

Retrofit kits

Hard Bus Retrofill Isomax S7 to E1.2-XT7



With only few modification actions and sustainable costs, retrofitting kits are the perfect solution to improve a low voltage switchgear. ABB SACE has developed new hard bus retrofitting kits to replace and upgrade SACE Isomax S7 moulded case circuit breakers with the ABB latest family of SACE E1.2-XT7.

Moulded case circuit breakers put into service many years ago might not provide the reliability and safety assurances required today. Making certain that people, equipment and processes are properly protected is a growing concern.

ABB Low Voltage Service offers a unique way to upgrade installed hardware and software to the next generation, by changing the worn or outdated parts while maintaining the original plant and equipment configuration. Retrofitting kits are the best solution also when making maintenance to aged devices is no longer convenient due to the obsolescence of components. The kits are tested in the ABB SACE Division Lab, accredited by ACCREDIA and acknowledged by important international certification bodies such as ACAE / LOVAG, ANCE, ASTA, ETL SEMKO, UL, CSA and Naval Registers.

Safety and Service continuity

- Safety improvement.
- Service continuity guaranteed
- Ease of installation
- Reduction of the cost of maintenance
- Long availability of the product and its spare parts
- Factory tested solution
- Wide range of mechanical and electrical accessories with E1.2 - XT7.

From Circuit-Breaker to Power Manager

E1.2-XT7 improves the efficiency of electrical plants, creating the new standard of:

- **Control:** Ekip PowerController to improve energy efficiency and saving
- **Connectivity:** integration into systems with integrated communication modules with different protocols: Modbus RS-485, Modbus TCP, Profibus, DeviceNet, EtherNet/IP, IEC61850, Bluetooth
- **Ease of use:** creation of efficiency and simplicity. Power measurement with E1.2 - XT7 advanced trip units
- **Easy to Maintain:** Diagnosis and installation with Ekip Connect Software. Automatic notifications to remind maintenance activities. ABB Ability EDCS is also available with E1.2 - XT7 for Predictive Maintenance.

Sustainable solutions

Retrofitting kits allow to extend the lifespan of your electrical system, keeping it live and efficient as long as possible, minimizing CO₂ emissions and natural sources usage.

SACE Isomax S7 panorama

SACE Isomax S7 is a Moulded case Circuit Breaker produced by ABB from '90s and used everywhere in the world. It belongs to Isomax S family for rating current up to 1600A.

ABB offers a complete range of solution to upgrade Isomax S7 devices with E1.2 and XT7/XT7M retrofit solutions:

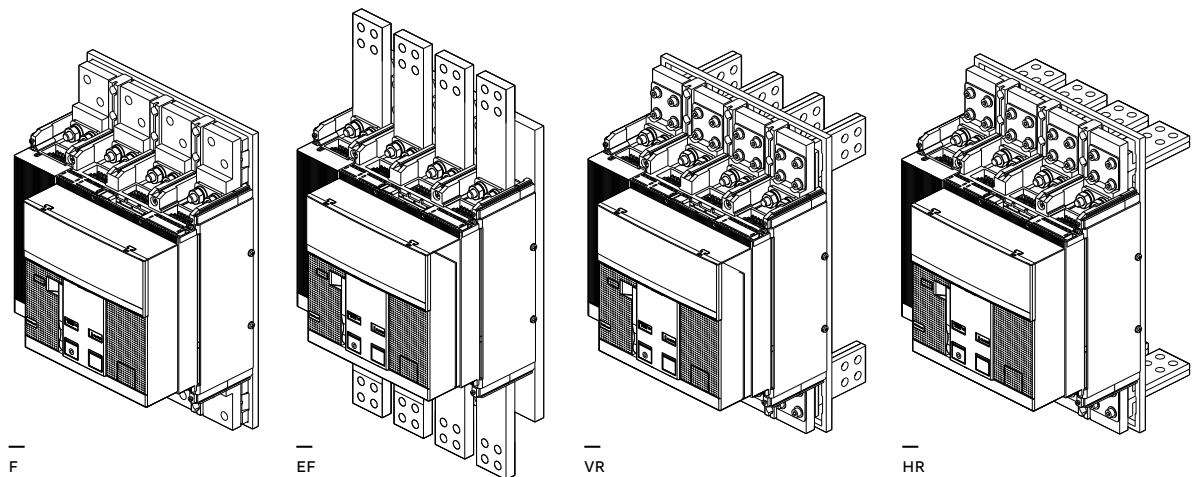
- **Hard bus retrofit (RF):** it is the traditional retrofit kit for which the complete Isomax S7 circuit breakers/switch disconnectors need to be replaced. The kit consists in a new E1.2 or XT7 device equipped with special terminals to fit the existing busbars. This solution is available for Fixed versions.
- **Direct Replacement:** It is the most advanced retrofit solution type. In this case, only the mobile part of withdrawable devices needed to be replaced with the special version of E1.2 or XT7 moving part ready to be racked in/out the existing fixed part.

All retrofit solutions have been tested for mechanical and electrical operations, short circuit breaking capacity, short circuit withstand current and dielectric properties according to IEC standards.

The Hard Bus Retrofit consist of:

- E1.2-XT7 already equipped with adapting terminals
- Terminals' covers
- Instructional manuals
- Kit for the door's adaption

The Hard Bus Retrofit solutions are available for replacing Isomax S7 according to each type of terminals F, EF, VR, HR:



Correspondence table for Hard Bus Retrofill

Isomax S7 to E1.2 - XT7

The Hard Bus Retrofitting kit is suitable both for circuit breakers and switch disconnectors according to the correspondence shown on the tables.

Fixed versions

Isomax	Iu [A]	Terminals	Poles	Tmax XT7	E1.2	Iu [A]	Icu/Ics 380-415V [kA]	Icu/Ics 440V [kA]	Icu/Ics 500V [kA]	Icu/Ics 690V [kA]	Icw (1s) 440V [kA]
S7S	1250	F - EF - HR - VR	3p/4p	XT7S - XT7S/M	E1.2C	1250	50	40	35	20	15
S7S	1600**	F - EF - HR - VR	3p/4p	XT7S - XT7S/M	E1.2C	1600	50	40	35	20	20
S7H	1250	F - EF - HR - VR	3p/4p	XT7H - XT7H/M	E1.2N	1250	65	55	45	25	15
S7H	1600**	F - EF - HR - VR	3p/4p	XT7H - XT7H/M	E1.2N	1600	65	55	45	25	20
S7L	1250	F - EF - HR - VR	3p/4p	XT7L - XT7L/M	-	1250	100	80	70	35	15
S7L	1600**	F - EF - HR - VR	3p/4p	XT7L - XT7L/M	-	1600	100	80	70	35	20
S7D	1250	F - EF - HR - VR	3p/4p	XT7D - XT7D/M	E1.2B/MS	1250	-	-	-	-	25*
S7D	1600**	F - EF - HR - VR	3p/4p	XT7D - XT7D/M	E1.2B/MS	1600	-	-	-	-	25*

* Tmax XT7D-XTD/M 20 kA

** Derating up to 1450A for F, EF terminals and up to 1500A for HR terminals

Accessories and Trip Unit

This new retrofitting solution guarantees the use of all the mechanical and electrical accessories of the E1.2 or XT7/XT7M.

With these retrofit kits it is possible to choose amid three different Trip Units to replace the Isomax S7's ones: Ekip Dip, Ekip Touch, Ekip Hi-Touch available in the versions LI, LSI, and LSIg.



Protection functions	PR211/P I - LI	PR212/P LSI - LSIg	Ekip DIP (LI - LSI - LSIg)	Ekip Touch (LI - LSI - LSIg)	Ekip Hi-Touch (LI - LSI - LSIg)
Overload protection - L	●	●	●	●	●
Time delay overcurrent protection $I_2 \cdot t = \text{cost}$ - S	-	●	●	●	●
Time delay overcurrent protection $(t=k)$ - S	-	●	●	●	●
Instantaneous overcurrent protection - I	●	●	●	●	●
Earth fault protection - G	-	●	●	●	●
Network analyzer	-	-	-	-	●
Real-time monitoring and protection - Current	-	●	○	●	●
Real-time monitoring and protection - Voltage, Power, Energy, Frequency	-	-	-	○	●
Maintenance indicators and records	-	-	●	●	●
Communication capability	-	○	-	○	○

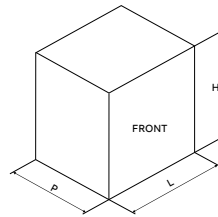
● Standard features

○ Features available as optional or installing additional devices

PR212/D Communication capability using the release PR212/PD-L (LonTalk Protocol) or PR212/PD-M (Modbus RTU Protocol).

Checks before ordering

Before ordering, it is important verify that the minimum panel dimensions are respected in order to mount correctly the new device:



HBRF Type	L (3p) [mm]		L (4p) [mm]		H		P	
	E1.2-XT7/XT7M	S7	E1.2-XT7/XT7M	S7	E1.2-XT7/XT7M	S7	E1.2-XT7/XT7M	S7
F-EF-HR-VR	250	240	322	310	382,5	540	130	146,5

Note: If switchgear L or H dimension are lower than the ones indicated, contact ABB.