MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ABB

1SDA083360R1

LOW-VOLTAGE DIGITAL PROTECTION UNIT

Used with the applicable Ekip UP Protect digital units configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: ABB Ekip UP Technical Catalog 1SDC001051D0201, May 2020.

TECHNICAL CATALOG

Ekip UP

The low voltage digital unit for next generation of plants



Product overview

Ekip UP is CE-marked and cULus listed. It conforms to the Standard IEC 60255 - “Measuring relays and protection equipment” and UL 508, CSA C22.2 No. 14-13 - "Standard for Industrial Control Equipment".

IEC 60255 certification makes Ekip UP suitable globally being recognized by other local regulatory organizations, while cULus compliance enables the access to North America market (UL508, UL1053). Ekip UP Protect+ and Control+ versions are in compliance with grid-connection standard, in particular last edition of CEI 0-16 - “Reference technical rules for the connection of active and passive consumers to the HV and MV electrical networks of distribution company”. All the Ekip UP range is approved by marine registers (RINA and DNV-GL) and other local standards (CMIM, KC).

Ekip UP operates in low voltage grids according to the following ranges and characteristics:

Operating voltage, Ue [V]	Up to 1150
Operating current, In [A]	From 100 to 6300
Operating frequency [Hz]	50 - 60
Operating temperature [°C]	From -25 to +70*
Protection degree	IP40**

* +60 according to UL
** For IP54 protection, use external cover like Rittal FT 2784.000 or equivalent

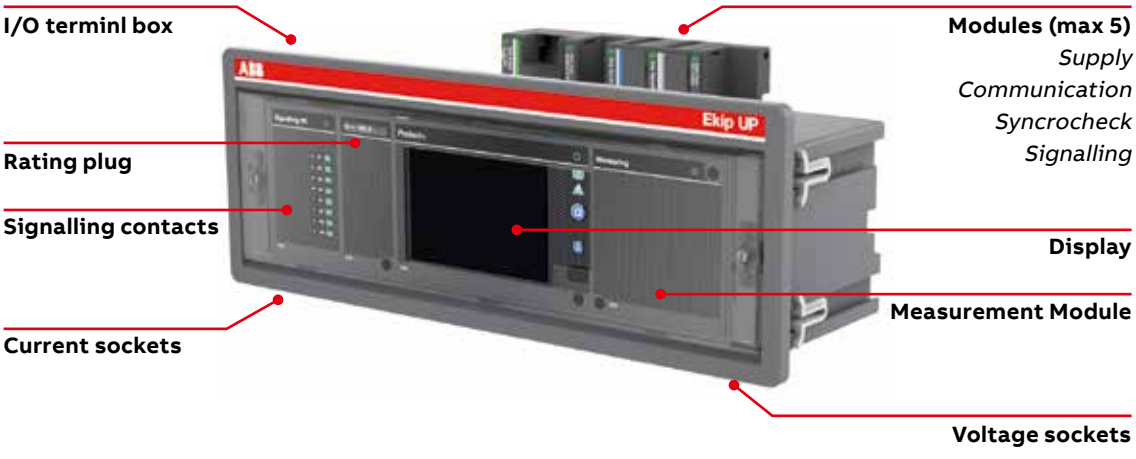
More technical and standard features are available in the dedicated manual, doc. 1SDH002003A2001.

Ekip UP unit is standard provided in the optimized bag-packaging with:
- ABB current sensors, offered in four types, and cabling kit
- insertion bridge for voltage sockets
- power supply cartridge module
- measurement module
- four I/O programmable contacts.

Ekip UP is also able to be equipped with optional:
- communication and gateway modules
- synchrocheck cartridge module
- embedded or external signalling modules
- software functions
- external differential or homopolar toroids.

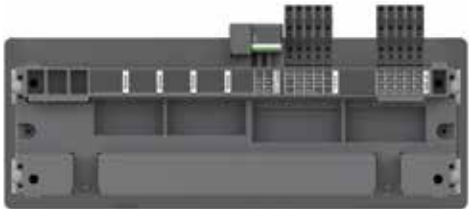
If required, commercial voltage sensors can be applied into the specific sockets, clearly identified to ensure correct installation.

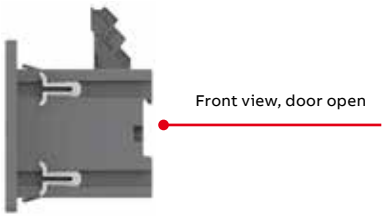
All the details of the accessories are described in Chapter 5 and ordering instructions are listed in Chapter 8.



The same Ekip UP unit may be DIN-rail or door-mounted according to the specific requirement. Many clips fix the unit guaranteeing stability in every installation.
Rotating capability of digital contacts and two dedicated labels ensure easy of use in both the mounting options.
Serial Number information is available in the label applied on the unit side as well as in the touch-screen display. Indeed, all the configurations are possible from the display or using the commissioning software Ekip Connect.
Additional labels help to identify the cartridge module plugged into the unit.

1. Door mounted, door open





2. DIN mounted





Ekip UP units

The innovative Ekip UP digital units are the new benchmark for the measurement, protection and control for low voltage electrical systems.

The result is a single unit suitable for any demanding application without the need for other external devices.
The ABB plug&play solution improves the plant efficiency, increases awareness of resources and process behaviors, and delivers an easier, more intuitive user experience.
As multifunctional unit, there are five different commercial versions that guarantee flexibility and modularity to meet the needs of all measurement, protection and control applications.

- **Ekip UP Monitor**
- **Ekip UP Protect**
- **Ekip UP Protect +**
- **Ekip UP Control**
- **Ekip UP Control +**

All units can also be equipped with optional connectivity and signally modules, in addition to the standard accessories. The main software functions can also be uploaded into Ekip UP Protect, Protect+ and Control+. These versions are ready for external toroids that enable more earth fault protections.



	Ekip UP Monitor	Ekip UP Protect	Ekip UP Protect +	Ekip UP Control	Ekip UP Control +
Control				●	●
Protection		●	●		●
Metering	●	●	●	●	●

● = standard functions
● = advanced functions

METERING

Ekip UP Monitor is more than a measurement unit:

- Power quality Network Analyzer according to IEC61000-4-30 ed. 2 (up to 50th harmonics)
- Fault analysis Datalogger based on events with-two independent memory buffers
- Maximum, minimum and average value registers.

Ekip UP Accuracy		
Measure	**Ekip UP unit**	→ with Sensors *
Current	0.50%	1.00%
Voltage	0.50%	0.70%
Power	1.00%	2.00%

* With Type C current sensors based on installation conditions mentioned in dedicated manual, doc 1SDH002003A1001 and in case of VT (voltage transformer) used cl. 0.2 or below.

Advanced communication capabilities are compatible with 8 fieldbus and Ethernet protocol + 1 property bus for easy system integration. Ekip UP has four slots for plug and play modules to quickly and easily share up to 3000 data with supervision systems, guaranteeing modularity for each application.
Using an optional gateway module, it can be connected to the cloud-platform ABB Ability™ Electrical Distribution Control System thanks to a simple architecture able to connect most of the ABB low and medium voltage devices to the energy management web-app.
This follows the technology focus for big data in the commercial and industrial market segments. Ekip UP Monitor is the hub of the plant providing full connectivity and easy integration into any supervision system making every swtichgear smart.

For more information for power quality metering, please refer to the product note for Network Analyzer - 1SDC210106D0201.



Ekip UP units

PROTECTION

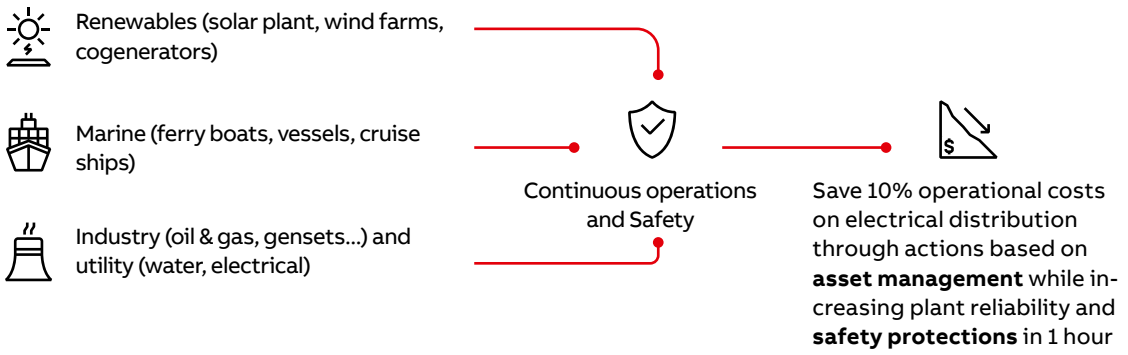
Ekip UP Protect and Protect+ add the protection functions above and beyond monitoring and connectivity ones.

Ekip UP Protect enables protection based on current, voltage, frequency and power as a protective relay for power feeders. Ekip UP Protect+ adds generator protections, adaptive and overcurrent directional ones for power distribution and generation. Using Ekip Protect+ the ability to get digital selectivity with proprietary bus, plus distinguish restricted/unrestricted earth fault is guaranteed. Ekip UP Protect and Ekip UP Protect+ can be equipped with the software kits from the "all-in-one" ABB platform, like load shedding innovations, synchrocheck capability, interface certified protections. Those advanced features can ensure service continuity and energy efficiency in the plants, reducing the complexity of different device installation.

Typical application of Ekip UP Protect and Ekip UP Protect+ are:

- Adding protection functionalities to switch-disconnectors, guaranteeing short-circuit breaking capacity as their short time withstand current.
- Leveraging on more ANSI protections and other innovations for installed circuit breaker with simple trip unit, like thermal-magnetic, with the possibility to maintain current short-circuit values.

Ekip UP is also the perfect solution when trip unit spare parts no longer available or as a backup relay.





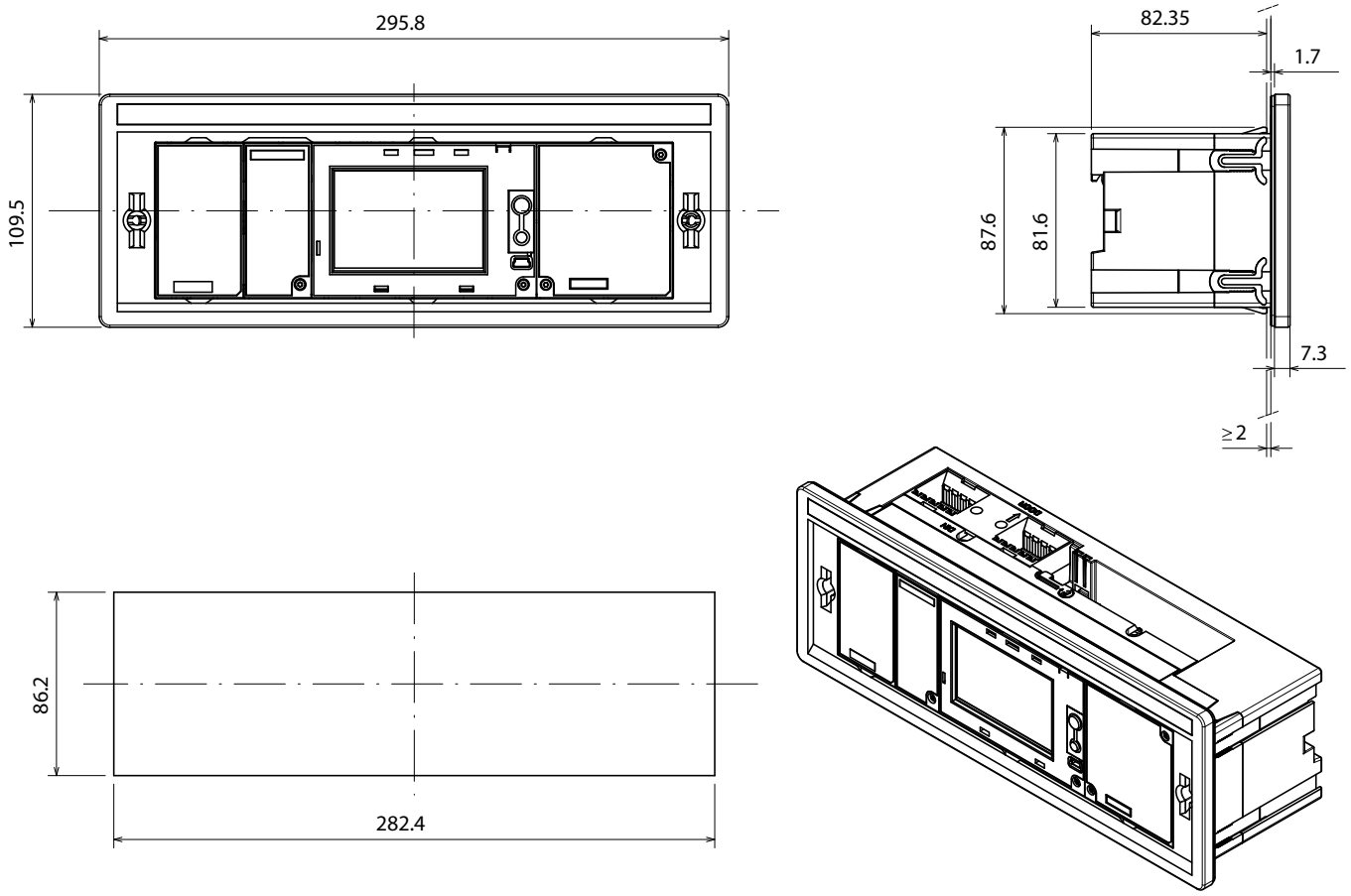
Ekip UP unit dimensions

Ekip UP is a plug & play unit that ensures easy installation, even adding current and voltage sensors wherever wanted in the plant layout.

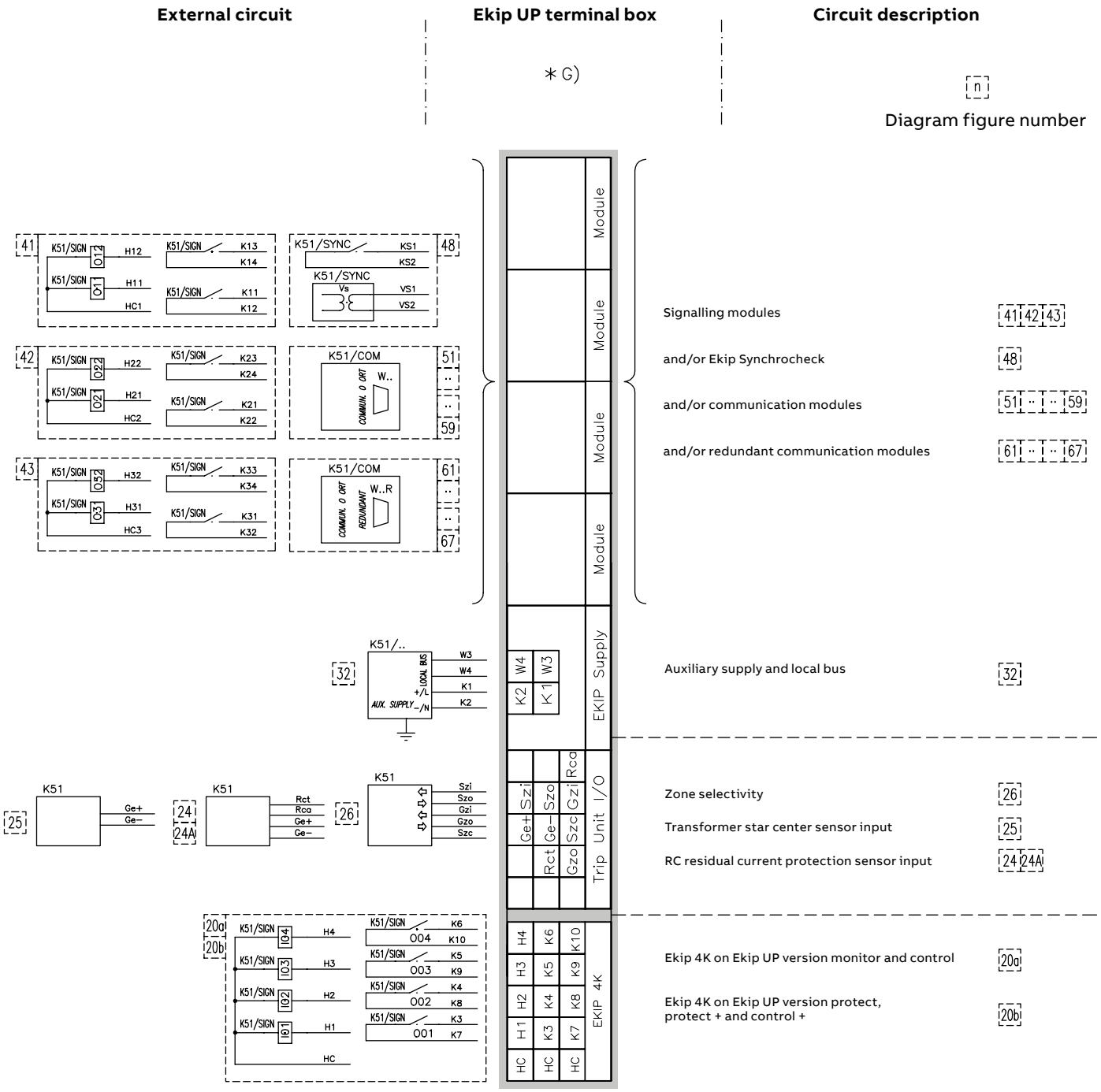
Ekip UP can be door-on rail mounted, fitting all the requirements either in power distribution or either in process automation. DIN-rail mounting option is also very useful when it is better not to occupy space on the front doors of the switchgears. Ekip UP depth is one of the smallest among external units, so it is suitable for many switchgear sizes. Besides, the terminals (of the signaling contacts) can rotate according to the mold-printed mounting options.

Current and voltage sensors should be applied to the dedicated numbered sockets. Current sockets are directly provided by ABB in different versions, as 3/4 poles or opening/closing Rogowski coils. They fit the current range and the space available among bus-bars/cables in the switchgear. Commercial voltage sensors can be applied following ABB specifications as described in Chapter 5.

Ekip UP unit door-mounted without modules/terminals

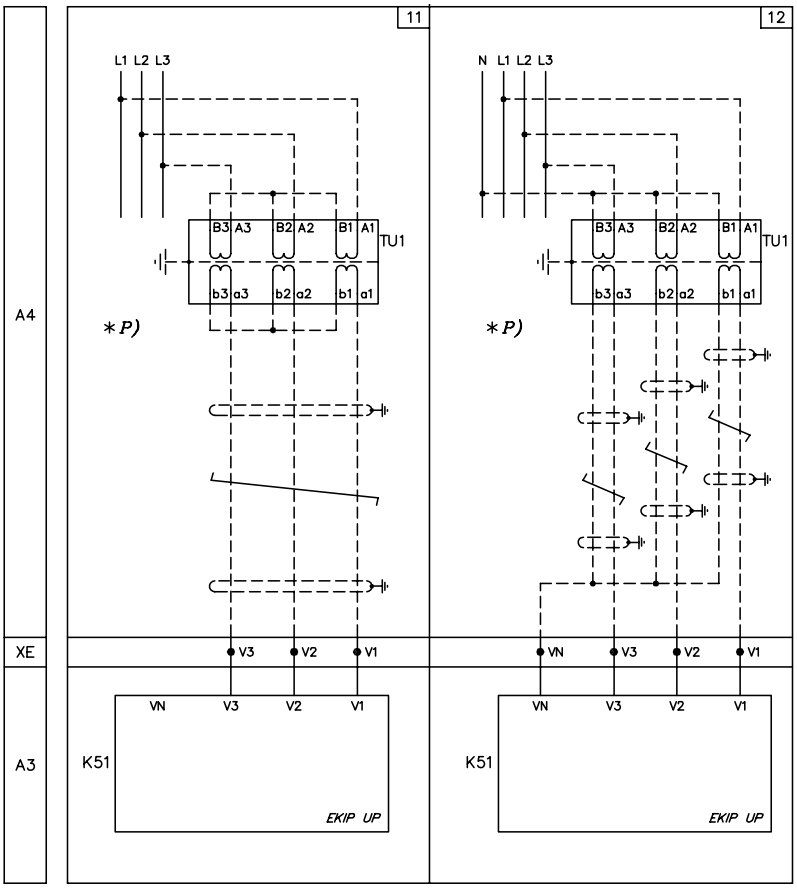


Terminal blocks

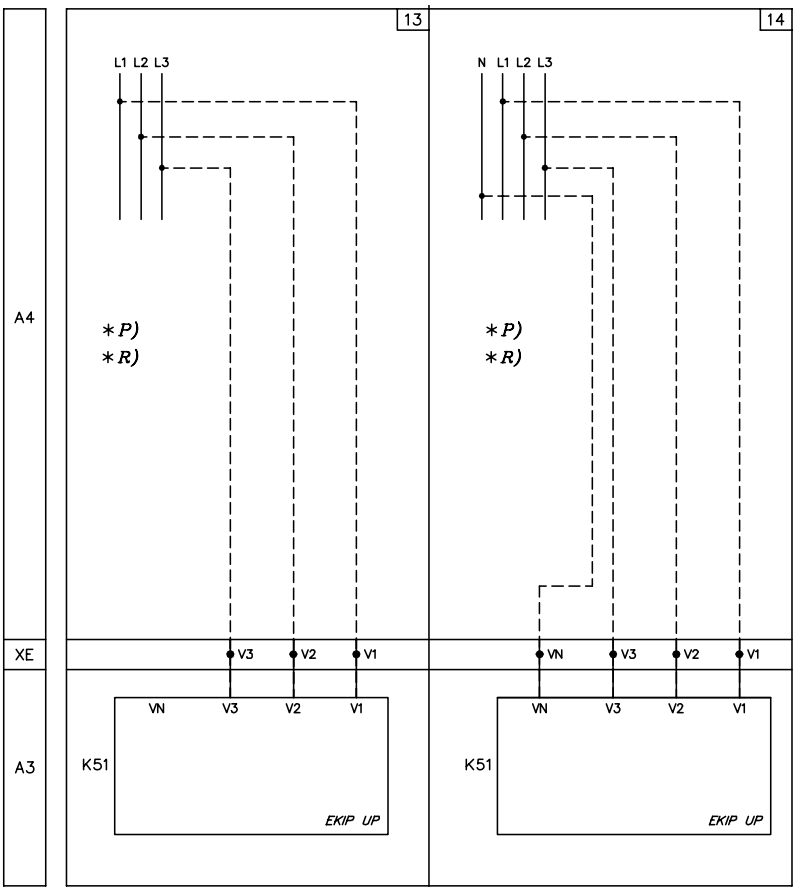


Ekip UP unit

11) Ekip UP with external voltage transformer and 3P configuration
12) Ekip UP with external voltage transformer and 4P configuration



13) Ekip UP without external voltage transformer and 3P configuration
14) Ekip UP without external voltage transformer and 4P configuration



Ekip UP
Ekip UP versions



Type	Code
Ekip UP Monitor	1SDA083359R1
Ekip UP Protect	1SDA083360R1
Ekip UP Protect +	1SDA083361R1
Ekip UP Control	1SDA083362R1
Ekip UP Control +	1SDA083363R1