
3. HMI unit, type CS color touchscreen interface
4. Slide switch (Hand - Locking - AUTO) for selection of the operation mode
5. Padlocking the automatic transfer switch to prevent automatic and manual operation
6. Handle for manual operation
7. Position indicator
8. Terminals for control circuit connections (behind the cover)
9. Place for connectivity modules (aux power supply, com and signaling)
10. Place for auxiliary contact block
11. Location of product identification label
12. Programming port, for Ekip Programming module and Ekip Connect software

1600-3000A Construction



1. Automatic transfer switch power panel & mechanism
2. HMI unit, type CS color touchscreen interface
3. TruControl module
4. Place for customer control connections and connectivity modules (aux power supply, com and signaling)
5. Handle connection points for manual operation
6. Handle for manual operation
7. Position indicator
8. Phase and neutral terminal lugs, behind power panel
9. Programming port, for Ekip Programming module and Ekip Connect software

Specifications

Cat CS Series Features

System Information	
Ampere sizes available	UL: 30-3000 A
Rated voltage	200-480Vac
Rated frequency	50 / 60 Hz
Phase system	Single and Three
Number of poles	2, 3 and 4
Neutral configuration	
Switched neutral	Yes
Overlapping neutral (optional)	30-1200A only
Solid neutral	Yes
Product type	
Open transition (I-II)	Yes
Delayed transition (I-O-II)	Yes
Closed transition (I-O-II)	1600-3000A only
Voltage and frequency settings	
Pick up Voltage Source 1	71-99%, 101-119%
Drop out Voltage Source 1*	70-98%, 102-120%
Pick up Voltage Source 2	71-99%, 101-119%
Drop out Voltage Source 2*	70-98%, 102-120%
Pick up Frequency Source 1	80.5-99.5%, 100.5-119.5%
Drop out Frequency Source 1	80-99%, 101-120%
Pick up Frequency Source 2	80.5-99.5%, 100.5-119. 5%
Drop out Frequency Source 2	80-99%, 101-120%
Time delay settings	
Override momentary Source 1 Outage, sec	0-60
Transfer from Source 1 to Source 2, sec	0-3600
Override momentary Source 2 Outage, sec	0-60
Transfer from Source 2 to Source 1, min	0-120
Generator stop delay, min	0-60
Center-OFF delay, sec (Delayed Transition Type)	0-300
Pre-transfer delay S1 to S2, sec	0-300
Post-transfer delay S1 to S2 , sec	0-300
Pre-transfer delay S2 to S1, sec	0-300
Post-transfer delay S2 to S1, sec	0-300
Elevator Pre-signal delay S1 to S2, sec	0-60
Elevator Post-signal delay S1 to S2, sec	0-60
Elevator Pre-signal delay S2 to S1, sec	0-60
Elevator Post-signal delay S2 to S1, sec	0-60
Load shed delay, sec	0-300
Source failure detections	
No voltage	Yes
Undervoltage	Yes
Overvoltage	Yes
Phase missing	Yes
Voltage unbalance	Yes
Invalid frequency	Yes
Incorrect phase sequence	Yes

* Drop out voltage settings possible as low as 70% for 240V-480V systems.

Specifications

Additional Features	
Controls	Color touchscreen
LED indications for ATS, S1 and S2 status	Yes
Programmable digital inputs/outputs	Yes
Auto config (voltage, frequency, phase system)	Yes
Source priority	Source 1/2, No priority
Manual re-transfer	Yes
In-phase monitor (synchro check)	Yes
Genset exercising: on-load, off-load	Yes
In-built power meter module	Yes
Load shedding	Yes
Real time clock	Yes
Event log	Yes
Predictive maintenance	Yes
Voltage and current harmonics measuring	Yes
Field-mount accessories	
Auxiliary contacts for position indication	Yes
Digital input/output modules (factory programmed)	Yes
12-24 Vdc aux supply module for controller	Yes
Communication modules	Yes
Connectivity capability	
Modbus RTU (RS-485)	Yes
Modbus/TCP	Yes
Profibus DP	Yes
ProfiNet	Yes
DeviceNet	Yes
Ethernet IP	Yes
For applications	
Utility - Utility	Yes
Utility - Generator	Yes
UL short circuit withstand ratings	
Coordinated breaker WCR	Yes
Time-based WCR	Yes
Short-time ratings	Yes

Specifications

Type	Functions	Pre-configured IO packages				
Input functions		**Base**	**Plus[1]**	**Controls**	**Flex[1]**	**Motor[1]**
No function	Input disabled.	2	-	-	-	-
Emergency Stop	Transfers to O position in delayed transition I-O-II type switches. Disables automatic control mode in both delayed and open transition types.	-	-	-	-	-
Remote Test On Load / Peak shave	Start/stop test on load sequence in rising (NO) or falling (NC) edge of the input signal.	-	1	1	1	1
Remote Test Off Load	Start/stop test off load sequence in rising (NO) or falling (NC) edge of the input signal.	-	-	-	-	-
Inhibit AUTO Mode	Prevent switch control operations, configuration, test sequences and generator start in case of priority source failure.	-	-	1	-	1
Manual Retransfer	Disables automatic transfer back to priority source.	-	-	1	1	1
Source Priority S1	Sets priority for source 1 in transformer-transformer application.	-	-	-	-	-
Source Priority S2	Sets priority for source 2 in transformer-transformer application.	-	-	-	-	-
Inhibit Transfer	Disables automatic transfer from priority source to non-priority source.	-	-	1	-	1
Bypass Running Time Delays	Bypass any currently running time delay.	-	-	1	-	-
Load Shed ATS to S1	Allows back-up generator to signal to ATS to move to S1 to prevent overload. Stays in S1 if S1 restores and input removed.	-	-	1[2]	1[2]	1[2]
Load Shed ATS to OFF	Allows back-up generator to signal to ATS to move to O to prevent overload. If S1 restores, transfer to S1 will occur even it input is maintained.	-	-	1[3]	1[3]	1[3]
Remote Control to S1	Transfer to S1 when active. Overridden by activated 'Remote Control to OFF' signal.	-	-	-	-	-
Remote Control to OFF	Transfer to O position when active.	-	-	-	-	-
Remote Control to S2	Transfer to S2 when active. Overridden by activated 'Remote Control to OFF' or 'Remote Control to S1' signals.	-	-	-	-	-
Reset Alarm	Reset any active switch control alarms (open I failure, close I failure, open II failure, close II failure).	-	-	-	-	-
Manual-Auto Mode	Toggle automatic/HMI control mode, input is active only in rising/falling edge according to contact type.	-	-	-	-	-

1. Three additional inputs available if selector switch option not selected
2. Open transition configurations only
3. Delayed transition configurations only

Specifications

Type	Functions	Pre-configured IO packages				
Output functions		**Base**	**Plus[4]**	**Controls[4]**	**Flex[4]**	**Motor[4]**
No Function	Output disabled.	1	-	-	-	-
Alarm / Product availability	Signals any active alarms or ATS being disabled for automatic transfer operations.	-	-	-	-	-
Load Connected to S1	Signals switch in position I.	-	-	-	-	-
Load Disconnected	Signals switch in position O.	-	-	-	-	1
Load Connected to S2	Switch in position II.	-	-	-	-	-
Pre-transfer Signal	Signal is activated and transfer is delayed according to pre-transfer delay. Signal is kept activated according to post-transfer delay after transfer.	-	-	1	1	2
Source 1 Available	Signals no anomalies in S1 voltage supply.	-	1	1	1	1
Source 2 Available	Signals no anomalies in S2 voltage supply.	-	1	1	1	1
Load Shed 1	Used for shedding non-essential loads before transferring to non-priority source. The signal is activated before transferring to non-priority source according to load shed delay and kept activated until load is transferred back to priority source.	-	-	-	-	-
Elevator pre-signal	The signal is activated and transfer is delayed according to Elevator pre-signal delay. The signal is kept activated according to Elevator post-signal delay after transfer.	-	-	1	1	1

4. One additional output available if transfer alarm option not selected

Specifications

Cat CS Series technical data 30-200 A

		Switch size (A)					
Data according to UL1008	**Units**	**30**	**60**	**100**	**125**	**160**	**200**
Rated operational voltage	Vac	200 - 480					
Operating voltage range	Vac	160 - 576					
Rated frequency	Hz	50-60					
Emergency systems - Motor loads or total system	A	30	60	100	125	160	200
Optional standby systems - Motor loads or total system	A	30	60	100	125	160	200
Short-circuit withstand/closing and short-time current ratings	kA	See table on following page					
Contact transfer time I-II, II-I Load interrupting time	ms	<50					
Operating transfer time I-II, II-I	ms	<500					
ATS current draw during transfer / time duration	A / ms	35 / <110					
Suitable for applications		Utility - Utility, Utility Generator					

Cat CS Series technical data 260-1200 A

		Switch size (A)					
Data according to UL1008	**Units**	**260**	**400**	**600**	**800**	**1000**	**1200**
Rated operational voltage	Vac	200 - 480					
Operating voltage range	Vac	160 - 576					
Rated frequency	Hz	50-60					
Emergency systems - Motor loads or total system	A	260	400	600	800	1000	1200
Optional standby systems - Motor loads or total system	A	260	400	600	800	1000	1200
Short-circuit withstand/closing and short-time current ratings	kA	See table on following page					
Contact transfer time I-II, II-I Load interrupting time	ms	<50					
Operating transfer time I-II, II-I	ms	<500					
ATS current draw during transfer / time duration	A / ms	35 / <110	40 / <130				
Suitable for applications		Utility - Utility, Utility Generator					

Cat CS Series technical data 1600-3000 A

		Switch size (A)			
Data according to UL1008	**Units**	**1600**	**2000**	**2600**	**3000**
Rated operational voltage	Vac	200-480			
Operating voltage range	Vac	160 - 576			
Rated frequency	Hz	50-60			
Emergency systems - Motor loads or total system	A	1600	2000	2600	3000
Optional standby systems - Motor loads or total system	A	1600	2000	2600	3000
Short-circuit withstand/closing and short-time current ratings	kA	See table on following page			
Contact transfer time I-II, II-I Load interrupting time	ms	–			
Operating transfer time I-II, II-I	ms	–			
ATS current draw during transfer / time duration	A / ms	–			
Suitable for applications		Utility - Utility, Utility Generator			

Specifications

CS Series Withstand and Close-on Ratings (WCR) and Short-time Ratings (STR)

ATS frame	ATS rating	Transition types	Coordinated fuse ratings			Coordinated breaker ratings				Time-based ratings		Short-time ratings	
			480V Max withstand	Class	Max fuse size	240V Max withstand	Max breaker size	480V Max withstand	Max breaker size	480V Max withstand	Time-period	480V Max withstand	Time-period
R2	30-200A	OT, DT	200kA	RK5	100A	200kA	250A	200kA	125A	18kA	0.1 sec	18kA[1]	0.3 sec
			50kA	RK5	200A								
			200kA	Class J or T	200A			100kA	250A				
			100kA	Class J or T	400A								
R2	260A	OT, DT	200kA	RK5	100A	200kA	600A	200kA	250A	25kA	0.1 sec	25kA[1]	0.3 sec
			100kA	RK5	200A								
			200kA	Class J or T	200A			100kA	600A				
			100kA	Class J or T	400A								
			50kA	Class J or T	600A								
R3	400A	OT, DT	200kA	Class J or T	400A	200kA	600A	200kA	250A	35kA	0.1 sec	30kA[1]	0.3 sec
			100kA	Class J or T	600A			100kA	600A				
			200kA[1]	Class J or T	600A			150kA[1]	600A				
R3	600A	OT, DT	200kA	Class J or T	400A	200kA	600A	100kA	600A	42kA	0.1 sec	30kA[1]	0.3 sec
			100kA	Class J or T	600A								
			200kA[1]	Class J or T	800A			200kA[1]	600A				
			200kA[1]	Class L	800A			65kA[1]	800A				
R4	800-1200A	OT, DT	100kA[1]	Class L	2000A	200kA[1]	1600A	100kA[1]	1200A	50kA	0.1 sec	50kA[1]	0.5 sec
			200kA[1]	Class J or T	800A			65kA[1]	1600A	65kA	0.05 sec		
			200kA[1]	Class L	1200A								
R5	1600-3000A	OT, DT, CT	200kA	Class L	4000A	100kA	no max	100kA	no max	100kA	0.05 sec	65kA	0.5 sec

1. 3 phase applications only
2. For detailed WCR ratings by ATS and breaker type, please refer to Caterpillar Publication LEHE20829

Specifications

CS Series Testing and Standards Compliance

Description	Standard
UL, cUL listing	UL 1008
Conducted and radiated emissions	CISPR 11:2009, Class A
ESD immunity test	IEC/EN 61000-4-2 Class B
Radiated RF, electromagnetic field immunity test	IEC/EN 61000-4-3 10 V/m
Electrical fast, transient/burst immunity test	IEC/EN 61000-4-4
Surge immunity test	IEC/EN 61000-4-5 0.5 to 2 kV
Conducted immunity test	IEC/EN 61000-4-6
Voltage dips and interruption immunity	IEC/EN 61000-4-11
Harmonic voltage immunity test	IEC/EN 6100-4-13

CS SERIES AL/CU UL Listed Solderless Screw-Type Terminals for External Power Connections

Model	Amperage	Cables per phase & neutral	Range of wire sizes	
CS CSD	30-60	1	12 - 2/0 AWG	(3 - 67 mm^2)
	100-200	1	6 AWG - 300 kcmil	(14 - 152 mm^2)
	260-400	1 / 2	1x 4 AWG - 600 kcmil / 2x 1/0 - 250 kcmil	(1x 25 - 304 mm^2 / 2x 55 - 127 mm^2)
	600	2	2 AWG - 600 kcmil	(34 - 304 mm^2)
	800-1200	4	2 AWG - 600 kcmil	(34 - 304 mm^2)
	1600-3000 (inc. CSCT)	8	2 AWG - 600 kcmil	(34 - 304 mm^2)
		8	750 kcmil	(380 mm^2)

Dimensions

30-400A

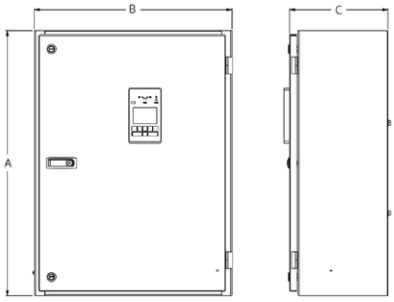


Figure 1

600A

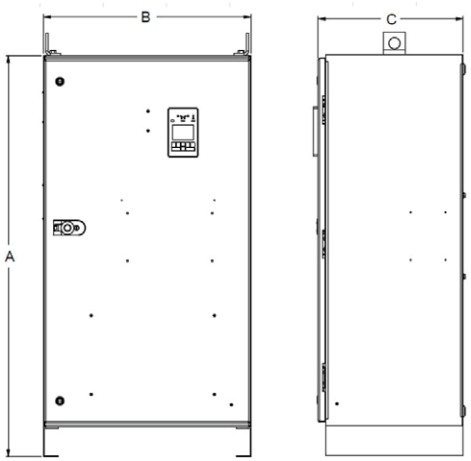


Figure 2

800-1200A

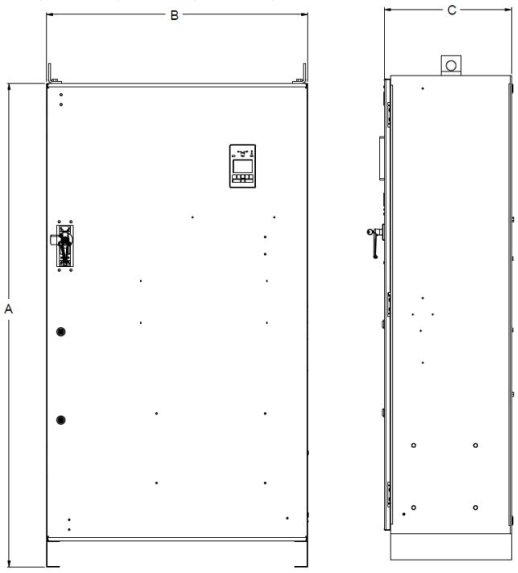


Figure 3

CS Series dimensions						
Model	ATS Rating (A)	Poles	Dimensions,[2] in (mm)			Reference figure
			Height (A)	Width (B)	Depth (C)	
CS CSD	30-200	2	32 (813)	24 (610)	12 (305)	1
		3	32 (813)	24 (610)	12 (305)	1
		4	32 (813)	24 (610)	12 (305)	1
	260	2	46 (1168)	24 (610)	14 (356)	1
		3	46 (1168)	24 (610)	14 (356)	1
		4	46 (1168)	24 (610)	14 (356)	1
	400	2	46 (1168)	24 (610)	14 (356)	1
		3	46 (1168)	24 (610)	14 (356)	1
		4	54 (1372)	28 (711)	19.5 (495)	1
	600	2	54 (1372)	28 (711)	19.5 (495)	2
		3	54 (1372)	28 (711)	19.5 (495)	2
		4	54 (1372)	28 (711)	19.5 (495)	2
	800-1200	3	74 (1880)	40 (1016)	19.5 (495)	3
		4	74 (1880)	40 (1016)	19.5 (495)	3

Dimensions

1600-3000A

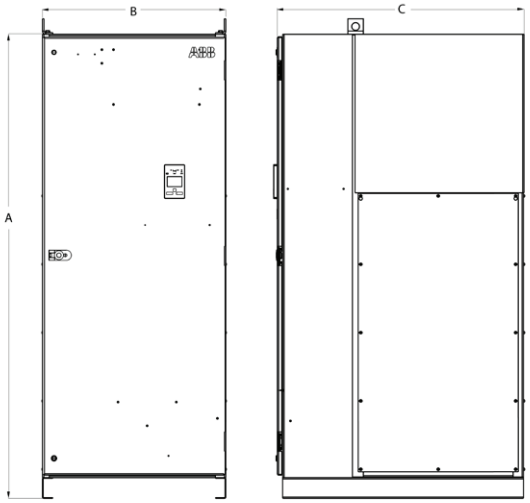


Figure 1

CS Series dimensions						
Model	ATS Rating (A)	Poles	Dimensions,[2] in (mm)			Reference figure
			Height (A)	Width (B)	Depth (C)	
CS CSD CSCT	1600-3000	3	90 (2290)	35.5 (900)	48 (1220)	4
		4	90 (2290)	35.5 (900)	48 (1220)	4