CATALOGUE

TruONE® ATS

Automatic Transfer Switches

- Safety and Protection
- User-friendly HMI
- Compatible with ABB Ability Energy and Asset Manager
- Easy to Install


ABB
S1
S2
LOAD
AUTO
59 s
11:06
System overview
S1 OK
OK S2
S1 connected to load
Load current
393.0 A
Generator stop delay
TruONE
I ON
II ON
AUTO
LOAD
LOAD
A L1
B L2
SOURCE
S1 S2
SOURCE
S1 S2

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06–11	**Advantages**
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TruONE® ATS

Ensure reliable power supply of emergency power system

Multifunctional TruONE®? It is the concept of ABB designing the TruONE® to perfectly integrate the switches and the controllers into one unit and combine current applicability with future scalability.

The excellent performance of TruONE® can ensure continuous and reliable operation of emergency power systems. The overall modular design is adopted to reduce the number of secondary wires and module plugs, which can speed up the installation and minimize the failure to ensure high reliability. The premaintenance function and modular components reduce downtime and service costs; the advanced connectivity of TruONE® is ready for use in the future. Different from traditional ATS applications, the TruONE® enables manual emergency operations with load to immediately restore power in the event of equipment failure.

—
01 Detachable HMI. Three levels of control to meet different customerrequirements.
—
02 All-in-one concept that brings easy and fast installation.

Easy to Install
Reduces installation more time.

Why waste time piecing together an ATS from multiple components and as many as 20 connection wires, not to mention the time spent testing? TruONE® is an automatic transfer switch that integrates multiple main functions, including the controller with detachable HMI. It only needs to connect the main circuit wiring and install the standard housing.

Safety and Protection
Reduce the risk of operator injury.

TruONE enables emergency manual operation—even under load—without opening the panel door when the HMI is mounted to the ATS frame. The HMI can be detached from the frame for door mounting, offering more flexibility for the panel designer. Best of all, regardless of the HMI installation method, there's no need for connecting dangerous line voltages to the door, so the risk of operator injury due to equipment malfunction is reduced.

HMI Optimum Interface
Simplifies connectivity.

TruONE® features cloud-based connectivity through the ABB Ability EAM Energy and Asset Manager. ABB Ability simplifies implementation and use of TruONE® in coordination with other ABB devices, ensuring one common user interface and one common software environment. Market-leading modular connectivity with seven communication protocols ensures easy installation and connectivity now and far into the future.

01


ABB
S1
S2
LOAD
AUTO
59 s
System overview
S1
OK

02


ABB
S1
S2
LOAD
AUTO
AUTO
LOAD
LOAD
LOAD
LOAD
A L1
B L2
C L3
N
SOURCE
SOURCE
SOURCE
SOURCE

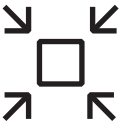
Even more advantages

Speed Up Your Project
Now you can speed up your project even more, thanks to TruONE® automatic commissioning capabilities. Premade configuration files can be uploaded from your PC to TruONE®, minimizing the risk of human error and reducing programming time

Continuous Operation
TruONE® features predictive maintenance, self-diagnostics and customer-replaceable critical modules to simplify service and significantly reduce downtime and service costs. Say goodbye to blinking lights and stopping motors. TruONE® provides a fast in-phase open transition of power, ensuring unnoticed generator use during business hours.

Energy Efficiency
Full compatibility with ABB Ability EAM Energy and Asset Manager allows data processing from the site's electrical equipment to deliver analysis and make recommendations for optimizing the electrical system's performance. This allows remote monitoring of plants, energy consumption and costs at a glance, making implementation of energy management strategies easier and faster.

Optimized Logistics
TruONE® products at 1250A and below can work in a wide voltage range of 200 to 480VAC, which can avoid the increase of inventory due to different voltage requirements, reduce the inventory of engineering users, switchgear factories and channels and simplify the design and selection of the design institute.



Space Saving
Based on a modular design concept, the TruONE® standardizes the size of miniaturized switch and it is fitted with embedded plug-and-play accessories to greatly optimize the in-cabinet space.

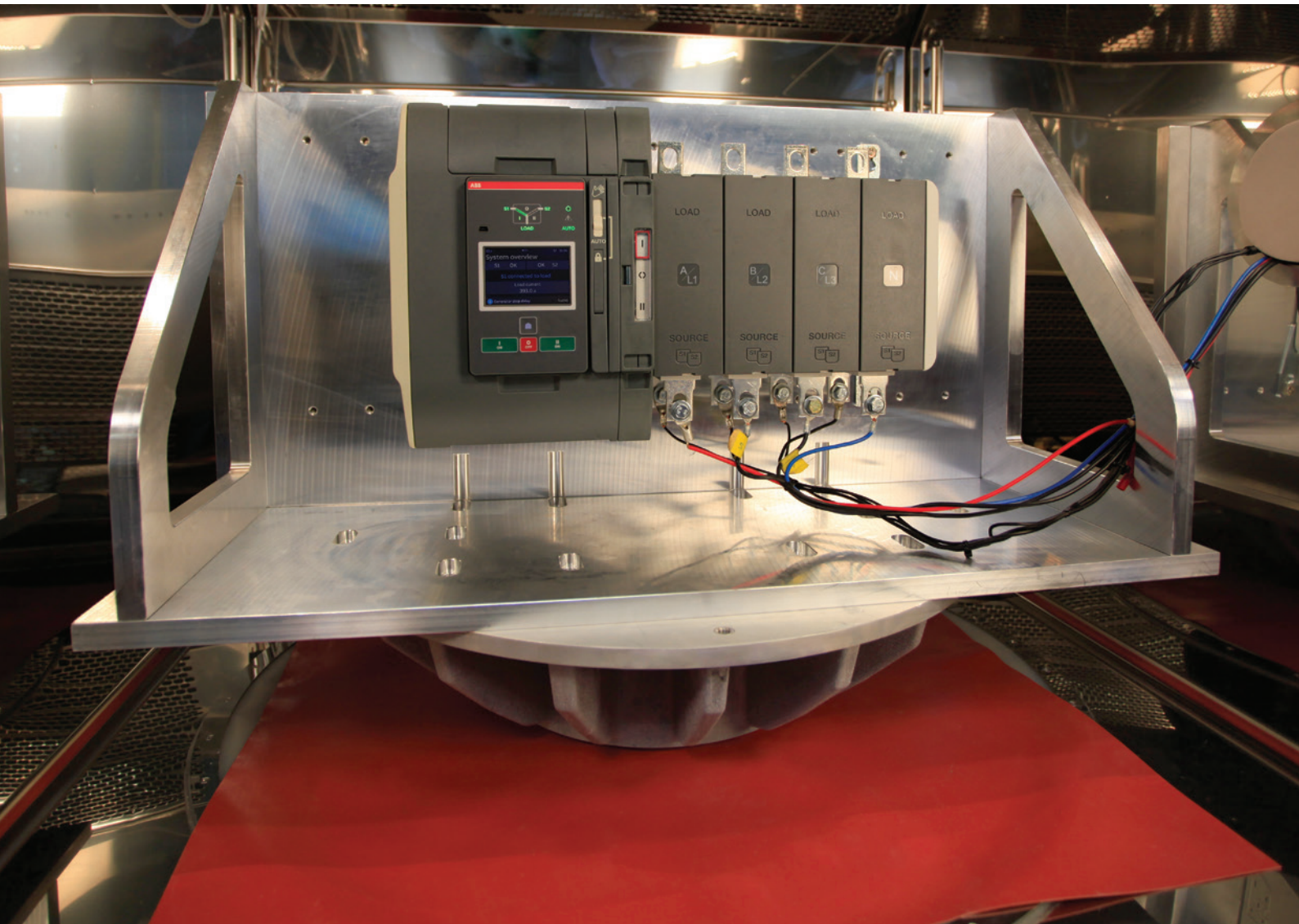
Reliable in extreme conditions

It has been proven that the TruONE® is in strict compliance with IEC and UL standards and can provide reliable operation in even challenging electrical, mechanical and environmental conditions.

TruONE® is one ATS to guarantee safe and reliable operation during dramatic variations in temperature (-25–+70°C) and voltage (200–480 VAC with +/-20% tolerance), and it's tolerant of vibrations (acc. IEC 60068-2-6) and shocks (acc. IEC 60068-2-27). TruONE® also has true short-circuit resilience, able to take the hit and remain fully operational after exposure to even the most dangerous phenomena.

Site conditions can change due to unexpected situations, but the performance of TruONE® does not.

—
Testing for vibrations, shocks and a limited temperature range.



The dual power ATS for all applications

Bring the highest level of convenience, efficiency and critical power security to your product, project or facility.

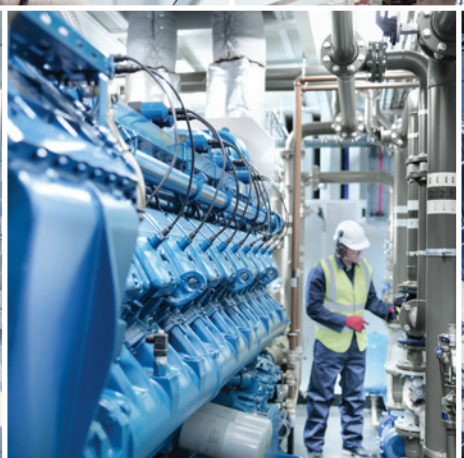
TruONE®is the superior solution for:
- Genset OEMs
- Complete panel builders and integrators
- Consultants and engineers
- Electrical contractor
- Facilities operation and maintenance managers

TruONE®provides superior critical power security for:
- Hospitals
- Sports arenas
- Retail environments
- High-rise buildings
- Commercial buildings
- Financial environments
- Data centers
- And more

Features of TruONE®:

- Excellent design to reduce more installation time and wiring workload;
- Remote control, compatible with a variety of communication protocols, and cloud management;
- Standard operation handle, supporting on-site on-load operation for emergency switching!
- Worry-free power supply for maintenance of controller and mechanical mechanism without power outage!
- Pre-maintenance procedures set to include the maintenance in the plan;
- Testing and setup without main circuit in power-on state;
- Fast switching for contact switching time or power-off time less than 50ms;
- Safety and protection for operators without electric shock risk on the cabinet door.
- N pole of 1600-4000A is solution of Break last and make first.It can eliminates the temporary overvoltages caused by the typical switched neutral.




Applicable standards

Product standards
GB / T 14048.11-2024 Low-voltage Switchgear and Controlgear Part 6-1: Multiple Function Equipment - Transfer Switching Equipment

GB 14048.1-2023 Low-voltage Switchgear and Control Equipment Part 1: General

UL1008:Standard For Safety Transfer Switch Equipment

IEC60947-6-1:Low-voltage switchgear and controlgear – Part 6-1: Multiple function equipment – Transfer switching equipment

Environmental standards
GB/T2423.10 Environmental Testing of Electric and Electronic Products Part 2: Test Methods Test Fc: Vibration (sinusoidal)

GB/T2423.5 Environmental Testing of Electric and Electronic Products Part 2: Test Methods Test Ea and Guideline: Shock

GB/T 2423.2 Environmental Testing of Electric and Electronic Products Part 2: Test Methods Test B: High Temperature

GB/T 2423.4 Environmental Testing for Electric and Electronic Products Part 2: Test Method - Test Db: Damp Heat, Cyclic (12h+12h Cycle)

GB/T 2423.16 Environmental Testing of Electric and Electronic Products Part 2: Test Methods Test A: Cold

EMC standards

Immunity:
GB/T17626.2 Electrostatic Discharge Immunity Test (IEC61000-4-2) (Level 4)

GB/T17626.3 Radiofrequency Electromagnetic Field Radiated Immunity Test (IEC61000-4-3) (Level 3)

GB/T17626.4 Electrical Fast Transient Burst Immunity Test (IEC61000-4-4) (Level 4)

GB/T17626.5 Surge (Impulse) Immunity Test (IEC61000-4-5) (Level 4)

GB/T17626.13 Harmonic Immunity Test of AC Power Port (IEC61000-4-13) (Class 3)

GB/T17626.11 Voltage Dips and Short Outages (IEC61000-4-11) (Class 3)

GB / T 17626.8 Power Frequency Magnetic Field Immunity Test (IEC 61000-4-8) (Class 5)

Emission:
GB 4824 Industrial, Scientific and Medical (ISM) Radio-Frequency Equipment - Electromagnetic Disturbance Characteristics - Limits and Methods of Measurement (CISPR11)

Radio-frequency Conducted Emission Test: Class B

Radio-frequency Radiated Emission Test: Class B

Note: Class A for 1600A-4000A

Operation condition

Ambient temperature
Up to +70˚C;
The lower limit is -25˚C;

Humidity
Humidity: It meets damp heat test standard GB/T 2423.4, test Db, 2 cycles,55˚C;

Installation category
Class IV for main circuit and Class III for other auxiliary circuits and control circuits

Altitude
The altitude of the installation site shall not exceed 2,000m;

Class of pollution
Class 3

Installation requirements
Vertical installation;

Protection class
Product protection class: IP20;

Environment
Applicable to electromagnetic environment: B (Note: A for 1600A-4000A);
Environment classification: E
- Including vibration: GB/T2423.10 Test Fc
- Shock: GB/T2423.5 Test Ea
- High temperature: GB/T2423.2 Test Bd, 16h, 70˚C.
- Damp heat: GB/ T2423.4Db, 2 cycles, 55˚C
- Low temperature: GB/2423.1 16 hours, -25˚C

Seismic resistance meets IBC2015 Part 1705.13 (seismic)

Abbreviations and terms

ATS/ATSE/RTSE/MTSE:automatic transfer switching equipment.

Controller
Ekip: electronic accessories/Ekip module; communication, signal, and connection modules.

HMI: ATSE control interface (HMI), operation and configuration.

Level 2 controller: operation and configuration of HMI with a dial switch.

Level 3 controller: operation and configuration of HMI with a LCD screen.

Level 4 controller: operation and configuration of HMI with a touch screen.

TruCONTROL: 1600A~4000A ATSE controller.

Contact position
S1 position: position of power supply 1

S2 position: position of power supply 2

OFF position: power off position, which is the contact position of the electrical appliance with the load circuit not connected to any power supply.

Load: load end.

Special functions
Automatic configuration: Basic system parameters can be automatically configured using the HMI. The rated voltage, rated frequency, type of power supply and distribution system, and neutral point position are identified and set by the controller. Other parameters are set to factory values.

In-phase monitoring: The user can set the in-phase monitoring to on/off using the HMI (Controller Level 2, 3 and 4), or the Ekip Connect tool (for Level 3 and 4). This function can be used to calculate the phase difference of the voltage source and enable the automatic switching program I -> II or II -> I only when the power supply is synchronized. The power frequency difference must be less than 3 Hz. Otherwise, the in-phase monitoring may activate the "frequency difference" alert and disable the switching operation.

Power supply mode
Modes of load power supply: The power is supplied directly by S1 or S2 and the controller and ATS can be electrically operated.

Auxiliary power supply mode: The controller and HMI are powered on, but the load power supply cannot be switched. Programming interface (USB interface) on the HMI: It supplies power only to the mainboard. It is used for the software upgrade of the main device and the connection of Ekip Connect debugging tool.

Two-position (standard) switching type ATS: It is a switch with only two positions on the main contact, namely S1 position and S2 position, to perform opening and then closing, which can generate a short fixed outage time for the load and the two power sources.

Three-position (delay) switching type ATS: It is a switch with only three positions on the main contact, namely S1 position, OFF position and S2 position, to perform opening and then closing, which can intentionally disconnect the load from the two power sources at the OFF position for a specified outage time.

Closed switching ATS: It is an automatic transfer switch with overlapping contacts to perform on-off switching between actively or passively synchronized primary and standby power sources during the switching. The time for the two power supplies to be switched on (off) at the same time shall not exceed 100 milliseconds.

Neutral line on-off: the N-line of the 4-pole transfer switch is different from the phase line. Compared with the phase line, the N-line is turned on and then off to prevent the neutral line from being suspended momentarily when the load is powered, To reduce voltage transients during the switching.

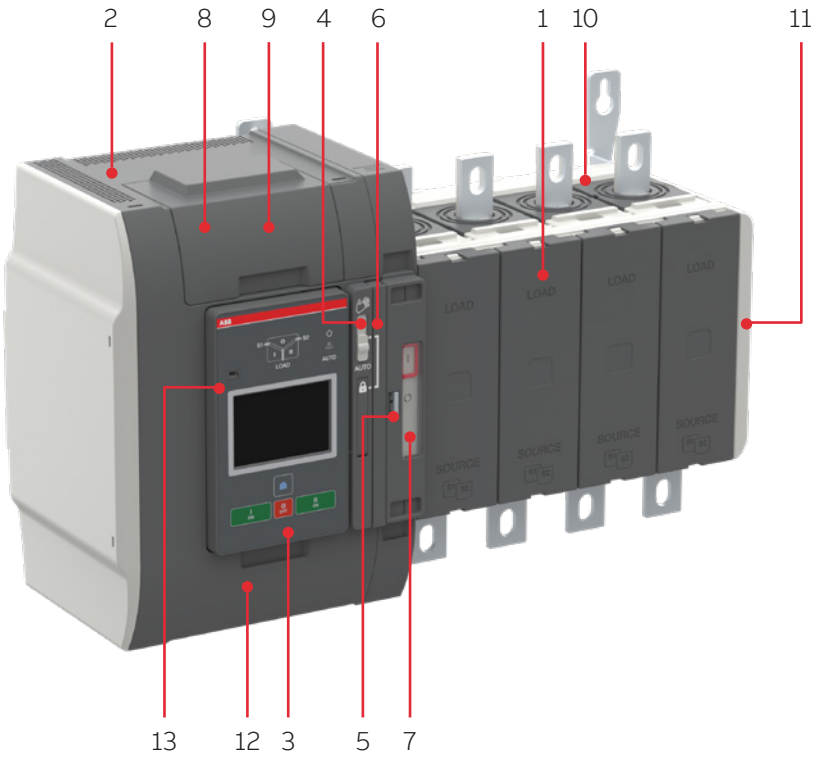
Neutral line overlap switching: A two-position switch with a structure that ensures that one or both neutral lines remain connected to the load during the switching.
Note: Ground protection may fail during the neutral line overlap switching.

Switching time
Power-off time: It is the switching time from the moment when the arc of each phase is finally extinguished to that when the main contact closes the other power source, including the time delay specially introduced.

Contact switching time: It is the time from the moment that the first group of main contacts turn off the primary power supply to that when the second group of main contacts turn on the standby power supply.

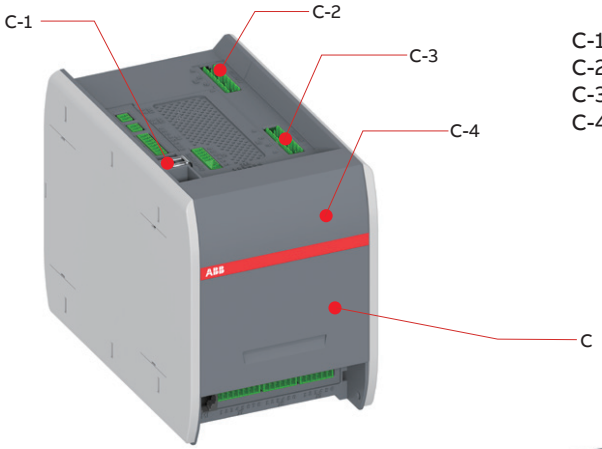
Switching operation time: It is the time from the moment when the deviation of primary power supply is detected to that when the main contact turns on the standby power supply, excluding the time delay specially introduced.

TruONE® product structure
30-1600A



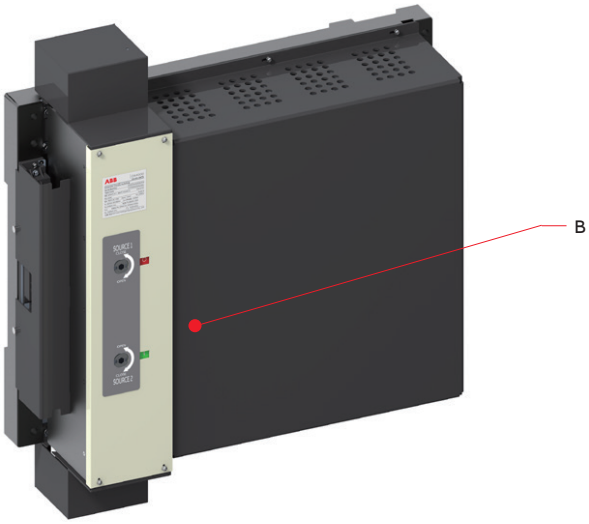
1. Automatic transfer switch
2. Embedded ATS control unit and solenoid operating mechanism
3. Detachable HMI unit, three types of control interfaces Level 2 (DIP), Level 3 (LCD) and Level 4 (Touch)
4. Slide switch (Hand - Locking - AUTO) for selection of the operation mode
5. Padlocking the automatic transfer switch to prevent automatic and manual operation
6. Handle for manual operation
7. Position indication
8. Terminals for control circuit connections (behind the cover)
9. Place for connectivity modules (aux power supply, communication and signaling)
10. Place for sensor module (included as standard with Level 4 controls)
11. Place for auxiliary contact block
12. Location of product identification label
13. Programming port, only for Ekip Programming module and Ekip Connect software

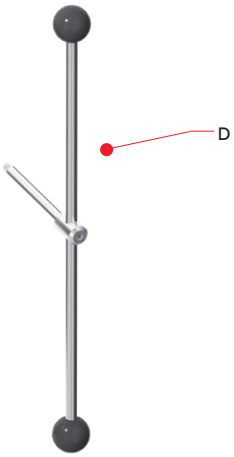
TruONE® product structure
1600-4000A (R5)



C-1 Rated plug
C-2 Power supply 1
C-3 Power supply 2
C-4 EKIP access communication module (behind the cover plate)

Programming port, only for Ekip Programming-module





A. HMI unit
B. ATS (body)
C. ATSE control unit
D. Handle for manual operation

TruONE® type designation

OX B 1000 E 3S 4 Q B

Wiring direction
B: Bottom inlet (power at the bottom, load at the top, 30-1600A)
T: Top inlet (power at the top, load at the bottom, 30-1600A)
M: Top and bottom inlet, middle outlet (1600-4000A R5)

Voltage encoder
Q: 208-415 VAC (30-1600A)
K: 380-415 VAC (1600-4000A R5)

TruCONTROL
2: Level 2 - dial switch (30-1600A)
3: Level 3 - LCD display
4: Level 4 - touch screen

Number of poles
3X: 3P
3S: 4P
3O: 4P, neutral line overlap

Standards
E: IEC Standard (200-1600A)
U: IEC/UL Standard (30-1200A)
G: IEC/UL Standard (1600-4000A R5)

ATS specifications
UL: 30, 60, 100, 125, 160, 200, 260, 400, 600, 800, 1000, 1200, 1600, 2000, 2600, 3000
IEC: 200, 250, 315, 400, 500, 630, 800, 1000, 1250, 1600, 2000, 2500, 3200, 4000

ATS type
A: Open transition I - II (without stable OFF position for load disconnection)
B: Delayed transition I - O - II (with stable OFF position for load disconnection)
C: Closed transition I-I&II-II (applicable to 1600-4000A R5)

ABB TruONE® ATS

Meaning of product type:
OXB1000E3S4QB
ABB TruONE®ATS, Delayed transition, 1000A, IECstandard, three-phase+neutral line (three-phase four-wire), TruCONTROL Level 4 (touch screen), voltage range200-480 V AC, bottom inlet.

IEC 200-250 A
UL 30-200 A

IEC 315-400 A
UL 260 A

IEC 500-800 A
UL 400-600 A

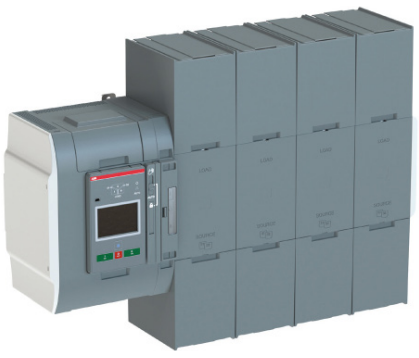
TruONE® technical data

ATS Frame Size		A	250	400	800	1600	4000 (R5)
Rated operational current	IEC 60947-6-1, GB/T 14048-11	A	200, 250	315, 400	500, 630, 800	1000, 1250, 1600	1600, 2000, 2500, 3200, 4000
	UL1008	A	30, 60, 100, 125, 160, 200	260	400, 600	800, 1000, 1200	1600, 2000, 2600, 3000
Rated operational voltage Ue		V	200 - 480	200 - 480	200 - 480	200 - 480	208/220/380/ 400/415
Rated frequency		Hz	50/60	50/60	50/60	50/60	50/60
Electrical classification			Dedicated all-in-one PC	Dedicated all-in-one PC	Dedicated all-in-one PC	Dedicated all-in-one PC	Dedicated all-in-one PC
Drive mode			Electromagnet excitation drive	Electromagnet excitation drive	Electromagnet excitation drive	Electromagnet excitation drive	Electromagnet excitation drive
Number of poles			3, 4	3, 4	3, 4	3, 4	3, 4
Usage category			AC-33B	AC-33B	AC-33B	AC-33B	AC-33A
Rated insulation voltage Ui (power circuit)		V	1000	1000	1000	1000	1250
Rated insulation voltage Ui (electronics)		V	500	500	500	500	500
Rated impulse withstand voltage Uimp (power circuit)		kV	8	12	12	12	12
Rated impulse voltage Uimp (electronics)		kV	6	6	6	6	6
Rated conditional short-circuit current Iq, fuse protection		kA	100	100	100	100	200
Rated conditional short-circuit current Iq, circuit breaker protection		kA	50	50	50	85	-
Rated short-time withstand current Icw		kA/s	18/0.3	25/0.3	42/0.1, 30/0.3(0.5)	50/0.5	100[3]/0.06, 90/1, 66/3
Rated short-time making capacity Icm/0.05s, peak		kA	36	52.5	63, 89	105	220
Contact transfer time		ms	<50	<50	<50	<50	<50
Power consumption per pole		W	9.7	20.3	47	49	200
Weight (excluding accessories), 3P/4P		kg	14/15.6	15.4/17.5	19.1/21.4	31.1/37.1	203/223
Minimum enclosure size or equivalent volume W x H x D		mm	600 x 800 x 300	600 x 800 x 300	600 x 800 x 300	800 x 1000 x 300	910 x 1426 x 600
Terminal bolt size metric thread, diameter x length		mm	M8 × 25	M10 × 30	M12 × 40	M12 × 40	M12
Terminal tightening torqueCounter torque required		Nm	15...22	30...44	50...75	50...75	57

Note: 1) The delay specially introduced is not included in the contact switching time and the switching operation time.

2) Please consult abb office for 2p products.

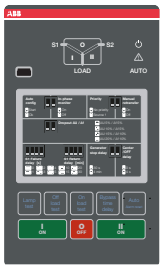
3) Not apply to N pole overlapping type.



IEC 1000-1600 A
UL 800-1200 A

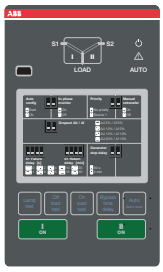
IEC 1600-4000 A R5
UL 1600-3000 A

TruONE® feature comparison
30-1600A



		TruCONTROL		
		Level 2	**Level 3**	**Level 4**
Current range		IEC:200-1600 A	IEC:200-1600 A	IEC:200-1600 A
		UL:30-1200 A	UL:30-1200 A	UL:30-1200 A
Rated voltage		200-480Vac	200-480Vac	200-480Vac
Rated frequency		50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Phase system		Single and Three	Single and Three	Single and Three
Number of poles		3, 4P	3, 4P	3, 4P
Neutral configuration				
Switched		Yes	Yes	Yes
Features		General/on-off/overlap [1)]	General/on-off/overlap [1)]	General/on-off/overlap [1)]
Product type				
Open transition (I-II)		Yes	Yes	Yes
Delayed transition (I-O-II)		Yes	Yes	Yes
Closed transition		No	No	No
Voltage and frequency settings				
Pick up Voltage Source 1		Fixed 2% above drop out	71-99%,101-119%	71-99%, 101-119%
Drop out Voltage Source 1		+/-5,10,15,20%	70-98%,102-120%	70-98%, 102-120%
Pick up Voltage Source 2		Fixed 2% above drop out	71-99%,101-119%	71-99%, 101-119%
Drop out Voltage Source 2		+/-5,10,15,20%	70-98%,102-120%	70-98%, 102-120%
Pick up Frequency Source 1		Fixed 1% above drop out	80.5-99.5%,100.5-119.5%	80.5-99.5%, 100.5-119.5%
Drop out Frequency Source 1		+/-5,10 %	80-99%, 101-120%	80-99%, 101-120%
Pick up Frequency Source 2		Fixed 1% above drop out	80.5-99.5%,100.5-119.5%	80.5-99.5%, 100.5-119.5%
Drop out Frequency Source 2		+/-5,10 %	80-99%,101-120%	80-99%, 101-120%
Time delay settings				
Override momentary Source 1 Outage	s	0, 1, 2, 3, 4, 5, 10, 15, 20, 30	0-60	0-60
Transfer from Source 1 to Source 2	s	2 (0-3600 via Ekip Connect)	0-3600	0-3600
Override momentary Source 2 Outage	s	2 (0-60 via Ekip Connect)	0-60	0-60
Transfer from Source 2 to Source 1	min	0, 1, 2, 3, 4, 5, 10, 15, 20, 30	0-120	0-120
Generator stop delay	min	30 secs or 4 mins	0-60	0-60
Center-OFF delay	s	0 or 4	0-300	0-300
Pre-transfer delay S1 to S2	s	No	0-300	0-300
Post-transfer delay S1 to S2	s	No	0-300	0-300
Pre-transfer delay S2 to S1	s	No	0-300	0-300
Post-transfer delay S2 to S1	s	No	0-300	0-300
Elevator Pre-signal delay S1 to S2	s	No	0-60	0-60
Elevator Post-signal delay S1 to S2	s	No	0-60	0-60
Elevator Pre-signal delay S2 to S1	s	No	0-60	0-60
Elevator Post-signal delay S2 to S1	s	No	0-60	0-60
Load shed delay	s	No	0-60	0-60

Note: 1) Please consult ABB office for neutral line configuration products.



	TruCONTROL		
	Level 2	**Level 3**	**Level 4**
Source failure detections			
No voltage	Yes	Yes	Yes
Undervoltage	Yes	Yes	Yes
Overvoltage	Yes	Yes	Yes
Phase missing	Yes	Yes	Yes
Voltage unbalance	Yes	Yes	Yes
Invalid frequency	Yes	Yes	Yes
Incorrect phase sequence	Yes	Yes	Yes
Features			
Controls	DIP + keys	LCD + keys	Touch + keys
LED indications for ATS, S1 and S2 status	Yes	Yes	Yes
Open transition - Standard digital inputs/outputs	0 / 1	1 / 1	2 / 1
Delayed transition - Standard digital inputs/outputs	1 / 1	2 / 1	3 / 1
Programmable digital inputs/outputs	No	Yes	Yes
Auto config (voltage, frequency, phase system)	Yes	Yes	Yes
Source priority	Source 1, No priority	Source 1/2, No priority	Source 1/2, No priority
Manual retransfer	Yes	Yes	Yes
In-phase monitor (synchro check)	Yes	Yes	Yes
Local genset exercising: on-load, off-load	via HMI	via HMI, digital output	via HMI, digital output
Scheduled genset exercising: on-load, off-load	via Ekip Connect	via HMI, Ekip Connect	via HMI, Ekip Connect
In-built power meter module	No	No	Yes
Load shedding	No	Yes	Yes
Real-time clock	Yes	Yes	Yes
Event log	via Ekip Connect	Yes	Yes
Predictive maintenance	No	No	Yes
Harmonics measuring	No	Voltage	Voltage, Current
Field-mount accessories			
Auxiliary contacts for position indication	Yes	Yes	Yes
Digital input / output modules	No	Yes	Yes
12-24 Vdc aux supply module for controller	No	Yes	Yes
Communication modules	No	Yes	Yes
Connectivity			
Modbus RTU (RS-485)	No	Yes	Yes
Modbus/TCP	No	Yes	Yes
Profibus DP	No	Yes	Yes
ProfiNet	No	Yes	Yes
DeviceNet	No	Yes	Yes
Ethernet IP	No	Yes	Yes
Ekip Com Hub monitoring by ABB Ability EAM	No	Yes	Yes
Applications			
Mains - Mains	Yes	Yes	Yes
Mains - Generator[1)]	Yes	Yes	Yes

TruONE® feature comparison
1600-4000A (R5)

		TruCONTROL	
		Level 3	**Level 4**
Current range		IEC: 1600-4000A UL: 1600-3000A	IEC: 1600-4000A UL: 1600-3000A
Rated voltage		380V, 400V, 415V	380V, 400V, 415V
Rated frequency		50 / 60 Hz	50 / 60 Hz
Phase system		Three-phase	Three-phase
Number of poles		3, 4P	3, 4P
Neutral configuration			
Switched		Yes	Yes
Features		General/on-off/overlap [1)]	General/on-off/overlap [1)]
Product type			
Open transition (I-II)		Yes	Yes
Delayed transition (I-O-II)		Yes	Yes
Closed transition		Yes	Yes
Voltage and frequency settings			
Pick up Voltage Source 1		71-99%, 101-119%	71-99%, 101-119%
Drop out Voltage Source 1		70-98%, 102-120%	70-98%, 102-120%
Pick up Voltage Source 2		71-99%, 101-119%	71-99%, 101-119%
Drop out Voltage Source 2		70-98%, 102-120%	70-98%, 102-120%
Pick up Frequency Source 1		80.5-99.5%, 100.5-119.5%	80.5-99.5%, 100.5-119.5%
Drop out Frequency Source 1		80-99%, 101-120%	80-99%, 101-120%
Pick up Frequency Source 2		80.5-99.5%, 100.5-119.5%	80.5-99.5%, 100.5-119.5%
Drop out Frequency Source 2		80-99%, 101-120%	80-99%, 101-120%
Time delay settings			
Override momentary Source 1 Outage	s	0-60	0-60
Transfer from Source 1 to Source 2	s	0-3600	0-3600
Override momentary Source 2 Outage	s	0-60	0-60
Transfer from Source 2 to Source 1	min	0-120	0-120
Generator stop delay	min	0-60	0-60
Center-OFF delay	s	0-300	0-300
Pre-transfer delay S1 to S2	s	0-300	0-300
Post-transfer delay S1 to S2	s	0-300	0-300
Pre-transfer delay S2 to S1	s	0-300	0-300
Post-transfer delay S2 to S1	s	0-300	0-300
Elevator Pre-signal delay S1 to S2	s	0-60	0-60
Elevator Post-signal delay S1 to S2	s	0-60	0-60
Elevator Pre-signal delay S2 to S1	s	0-60	0-60
Elevator Post-signal delay S2 to S1	s	0-60	0-60
Load shed delay	s	0-60	0-60

Note: 1) Please consult ABB office for neutral line configuration products.

	TruCONTROL	
	Level 3	**Level 4**
Source failure detections		
No voltage	Yes	Yes
Undervoltage	Yes	Yes
Overvoltage	Yes	Yes
Phase missing	Yes	Yes
Voltage unbalance	Yes	Yes
Invalid frequency	Yes	Yes
Incorrect phase sequence	Yes	Yes
Features		
Controls	LCD + keys	Touch + keys
LED indications for ATS, S1 and S2 status	Yes	Yes
Open transition - Standard digital inputs/outputs	1 / 1	2 / 1
Delayed transition - Standard digital inputs/outputs	2 / 1	3 / 1
Programmable digital inputs/outputs	Yes	Yes
Auto config (voltage, frequency, phasesystem)	Yes	Yes
Source priority	Source 1/2, No priority	Source 1/2, No priority
Manual retransfer	Yes	Yes
In-phase monitor (synchro check)	Yes	Yes
Local genset exercising: on-load, off-load	Via HMI, digital output	Via HMI, digital output
Scheduled genset exercising: on-load, off-load	Via HMI, Ekip Connect	Via HMI, Ekip Connect
In-built power meter module	No	Yes
Load shedding	Yes	Yes
Real-time clock	Yes	Yes
Event log	Yes	Yes
Harmonics measuring	Voltage	Voltage, Current
Field-mount accessories		
Auxiliary contacts for position indication	Yes	Yes
Digital input / output modules	Yes	Yes
12-24 Vdc aux supply module for controller	Yes	Yes
Communication modules	Yes	Yes
Connectivity		
Modbus RTU (RS-485)	Yes	Yes
Modbus/TCP	Yes	Yes
Profibus DP	Yes	Yes
ProfiNet	Yes	Yes
DeviceNet	Yes	Yes
Ethernet IP	Yes	Yes
Ekip Com Hub monitoring by ABB Ability EAM	Yes	Yes
Applications		
Mains - Mains	Yes	Yes
Mains - Generator[1)]	Yes	Yes

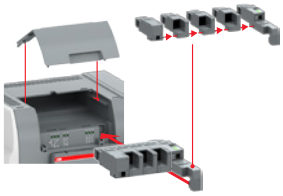
Accessories

OXEA1

Auxiliary power module OXEA1

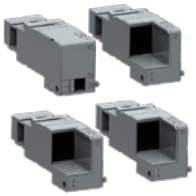
The OXEA1 auxiliary power supply module is used for: a) connecting connectivity modules (signalling and communication) to the switch, b) powering the ATS controller and connectivity modules from auxiliary 12-24 Vdc power supply, to keep them operational during power failures. 12-24Vdc power supply is not required when line power is available but it is necessary to keep the modules operational during power failures. This module is only available for Level 3 and Level 4 controllers of TruONE.

Suitable for switches	Auxiliary Voltage	Type	Order Code	Weight/Unit [kg]
OX30...4000	12-24Vdc	OXEA1	1SCA148926R1001	0.04



Connectivity modules

The connectivity modules are used in combination with OXEA1 auxiliary power supply module to enable communication capabilities (Ekip Com modules) and increase the number of digital inputs and outputs (Ekip Signalling modules). The maximum number of additional modules depends on the TruONE switch size: IEC 200-400 Amps and UL 30-260 Amps can fit three additional modules and IEC 500-4000 Amps and UL 400-1200 Amps can fit four additional modules. These modules are available with TruONE Level 3 and Level 4 controllers.



EKIP COM

Communication modules for Level 3 and Level 4 controllers

The Ekip Com modules enable TruONE to be integrated in an industrial communication network for remote supervision and control of the switch. Several Ekip Com modules can be installed at the same time, thereby enabling connection to communication systems that use different protocols. The Ekip Com modules for Modbus RTU, Profibus-DP and DeviceNet contain a terminating resistor and dip switch for optional activation to terminate the serial network or bus. The Profibus-DP module also contains a polarization resistor and dip switch for its activation.These modules are available with TruONE Level 3 and Level 4 controllers.

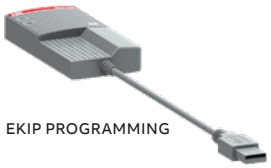
Suitable for switches	Communication protocol	Type	Order Code	Weight/Unit [kg]
OX30...4000	Modbus RTU	Ekip Com Modbus RTU-OX	1SDA104051R1	0.2
OX30...4000	Modbus TCP	Ekip Com Modbus TCP-OX	1SDA104052R1	0.2
OX30...4000	Profibus DP	Ekip Com Profibus	1SDA074152R1	0.2
OX30...4000	Profinet	Ekip Com Profinet	1SDA074153R1	0.2
OX30...4000	EtherNet/IP	Ekip Com EtherNet / IP	1SDA074155R1	0.2
OX30...4000	DeviceNet	Ekip Com DeviceNet	1SDA074154R1	0.2

EKIP 2K SIGNALLING

Signalling modules for Level 3 and Level 4 controllers

The Ekip 2K Signalling modules add two input and two output contacts for controlling and remote signalling. They can be programmed with the HMI unit's display or with the Ekip Connect software. Three versions of the Ekip 2K Signalling modules are available: Ekip 2K-1, Ekip 2K-2, Ekip 2K-3. Simultaneous usage of same types is not possible. For customers who require more than 2 inputs or 2 outputs add on modules can be purchased which provide sequential labeling of the contact points. Adding 2K-2 allows for 4 inputs and 4 outputs and then adding Ekip 2K-3 allows for a total of 6 inputs and 6 outputs.

Suitable for switches	No. of DI/DO	No. of DI/DO	Type	Order code	Weight/unit [kg]
OX30...4000	2/2	11,12/11,12	Ekip Signalling 2K-1-OX	1SDA104053R1	0.2
OX30...4000	2/2	21,22/21,22	Ekip Signalling 2K-2-OX	1SDA104054R1	0.2
OX30...4000	2/2	31,32/31,32	Ekip Signalling 2K-3-OX	1SDA104055R1	0.2



EKIP PROGRAMMING

Ekip Programming module

The Ekip Programming module is used for programming TruONE via USB to a PC using the Ekip Connect software that can be downloaded online. It enables both online (line power available) and offline (no line power available) programming.
Ekip Programming is powered by the computer and indirectly powers the TruONE® master switch control unit (excluding HMI and additional modules). This module is only available for Level 3 and Level 4 controllers of TruONE.

Suitable for switches	Type	Order code	Weight/unit [kg]
OX30...4000	Ekip Programming	1SDA076154R1	0.2

EKIP COM BLUETOOTH

Wireless communication module Ekip Bluetooth

The Ekip Bluetooth is used for TruONE programming. It can be connected to the switch remotely using a laptop, tablet or smartphone with Ekip Connect software. The device connects to a programming port on TruONE. It powers the controller via a rechargeable lithium-ion battery (excluding HMI and additional modules). This module is available for Level 3 and Level 4 controllers of TruONE.

Suitable fo switches	Type	Order code	Weight/unit [kg]
OX30...4000	Ekip Com Bluetooth	1SDA074164R1	0.2

Accessories

EKIP COM HUB

Ekip Com Hub

Ekip Com Hub is a communication module for cloud-based connectivity through the ABB Ability Energy and Asset Manager.
TruONE equipped with Ekip Com Hub can establish the connection to ABB Ability for the whole low-voltage power distribution panel. This cartridge-type communication module just needs to be inserted into TruONE and connected to the Internet.
For further information related to ABB Ability and EAM, please visit the specific website at https://new.abb.com/about/our-businesses/electrification/abb-ability/energy-and-asset-manager.
This module is available for Level 3 and Level 4 controllers of TruONE.

Suitable for switches	Type	Order code	Weight/unit [kg]
OX30...4000	Ekip Com Hub	1SDA082894R1	0.2

Terminal shrouds

shroudsSnap-on mounting, IP 20. A kit includes three or four shrouds that can be used on both top and bottom of the switch. Order two sets to cover both top and bottom terminals.

OXES_S

OXES_L

Suitablefor switches	No. of poles	Description	Units/ type [pcs]	Type	Order code	Weight/unit [kg]
IEC 200-250 A UL 30-200 A	3	Short	3	OXES250G1S/3	1SCA150193R1001	0.2
	4	Short	4	OXES250G1S/4	1SCA150194R1001	0.3
	3	Long	3	OXES250G1L/3	1SCA150191R1001	0.3
	4	Long	4	OXES250G1L/4	1SCA150192R1001	0.4
IEC 315-800 A UL 260-600 A	3	Short	3	OXES800G1S/3	1SCA150197R1001	0.3
	4	Short	4	OXES800G1S/4	1SCA150198R1001	0.4
	3	Long	3	OXES800G1L/3	1SCA150195R1001	0.4
	4	Long	4	OXES800G1L/4	1SCA150196R1001	0.5
IEC 1000-1600 A UL 800-1200 A	3	Long	3	OXES1600G1L/3	1SCA150189R1001	0.5
	4	Long	4	OXES1600G1L/4	1SCA150190R1001	0.7

Note: Terminal shrouds cannot be used together with UL mechanical lugs

Phase barriers

OXEB_

Grey plastic barriers for maintaining 1" clearance between the phases without terminal shrouds. Snap-on mounting. Included as standard for the LOAD side terminals with IEC 500-1600 Amps and UL 400-1200 Amps.

Suitable for switches	No. of poles	Units/type [pcs]	Type	Order code	Weight/unit [kg]
OX30...1600	3	4	OXEB1600/4	1SCA150201R1001	0.5
OX30...1600	4	6	OXEB1600/6	1SCA150202R1001	0.7

Note: Phase barriers cannot be used together with terminal shrouds.

Wide blade kit

OXEW1600_

This is required for IEC 1000-1600 A and UL 800-1200 A switches on the LOAD side terminals, when wiring is done with four cables and using mechanical compression lugs.

Suitable for switches	No. of poles	Units/type [pcs]	Type	Order code	Weight/unit [kg]
IEC 1000-1600 A UL 800-1200 A	3	3	OXEW1600/3	1SCA150204R1001	1.38
	4	4	OXEW1600/4	1SCA150205R1001	1.83

Note: The accessory is only for spare parts as it is already included in the standard package.

HMI protective cover, IP54

OXEC21_

IP54 padlockable transparent cover, providing protection against accidental contact.

Suitable for switches	No. of poles	Units/type [pcs]	Type	Order code	Weight/unit [kg]
OX30...4000	3	3	OXEC21/3	1SCA147308R1001	0.18

Terminal connection kits

Factory recommended: terminal connection kits with bolts, washers and nuts used for connecting the cables/bus bars to the switch terminals.
For IEC 200-800 Amps, UL 30-600 Amps, order 1 x kit with 2-pole switches and 2 x kits with 3- and 4-pole switches.
For IEC 1000-1600 Amps, UL 800-1200 Amps, order 3 x kits with 3-pole switches and 4 x kits with 4-pole switches.

Suitable for switches	Units/type [pcs]	Type	Order code	Weight/unit [kg]
IEC 200-250 A UL 30-200 A	6	OZXE51/3E	1SCA126307R1001	0.17
IEC 315-800 A UL 260-600 A	6	OZXE54/3E	1SCA126309R1001	0.32
IEC 1000-1600 A UL 800-1200 A	6	OZXE3/3E	1SCA126305R1001	0.62

Accessories


OA1G01AU

Auxiliary contacts

Mounting on the right side of the switch: Max. 4 auxiliary contact blocks / Source 1 and Source 2 position indication (totally 8 blocks). Types _AU have gold plated contacts for harsh environments and low operating voltages. Simultaneous action with the main contacts, IP20.
The type and ordering numbers are for one piece.

Suitable for switches	Contact Function	Installation Side	Delivery batch [pcs]	Type	Order code	Weight/unit [kg]
OX30...1600	1NO	Right	10	OA1G10	1SCA022353R4970	0.03
OX30...1600	1NC	Right	10	OA3G01	1SCA022456R7410	0.03
OX30...1600	1NO	Right	10	OA1G10AU	1SCA022436R7910	0.03
OX30...1600	1NC	Right	10	OA3G01AU	1SCA022819R5260	0.03


OA1G10

Auxiliary contacts

Technical data for auxiliary contacts according to IEC 60947-5-1, for OA1G, OA3G

AC15		DC12			DC13	
Ue/[V]	Ie/[A]	Ue/[V]	Ie/[A]	P/[W]	Ie/[A]	P/[W]
230	6	24	10	240	2	50
400	4	72	4	290	0.8	60
415	4	125	2	250	0.55	70
690	2	250	0.55	140	0.27	70
		440	0.1	44		


OA3G01

Auxiliary contacts

Function table for auxiliary contacts / Source 1 position (max. 2+2)

Switch position	Main contact	OA1G10 NO	OA3G01 NC
I	closed	closed	open
0	open	open	closed
II	closed	open	closed

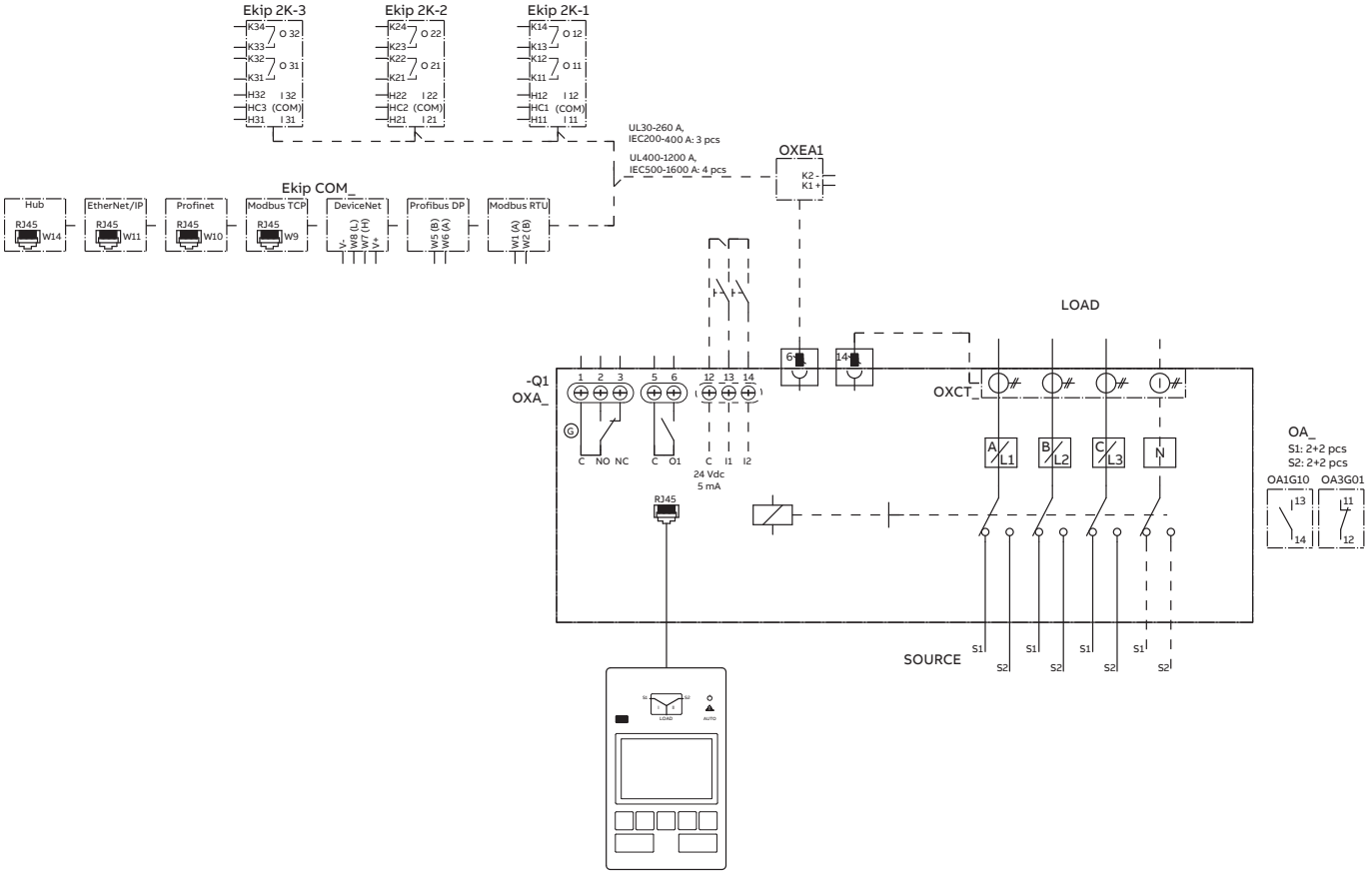
Function table for auxiliary contacts / Source 2 position (max. 2+2)

Switch position	Main contact	OA1G10 NO	OA3G01 NC
I	closed	open	closed
0	open	open	closed
II	closed	closed	open


OA3G01AU

Electrical wiring diagram

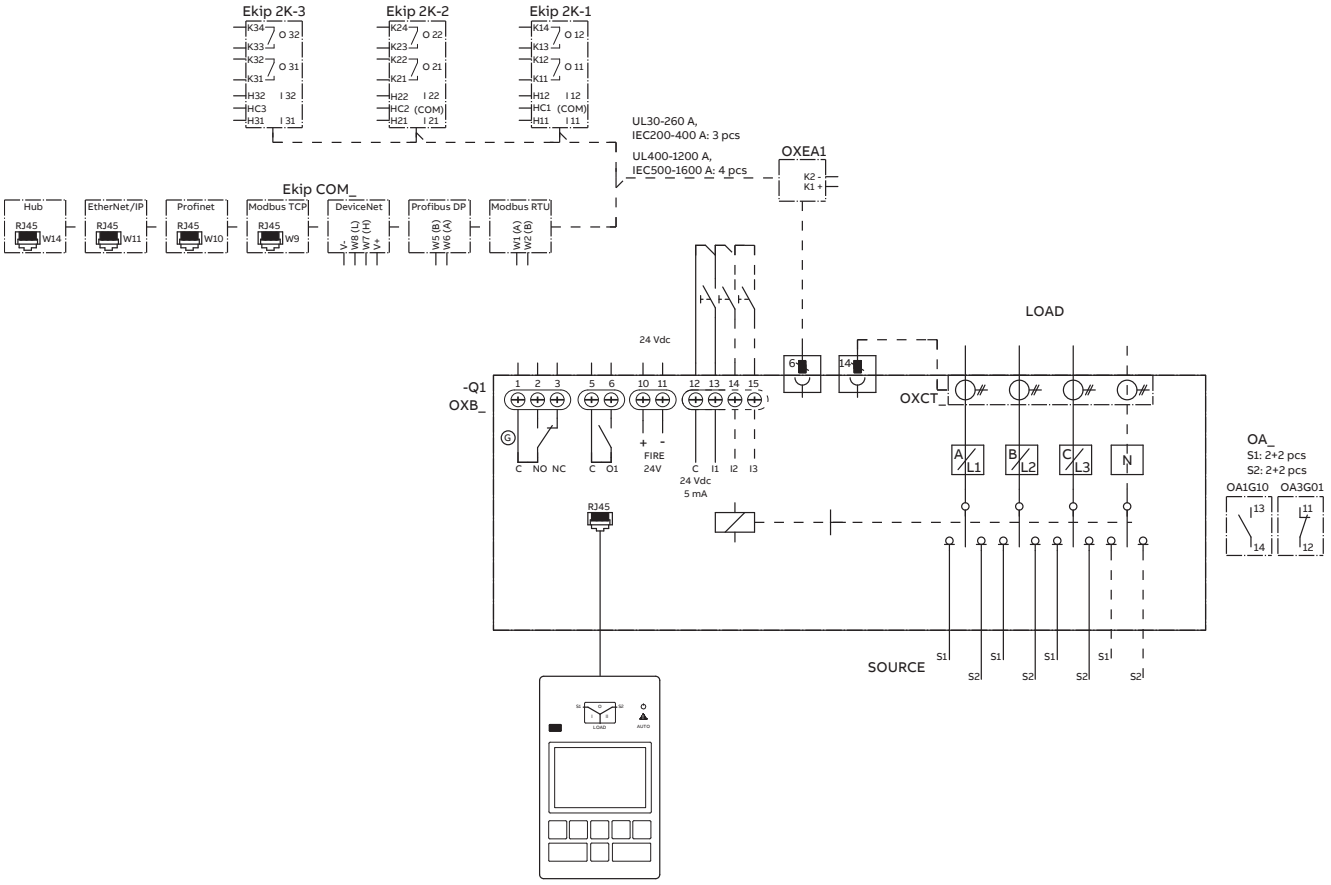
TruONE ATS, open transition 30-1600A OXA_



Note: The number of I/O and optional Ekip Com modules vary from one TruONE type to another.
Refer to TruONE feature comparison and accessory pages for more details.

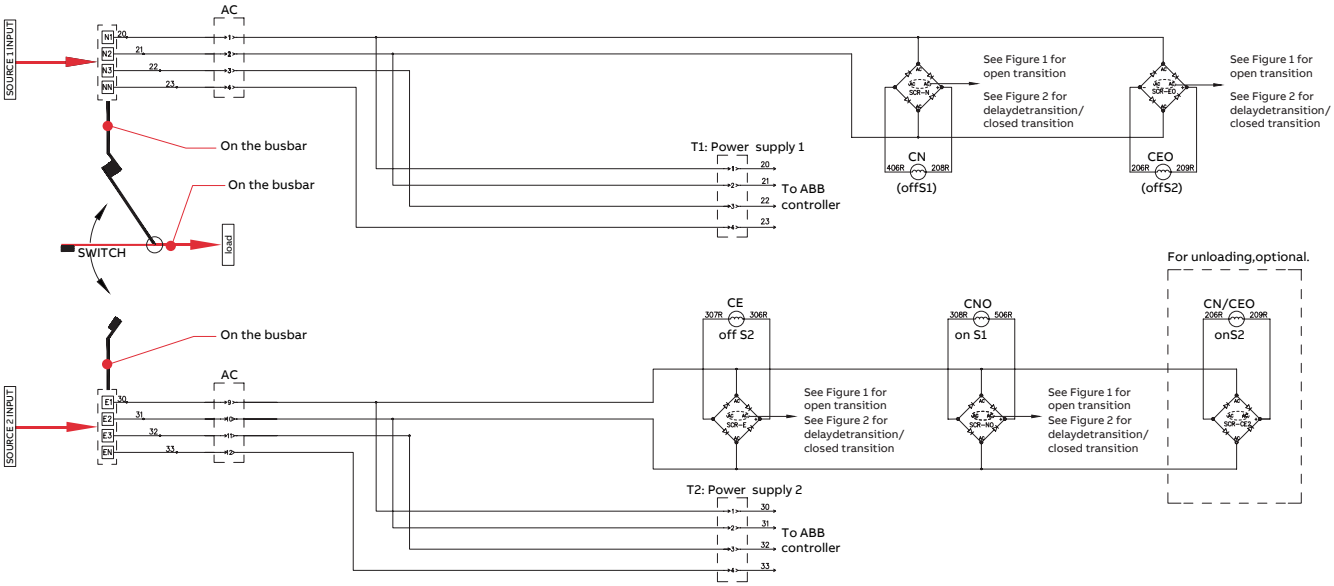
Electrical wiring diagram

TruONE ATS, delayed transition 200-1600A OXB_



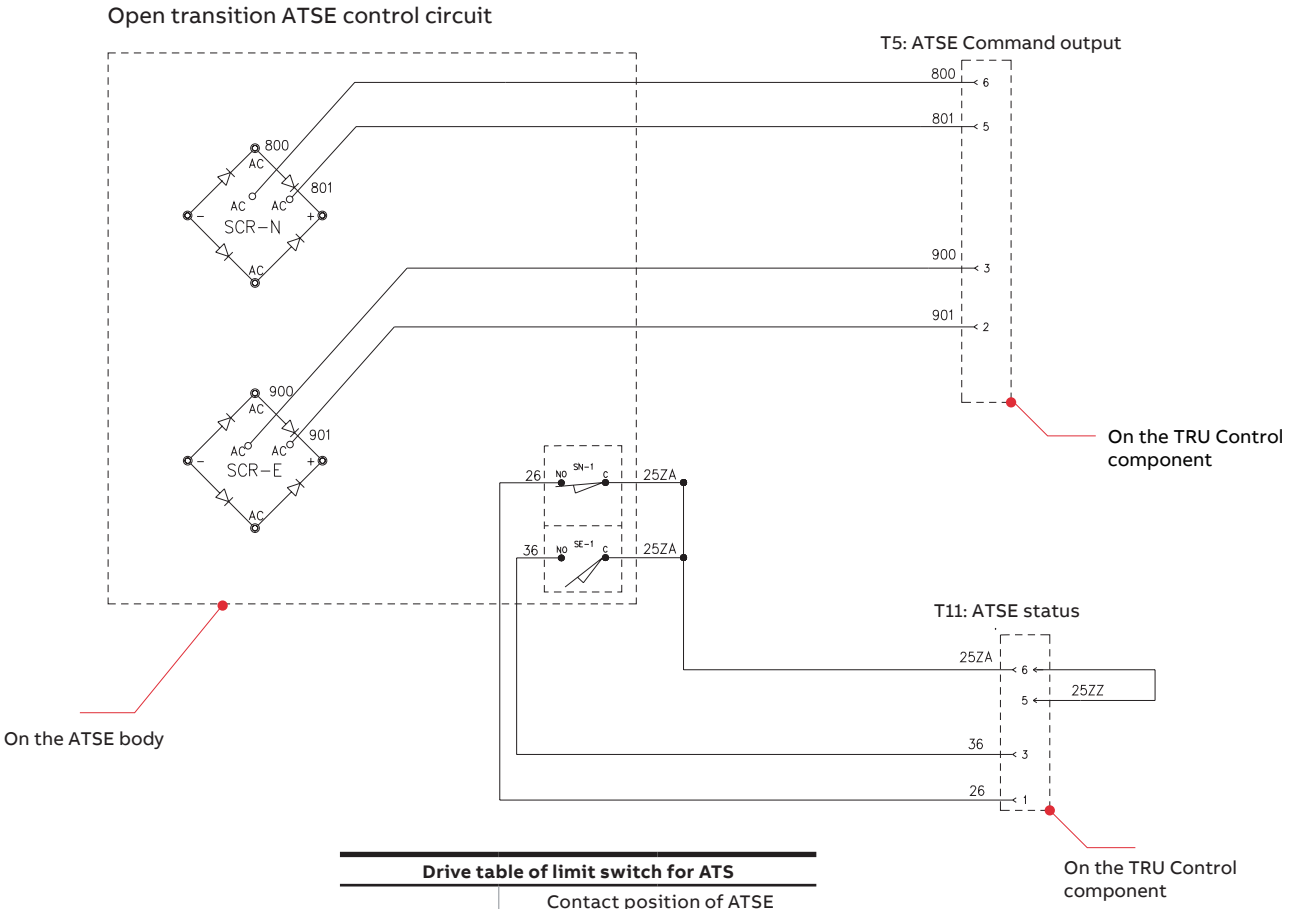
Note: The number of I/O and optional Ekip Com modules vary from one TruONE type to another.
Refer to TruONE feature comparison and accessory pages for more details.

Electrical wiring diagram
OX...1600-4000A (R5)



Three-Phase Circuit Diagram of Main Circuit

Electrical wiring diagram
OXA...1600-4000A (R5)

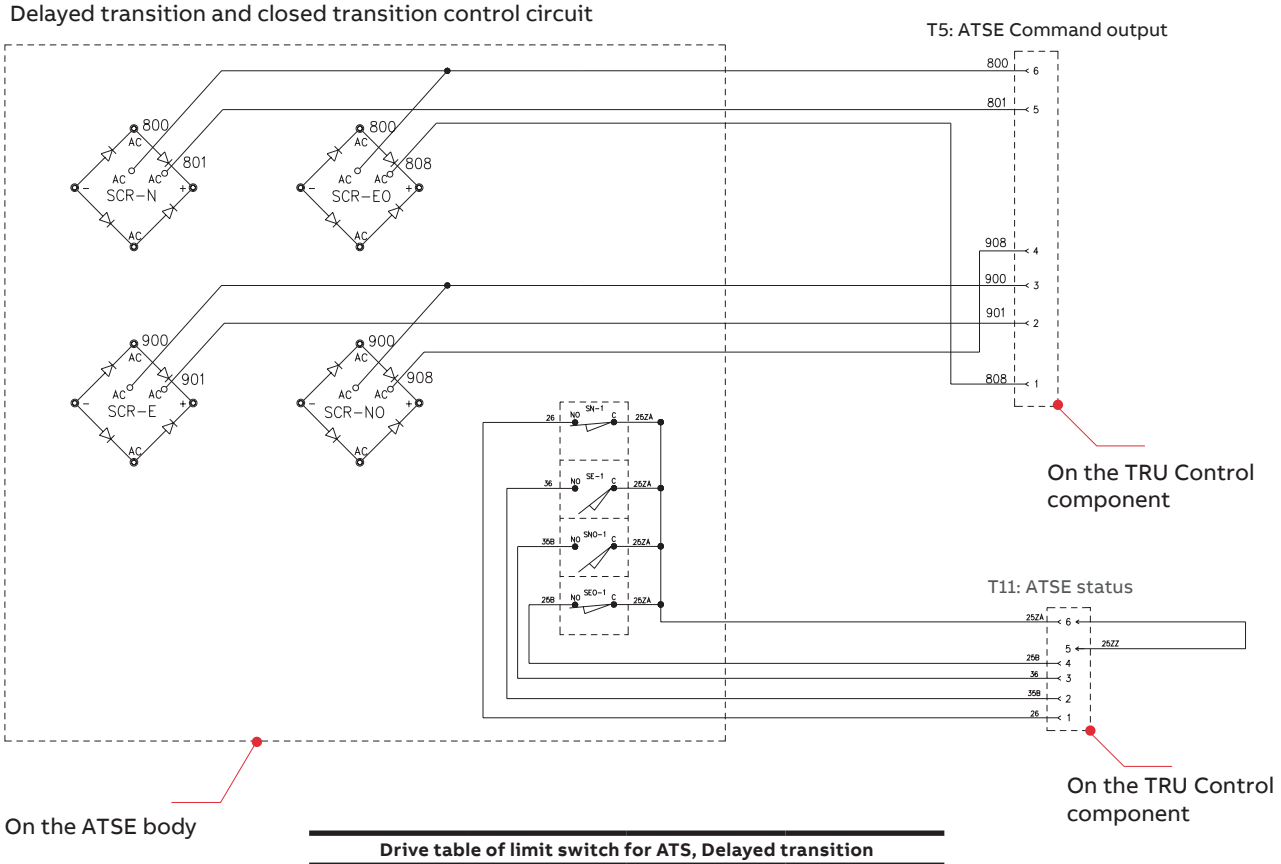


Drive table of limit switch for ATS		
X=Drive	Contact position of ATSE	
	Power supply 1	Power supply 2
SN-1	x	
SE-1		x

Figure 1 Open Transition Control Circuit System

Electrical wiring diagram
OXB...1600-4000A (R5)

Delayed transition and closed transition control circuit

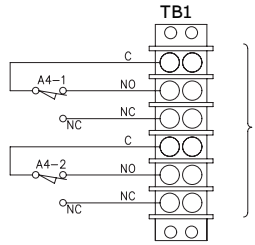


Drive table of limit switch for ATS, Delayed transition			
X=Drive	Contact position of ATSE		
	Power supply 1	Off position	Power supply 2
SN-1	x		
SNO-1		x	x
SEO-1	x	x	
SE-1			x

Figure 2 Delayed transition and closed transition Control Circuit System

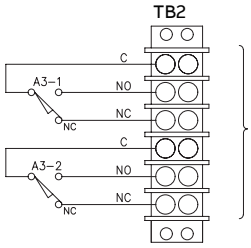
Electrical wiring diagram

Auxiliary contact connection of customer for OX... 1600-4000A (R5)



Customer's auxiliary contact connected to power supply 1 (the componentis mounted on the ATSE panel)

Drive table of limit switch for ATS			
X=Drive	Contact position of ATSE		
	Power supply 1	Off position	Power supply 2
A3-1, 2		x	x
A4-1, 2	x	x	

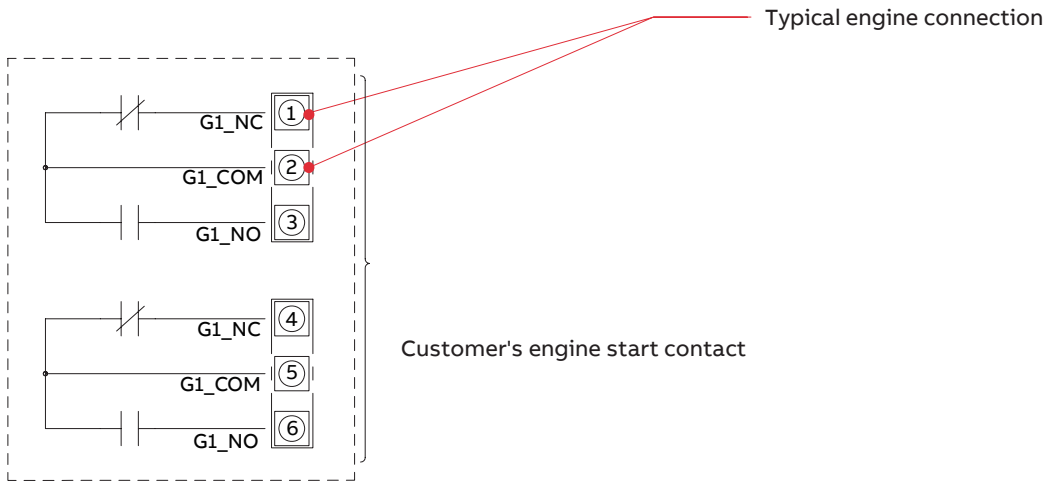


Customer's auxiliarycontact connectedto power supply 2 (the component is mounted on the ATSE panel)

Note: The system diagram shows that the ATSE turns off power supply 1

—

Figure 3 Connection of Customer's Auxiliary Contact



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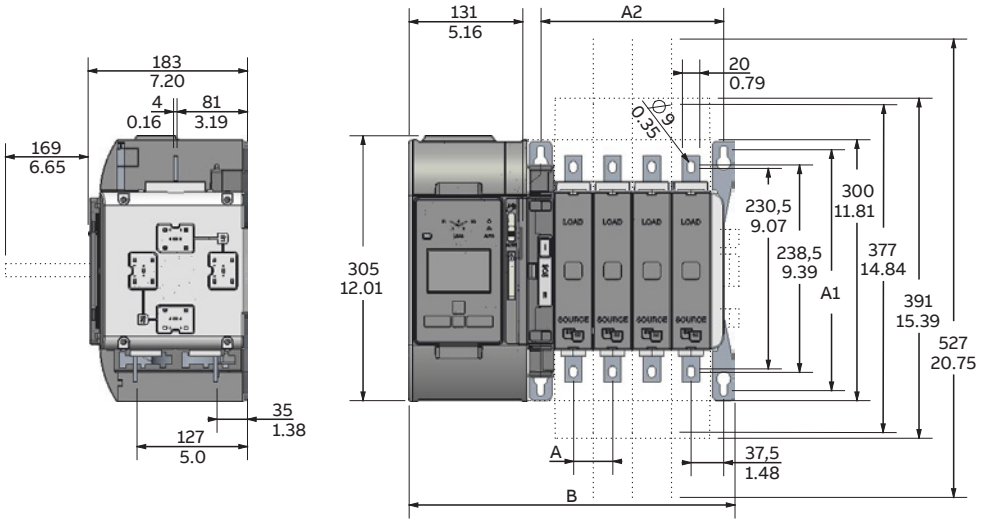
Engine start contact connection

Dimension Drawings
TruONE ATS, 30-1600A

UL: 30U, 60U, 100U, 125U, 160U, 200U
IEC: 200E, 250E

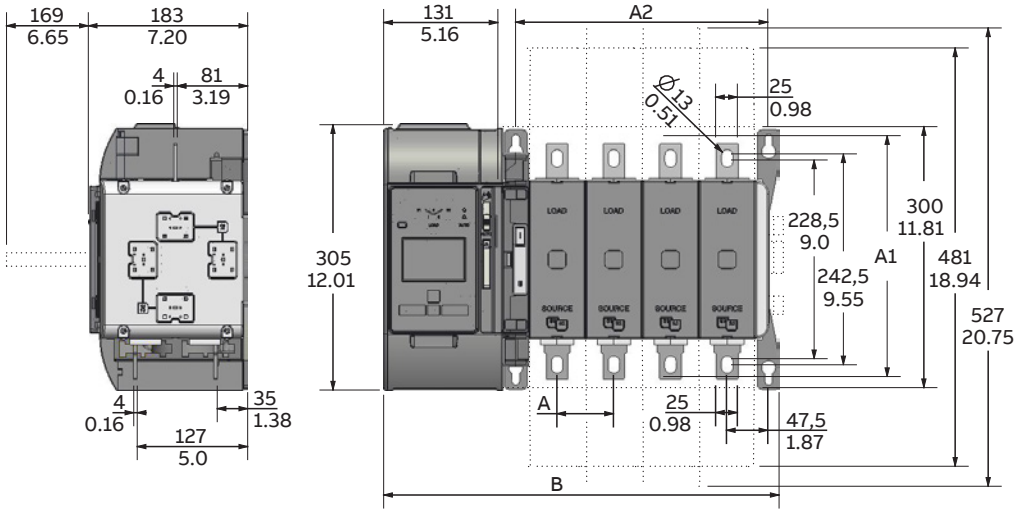
[mm / in]



OX_30 - 250		
Number of poles	**3**	**4**
A	45/1.77	45/1.77
A1	277/10.91	277/10.91
A2	165/6.50	210/8.27
B	330/12.99	375/14.76

UL: 260U
IEC: 315E, 400E

[mm / in]

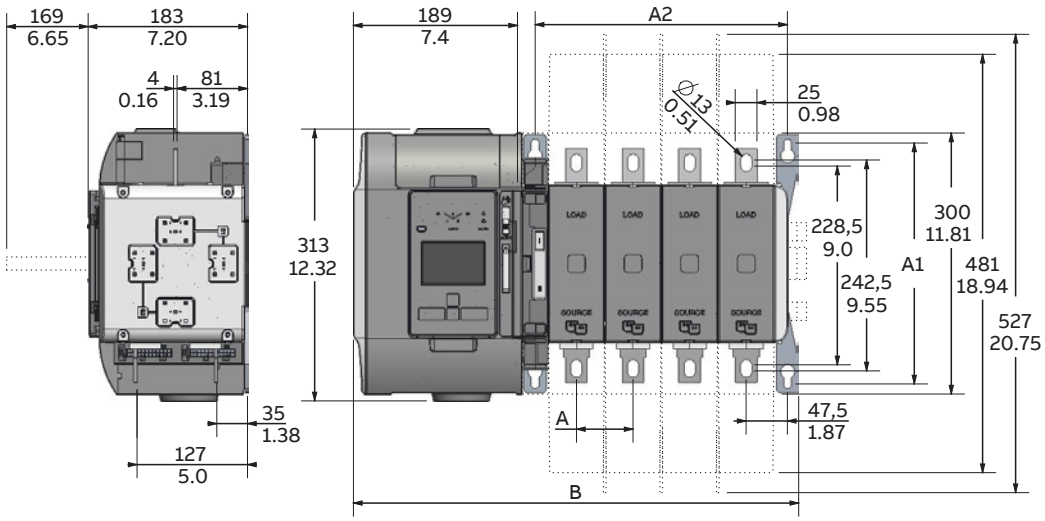


OX_260 - 400		
Number of poles	**3**	**4**
A	65/2.56	65/2.56
A1	277/10.91	277/10.91
A2	225/8.86	290/11.42
B	390/15.35	455/17.91

Dimension Drawings
TruONE ATS, 30-1600A

UL: 400U

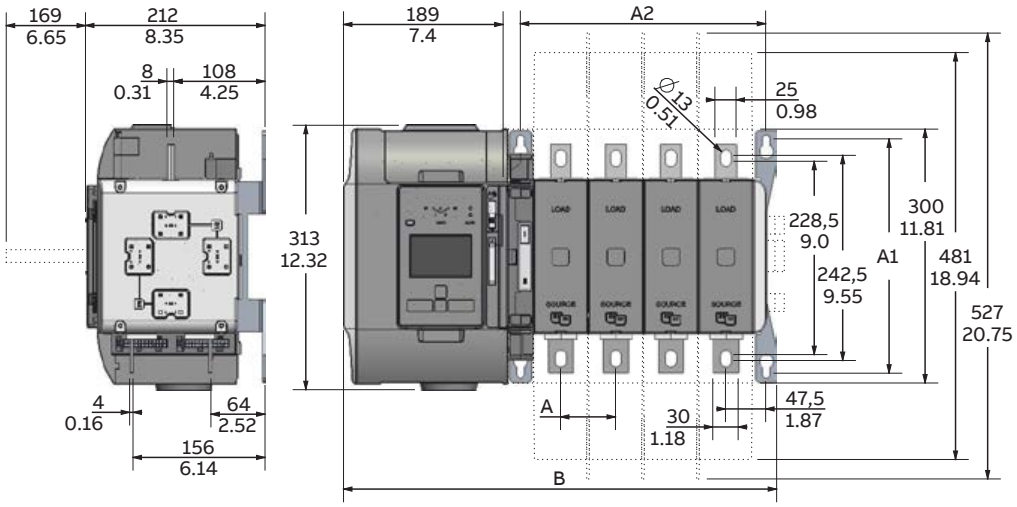
[mm / in]



OX_400U		
Number of poles	**3**	**4**
A	65/2.56	65/2.56
A1	277/10.91	277/10.91
A2	225/8.86	290/11.42
B	447/17.60	512/20.16

UL: 600U
IEC: 500E, 630E, 800E

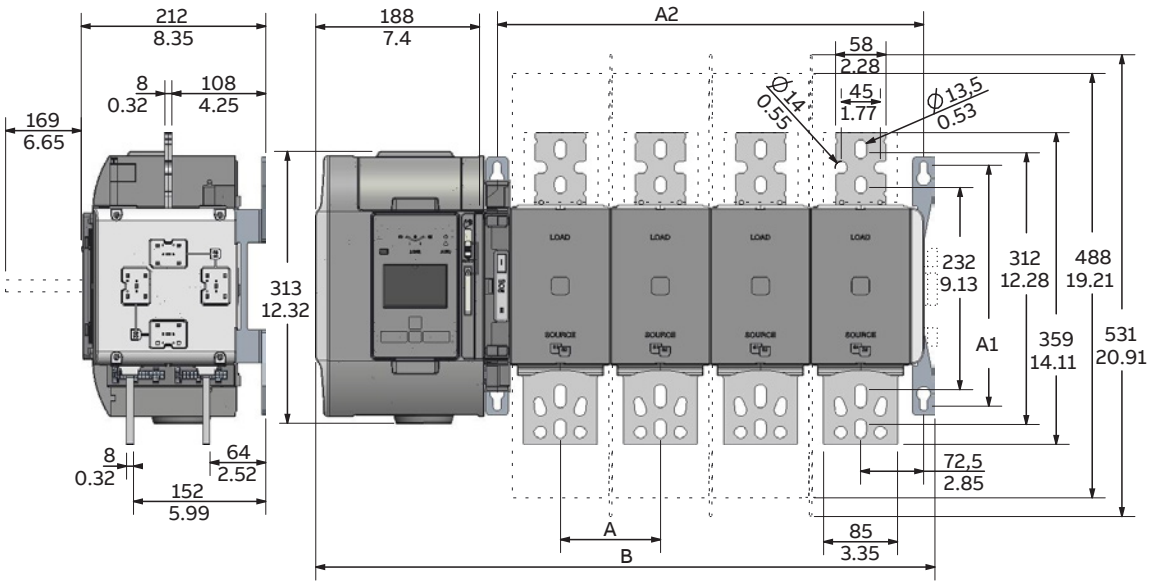
[mm / in]



OX_500 - 800		
Number of poles	**3**	**4**
A	65/2.56	65/2.56
A1	277/10.91	277/10.91
A2	225/8.86	290/11.42
B	447/17.60	512/20.16

UL: 800U, 1000U, 1200U
IEC: 1000E, 1250E, 1600E

[mm / in]

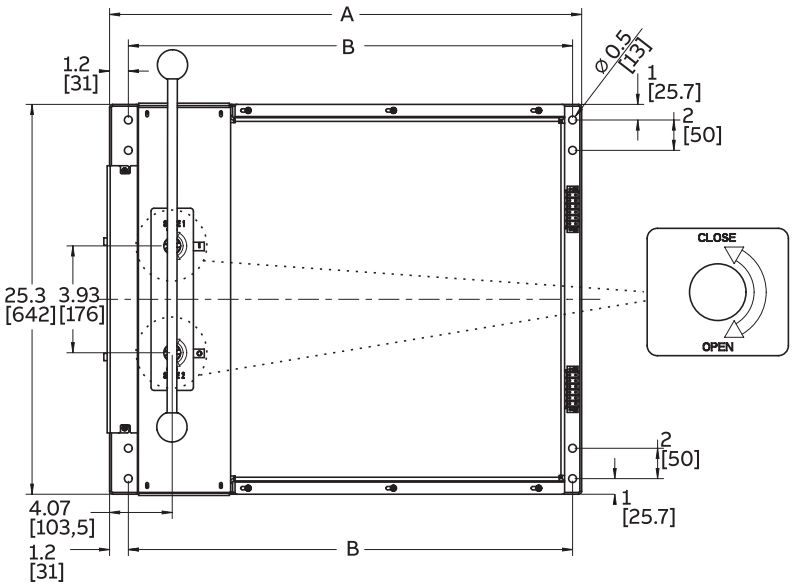


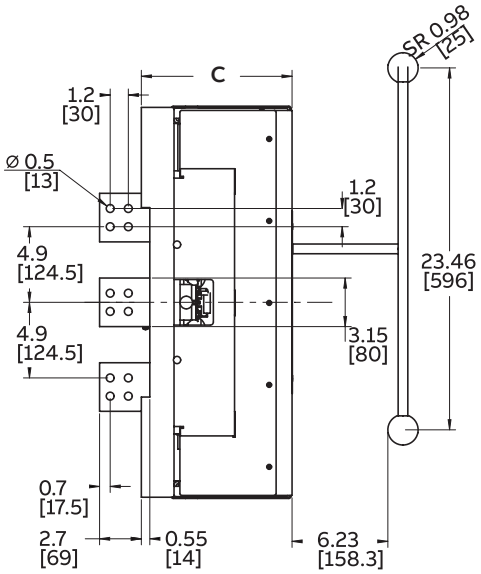
OX_800U – 1600		
Number of poles	**3**	**4**
A	115/4.53	115/4.53
A1	277/10.91	277/10.91
A2	375/14.77	490/19.30
B	597/23.51	712/28.04

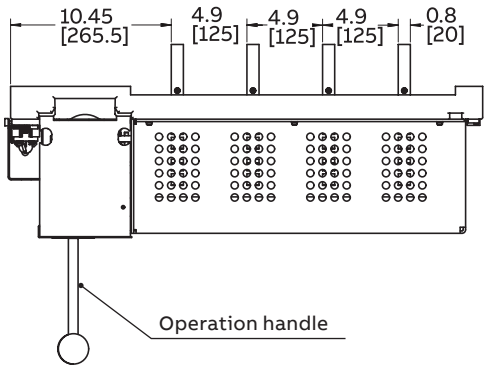
Dimension Drawings

TruONE ATS, open transition, 1600-4000A (R5)

Unit: Inch [mm]







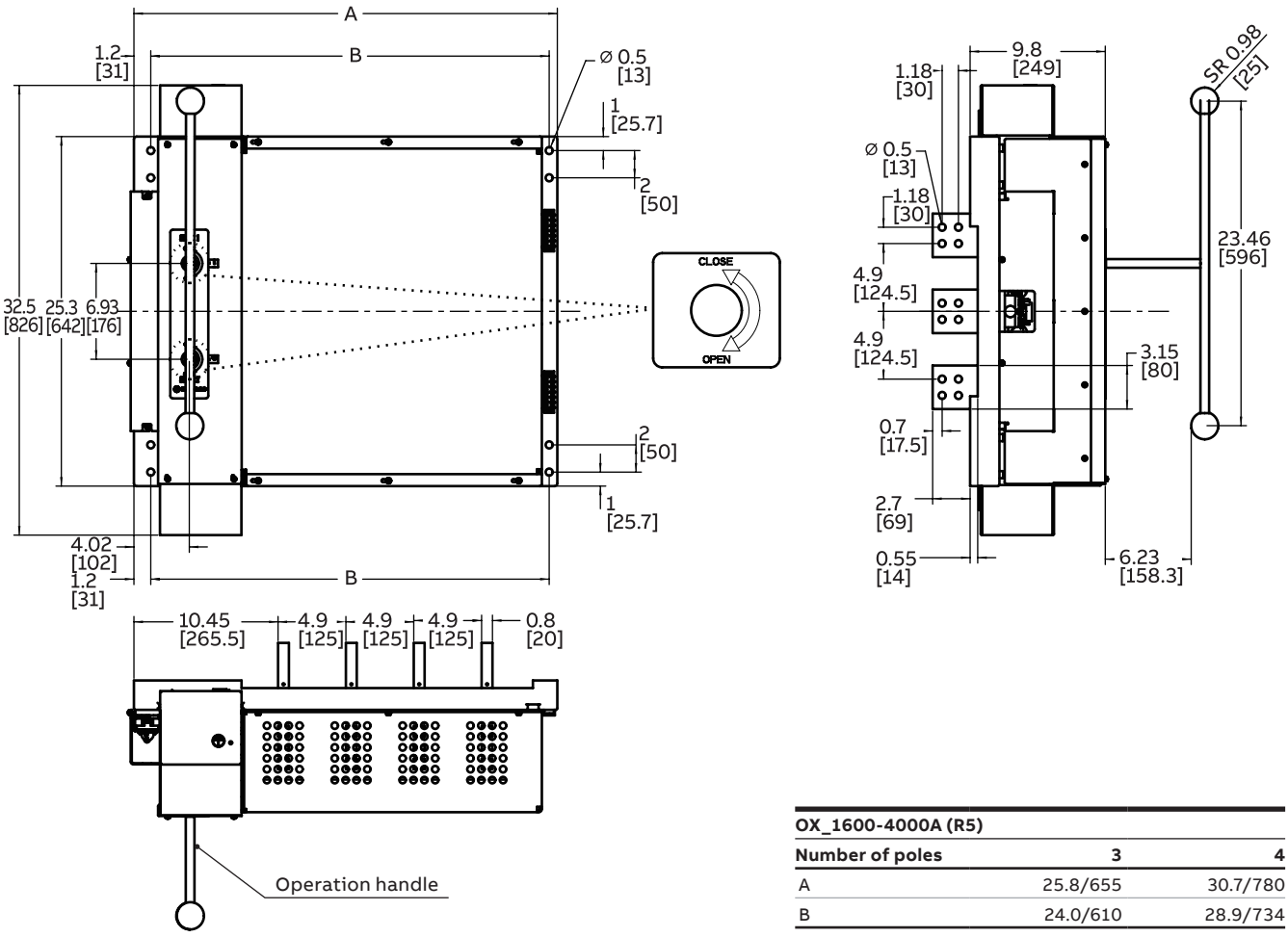
OX_1600-4000A (R5)			
Number of poles	**3**	**4(3O)**	**4(3S)**
A	25.8/655	30.7/780	30.7/780
B	24.0/610	28.9/734	28.9/734
C	9.8/249	10.8/275	9.8/249

Note: The operating handle is detachable and only for manual operation. Please remove it promptlyand keep it properly after use.
Do not perform the automatic operation with the handle.

Dimension Drawings

TruONE ATS, delayed transition and closed transition, 1600-4000A (R5)

Unit: Inch [mm]



OX_1600-4000A (R5)		
Number of poles	**3**	**4**
A	25.8/655	30.7/780
B	24.0/610	28.9/734

Note: The operating handle is detachable and only for manual operation. Please remove it promptlyand keep it properly after use.
Do not perform the automatic operation with the handle.

Dimension Drawings

Dimensions of 1600-4000A (R5) installation space

Unit: [mm]

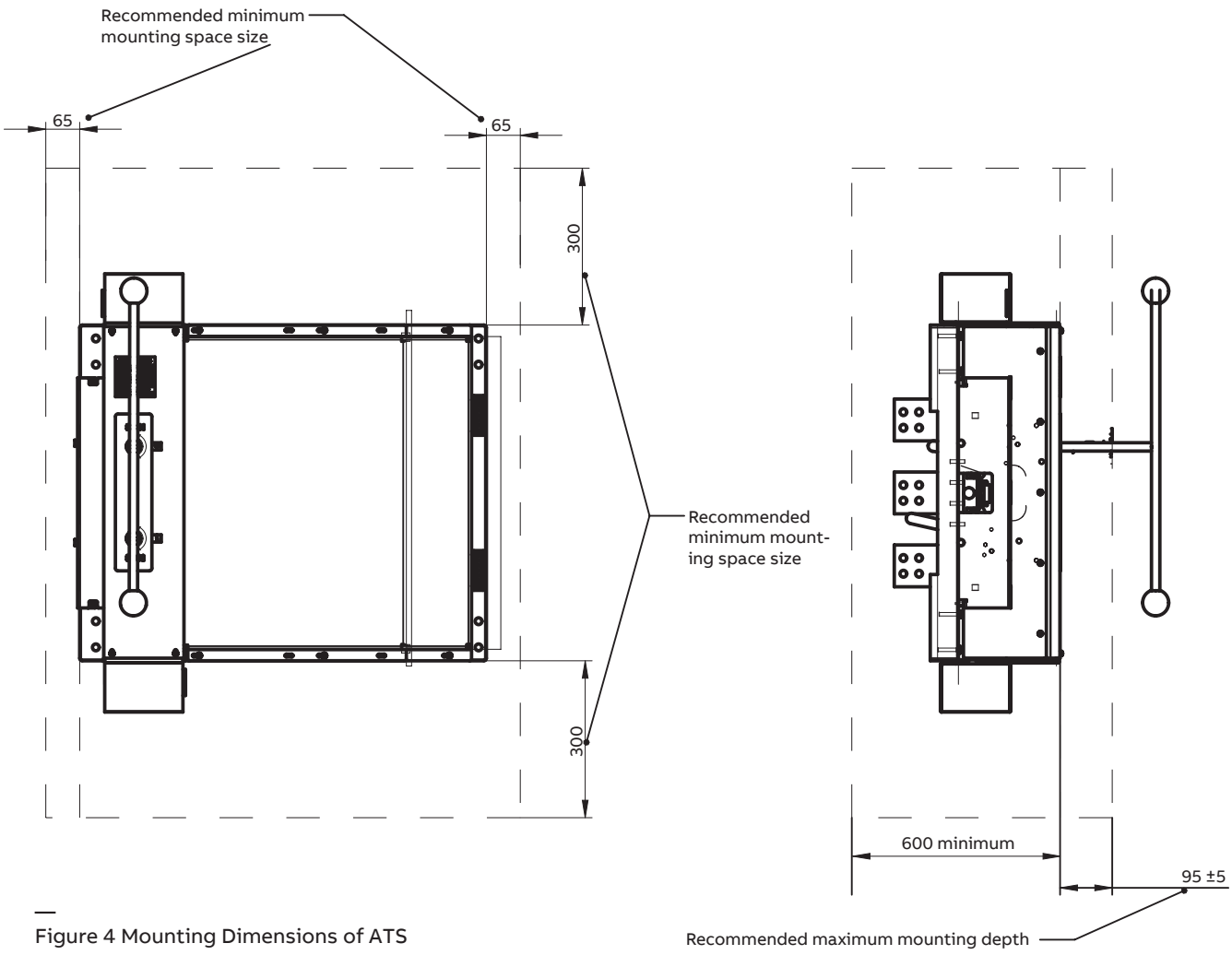
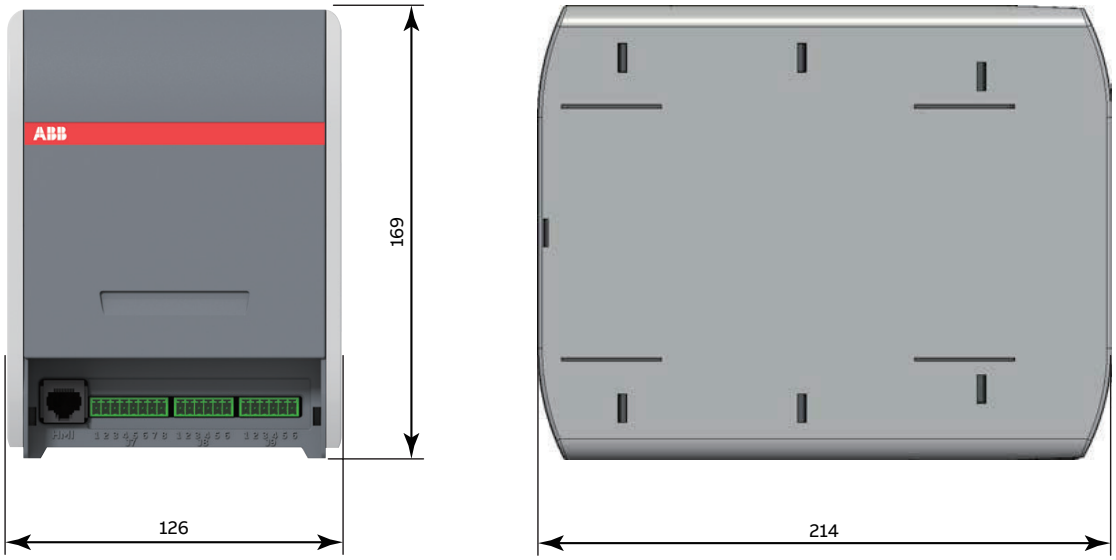


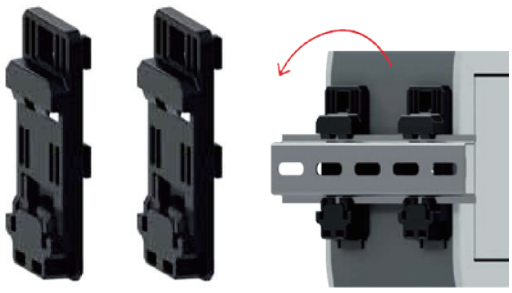
Figure 4 Mounting Dimensions of ATS

Dimensions and installation of TruCONTROL
1600-4000A (R5)

Unit: [mm]



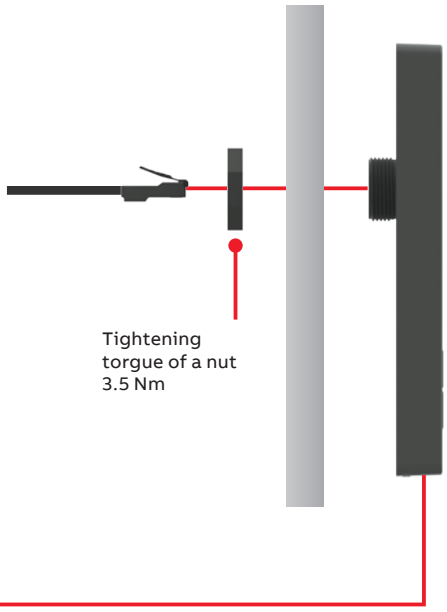
Controller installation
For DIN-rail installation, the DIN-rail adapters (type OXCO1D, includes 2 pcs) must be installed on the product. They can alternatively be installed either back of the product or on the right or left side of the product.
Types of DIN-rail: TS 35X7.5/LL 2M/ST/SZ

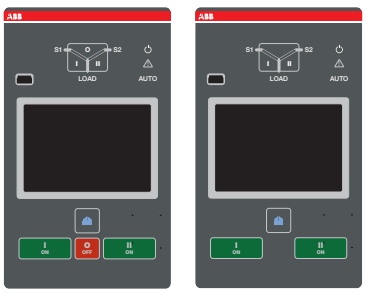


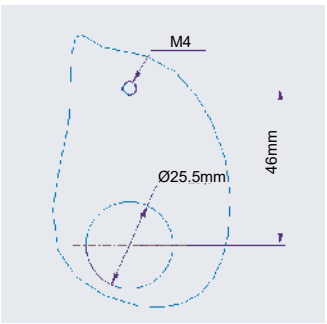
OXCO1D

HMI installation
1600-4000A (R5)

HMI is mounted on the door, see the door drilling figure below. The signal jack on the back of the HMI is threaded through the large hole at the bottom and secured with the accompanying buckle, then M4 self-tapping screws are threaded through the door panel and secured to the HMI. Then, the HMI (RJ45) cable is connected to the controller, the cable harness is arranged and secured to the door panel.



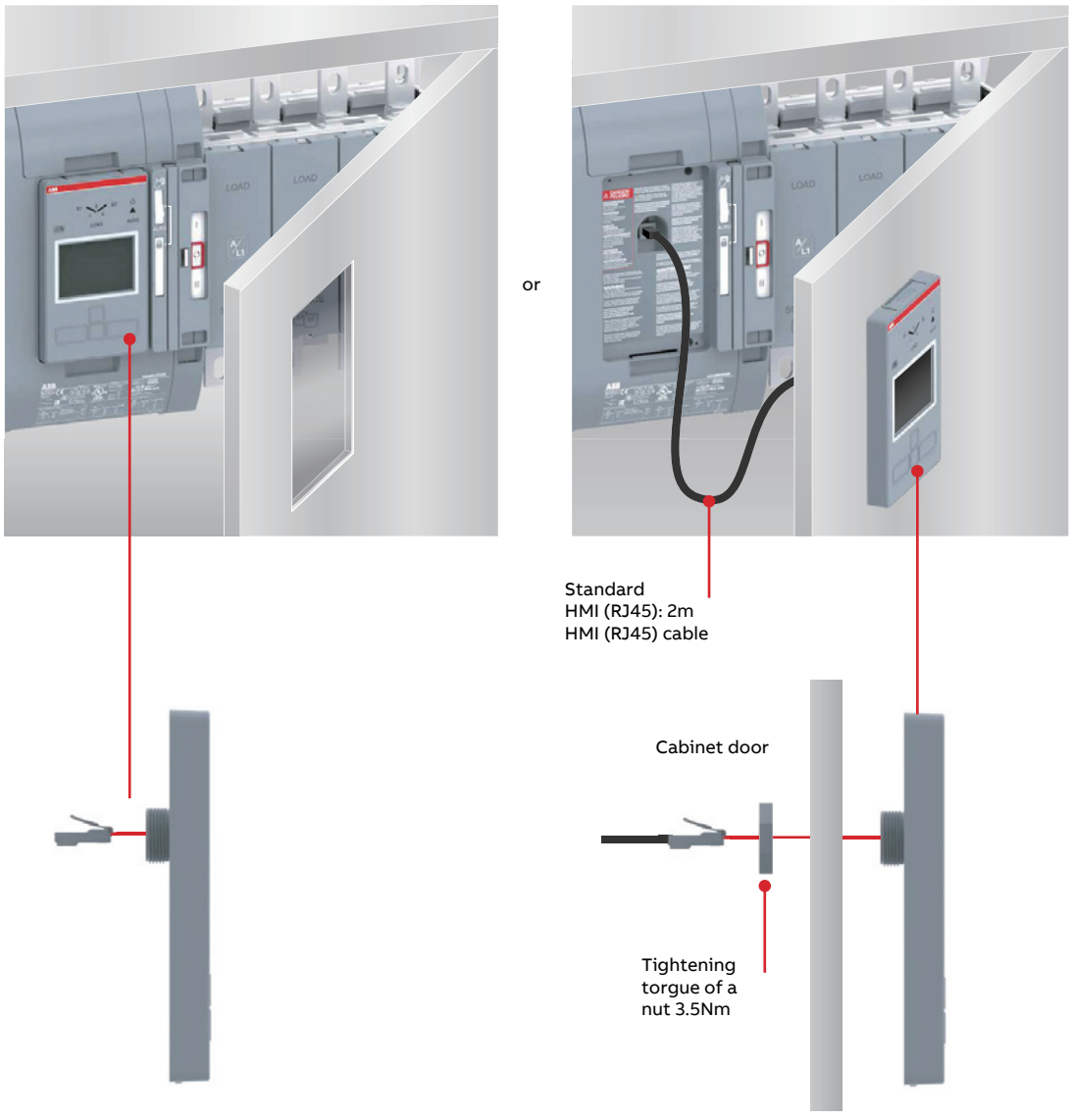


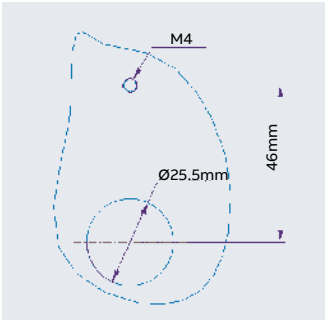


Door drilling

HMI installation
30-1600A

HMI is mounted on the door, see the door drilling figure below. The signal jack on the back of the HMI is threaded through the large hole at the bottom and secured with the accompanying buckle, then M4 self-tapping screws are threaded through the door panel and secured to the HMI. Then, the HMI (RJ45) cable is connected to the controller, the cable harness is arranged and secured to the door panel.





Door drilling

Note

Note

Note

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1SXF230007C0201 Rev H 06-2025
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