

GENERAL SYSTEM INFORMATION

Battery chargers are intended to provide **uninterrupted** DC supply to connected loads such as protection, measurement, automation and switching equipment and systems.



- *Earth (+, -) Leakage Alarm*
- *Over and Low Temperature*
- *DC Output Voltage Low and High*
- *AC Input Voltage Low and High*
- *AC On*
- *Overload*
- *Current Limitation*
- *Batteries Disconnected*
- *RTC Battery Low*
- *Battery Alarm*
- *Normal Charge / Boost Charge*

Above notifications can be monitored and signals transmitted to Scada.



Relko Enerji's Muti Max Series battery chargers manufactured in Turkey, fulfills the requirements and has full compliance to latest specifications., our battery chargers are type tested recently (2019) to IEC specifications and comply to latest KM standards and requirements.

MULTI Max Series comes with redundant control by "Master Control Unit" and "Slave Control Unit". So the users either control the charger with Master unit or Slave unit easily.

To cater the needs of Secondary Electricity Distribution Segment in Qatar, we manufacture two product ratings:

- 1) **ASC1030-10A** (24Ah Multimax-T with KM approved Batteries)
- 2) **ASC1048-35A** (62Ah Multimax-T with KM approved Batteries)

Special Features

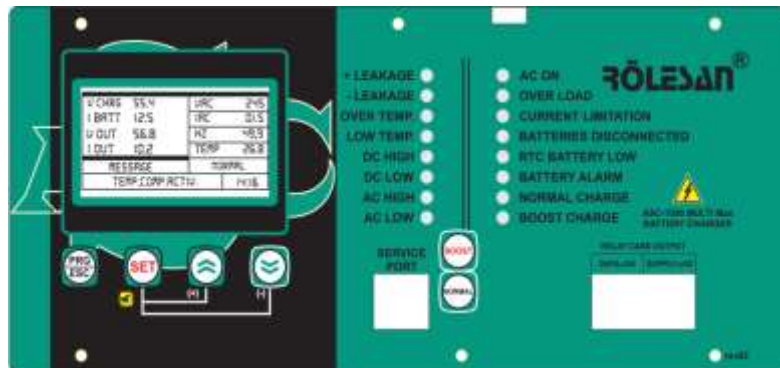
- *Designed with SCR Based Microprocessor*
- *Designed with Current and Voltage Regulators*
- *Stable Output Voltage, Perfect Discharge Curves*
- *Boost and Normal Charge (Automatic/Manual)*
- *Low Ripple Voltage*
- *Remote Signaling Scada Communication via Modbus (RS232/RS485)*
- *Natural Cooling – No Fans included*
- *Withdrawable Battery Tray*
- *Powerful / Robust Transformers and Internal Components*
- *Temperature Compansation*
- *Wide Graphical LCD Control Panel*
- *Redundany for both control and Signals*
- *Event Record (20 events FIFO)*
- *Automatic Battery Maintenance,(extend the life time of batteries)*
- *Removal battery trays or easy maintenance*

Flexible and Easy Operation in Wide Range of DC Applications

MULTI Max Series can be used in different areas such as Power Transmission and Distribution, Chemical Industry, Water and Waste Water Industry..

System parameters are easy to monitor via its control panel. These parameters;

- Battery Voltage
- Battery Current
- DC Output Voltage
- Output Current
- AC Voltage
- AC Current
- Frequency
- Temperature
- Charge Mode
- Date / Time
- Battery Level (% and Graphical)
- Fault Notifications



To charge the batteries in most suitable way and extend their life time, MUTLI Max is designed with current and voltage regulators and automatic battery maintenance function. The ripple voltage is <3% without battery and <1% with Battery.

MUTLI Max Series are available from 5 to 100A in single phase input configuration with offering output voltage 24, 48, 110 and 220Vdc.

Thanks to our own R&D department, all electronical and mechanical designs are carried out by ourselves for improved reliability and adaptability to industrial requirements.

MUTLI Max Series have easy to use HMI for quick on-site adjustments and software for on-site and offline adjustments.

MUTLI Max Series have an additional control unit (Slave Unit) for redundancy. Please see the below pages for parameter settings.

MUTLI Max Series have analogue measurement equipments included to check the Voltage and Current besides HMI.

MUTLI Max Series can be manufacture according to your special requirements. Depending on the charge current, battery capacity and enviromental conditions, the dimensions and weight may vary and adapt exactly as customer requirements.

- Please check the dimensions and weight after ordering the optional modules, different charging current or battery capacity.

Optional Intelligent VRLA Battery monitoring system is available for analyzing SOH of Block battery, SOC of String battery, Curve Trend analysis, Bar Graph report and Threshold Alarm. MUTLI Max Series are able to measure Block Battery's Voltage, Temperature and Inner resistant (ohm).

TECHNICAL SPECIFICATION TABLE

GENERAL		
Model	ASC1030-10A MultiMax	ASC1048-35A MultiMax
Topology	SCR Based 1 Phase Thyristor Controlled DC Supply System	SCR Based 1 Phase Thyristor Controlled DC Supply System
Control	Microprocessor Controlled Master & Slave Control Units For Redundancy	Microprocessor Controlled Master & Slave Control Units For Redundancy
INPUT		
Input Voltage	240 VAC \pm % 15	240 VAC \pm % 15
Input Wiring	1 Phase 2 Wires + Ground	1 Phase 2 Wires + Ground
Frequency	50 Hz \pm % 5	50 Hz \pm % 5
Input Protection	Surge Arrester/MCB/Over&Under Voltage	Surge Arrester/MCB/Over&Under Voltage
OUTPUT		
Charging Principle	Constant Current / Constant Voltage	Constant Current / Constant Voltage
Rated Power	350W	1950W
Output Voltage	30Vdc	48Vdc
Output Voltage Setting range	33 – 35Vdc	54 – 57Vdc
Output Current	10A	35A
Charge Current Setting	2,5 - 6A	2,5 – 15A
Static Tolerance	<%1	<%1
Ripple	<%1 With Battery Connected <%3 without Battery Connected	<%1 With Battery Connected <%3 without Battery Connected
Output Protection	Short Circuit/MCB/Over&Under Voltage	Short Circuit/MCB/Over&Under Voltage
Filtering	L-C Filter	L-C Filter
CONTROL ELEMENTS		
Battery Maintenance	Automatic Battery Maintenance	Automatic Battery Maintenance
Temperature Compansation	Enable or Disable Selectable	Enable or Disable Selectable
Deep Discharge Protection	Enable or Disable Selectable	Enable or Disable Selectable
Charger Current Limitation	Charger current limitation starts at 10A	Charger current limitation starts at 35A
Battery Current Limitation	Battery current limitation starts at 6A	Battery current limitation starts at 15A
ALARM CONTACTS		
Aux. Contacts	Mains MCB / Battery MCB / Load MCB	Mains MCB / Battery MCB / Load MCB
Normally Open Contacts	+ & - Leakage / Over & Low Temperature / DC High & Low / AC High & Low / AC ON / Overload / Current Limitation / Connect Battery / RTC Battery Low / Charger Operation	+ & - Leakage / Over & Low Temperature / DC High & Low / AC High & Low / AC ON / Overload / Current Limitation / Connect Battery / RTC Battery Low / Charger Operation
DISPLAY PANEL & MEASUREMENT		
Master Unit Measurements	Battery Voltage, Battery Current, DC Output Voltage, Output Current, AC Voltage, AC Current, Frequency, Temperature, Battery Level.	Battery Voltage, Battery Current, DC Output Voltage, Output Current, AC Voltage, AC Current, Frequency, Temperature, Battery Level.
Slave Unit Measurements	Battery Charge Voltage, Battery Charge Current.	Battery Charge Voltage, Battery Charge Current.
Analogue Measurements	Battery Current, Output Current, Battery Voltage and Output Voltage.	Battery Current, Output Current, Battery Voltage and Output Voltage.
COMMUNICATION & EVENT RECORDS		
Connection Type	RS232/RS485	RS232/RS485
Baud Rate Settings	Must be same with the connected PC	Must be same with the connected PC
Modbus ID Settings	Must be same with the connected PC	Must be same with the connected PC
Event Records	Last 10 Events (FIFO)	Last 10 Events (FIFO)
DROPPER DIODES		
Dropper Diodes	6 Dropper Diodes included	8 Dropper Diodes included

ADJUSTABLE PARAMETERS

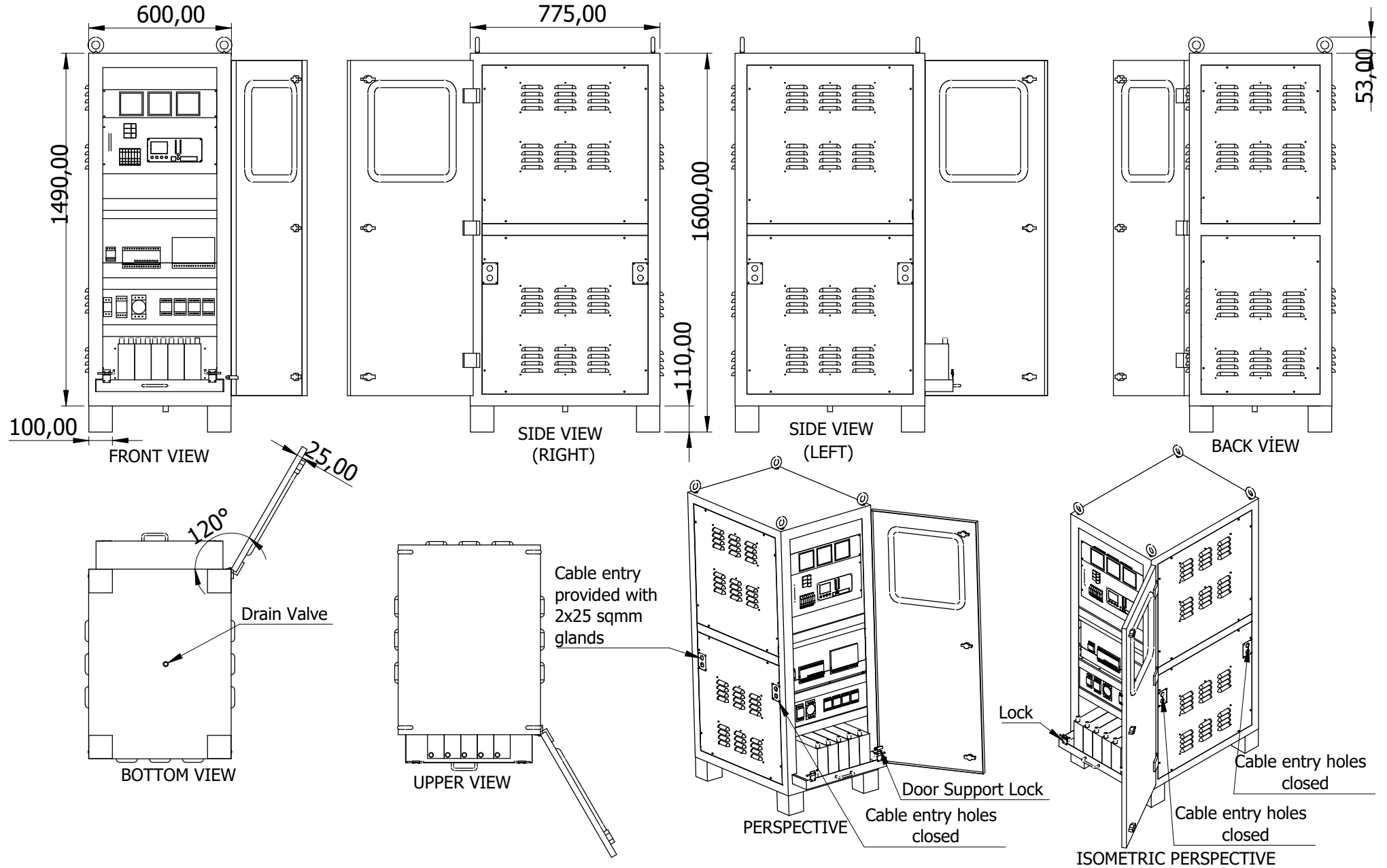
Master Unit Adjustable Parameters	ASC1030-10A		ASC1048-35A	
	RANGE	DEFAULT SETTING	RANGE	DEFAULT SETTING
Output Voltage	33-35V	34,8V	54-57V	55,6V
Battery Charge Current	2,5-6A	6A	2,5-15A	15A
DC High	37-41V	41V	59-63V	63V
DC Low	27-29V	29V	40-46V	40V
AC High	240-280V	270V	240-280V	270V
AC Low	170-210V	180V	170-210V	180V
Deep Discharge Function	Y / N	Y	Y / N	Y
Deep Discharge Voltage	24-27V	27V	39-44V	44V
Deep Discharge Duration	2-20sec.	5sec.	2-20sec.	5sec.
Battery Maintenance Function	Y / N	Y	Y / N	Y
Battery Maintenance / Day	1 -7 Day	2 Day	1 -7 Day	2 Day
Battery Maintenance / Month	1 Month – 1 Year	6 Months	1 Month – 1 Year	6 Months
Battery Maintenance Calender	2001 – 2099	01.01.2020	2001 – 2099	01.01.2020
Hz High	45-65Hz	55Hz	45-65Hz	55Hz
Hz Low	35-45Hz	40Hz	35-45Hz	40Hz
Temperature	55-99C	60C	55-99C	60C
Auotmatic Boost Charge	Y / N	Y	Y / N	Y
Manual Boost Charge	Y / N	N	Y / N	N
Boost Charge Voltage	35-37V	36,3V	57-59V	58V
Boost Charge Duration	2-720min.	10min.	2-720min.	10min.
Boost Charge Delay	2-720min.	2min.	2-720min.	2min.
Battery Charger Fail Voltage	26-28V	26V	43-45V	45V
Temperature Compansation	Yes-No	Y	Yes-No	Y
Battery mV	1-35mV	3mV	1-35mV	3mV
Boost Charge Current	2,5-6A	6A	2,5-15A	15A
Overload Protection	Y / N	N	Y / N	N
Slave Unit Adjustable Parameters				
Charge Voltage	33-35V	34,8V	54-57V	55,6V
Boost Charge Voltage	35-37V	36,3V	57-59V	58V
Battery Charge Current	2-6A	6A	2-15A	15A

BATTERY TECHNICAL SPECIFICATIONS

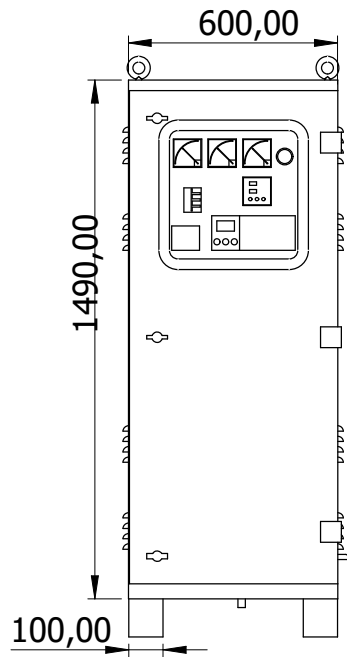
Model	Saft UP1L30 / UP1M24 / SBLE22	Saft UP1L62 / UP1M65 / SBLE62
# Cells	25	40
Capacity	22 / 24 / 30 Ah	62 / 65 Ah
Float Voltage	1,39 V/Cell	1,39 V/Cell
Boost Voltage	1,45 V/Cell	1,45 V/Cell

CABINET & SAFETY SPECIFICATIONS

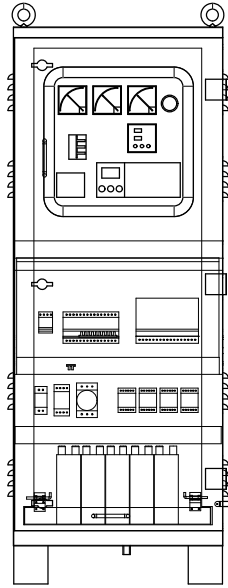
Dimensions	800 x 600 x 1600 (mm)	800 x 600 x 1600 (mm)
Paint Finish	RAL 7035	RAL 7035
Weight	160kg without batteries	170kg without batteries
Ventilation	Natural Cooling Via Air Canals	Natural Cooling Via Air Canals
Cable Entry	Middle Left & Right	Middle Left & Right
Protection Class	IP22	IP 22
MTBF	100.00 hours without batteries	100.00 hours without batteries
Operating Temp.	-25C° / +55C°	-25C° / +55C°
Humidity	5-90 %	5-90 %
Operating Altitude	Max. 2000mt	Max. 2000mt



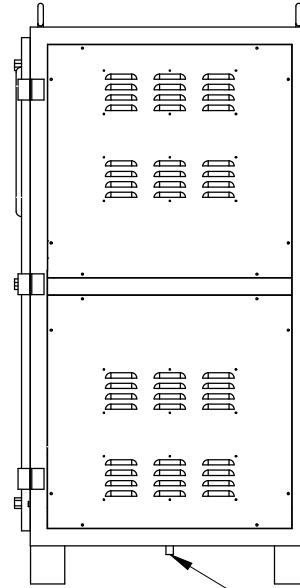
Issue-Remarks	Date	Name	Client	Manufacturer:	Descr.	Title	Page
01-FOR APPROVAL	11.05.2020	Samet KARAKAYA	Project Name:	ÖLESAN	30V DC, 10A-TRIPPING UNIT	GENERAL ARRANGEMENT DRAWING-GENERAL ARRANGEMENT-1	3
00-FOR INFORMATION	05.02.2019	Gökhan DÜNDAR	Spec : EPM-P4/56-021	Supplier:	Model : ASC-1030 10A	Drawing No : TUQT-RLS-30-GA	Total Page
		Gökhan DÜNDAR			Product Code : 01.11.30.10.24.13.4.11.1		17



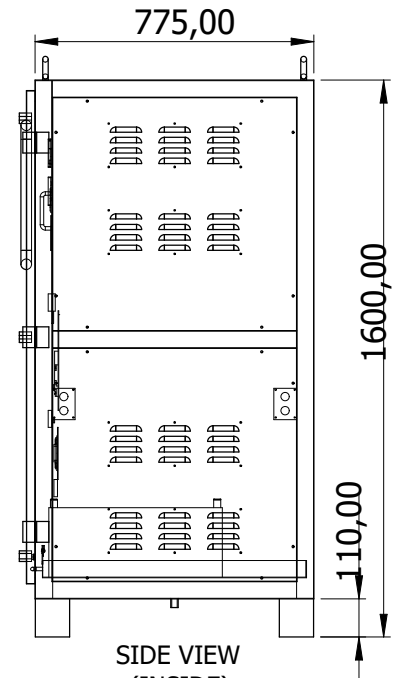
FRONT VIEW



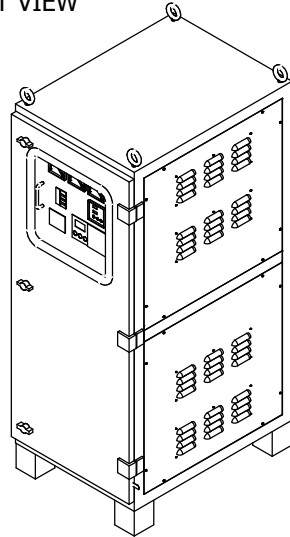
FRONT VIEW
(INSIDE)



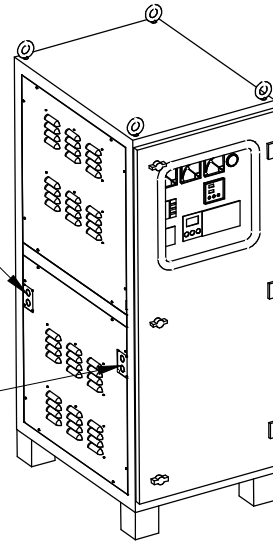
SİDE VIEW Drain Valve



SİDE VIEW
(INSIDE)



ISOMETRIC PERSPECTIVE

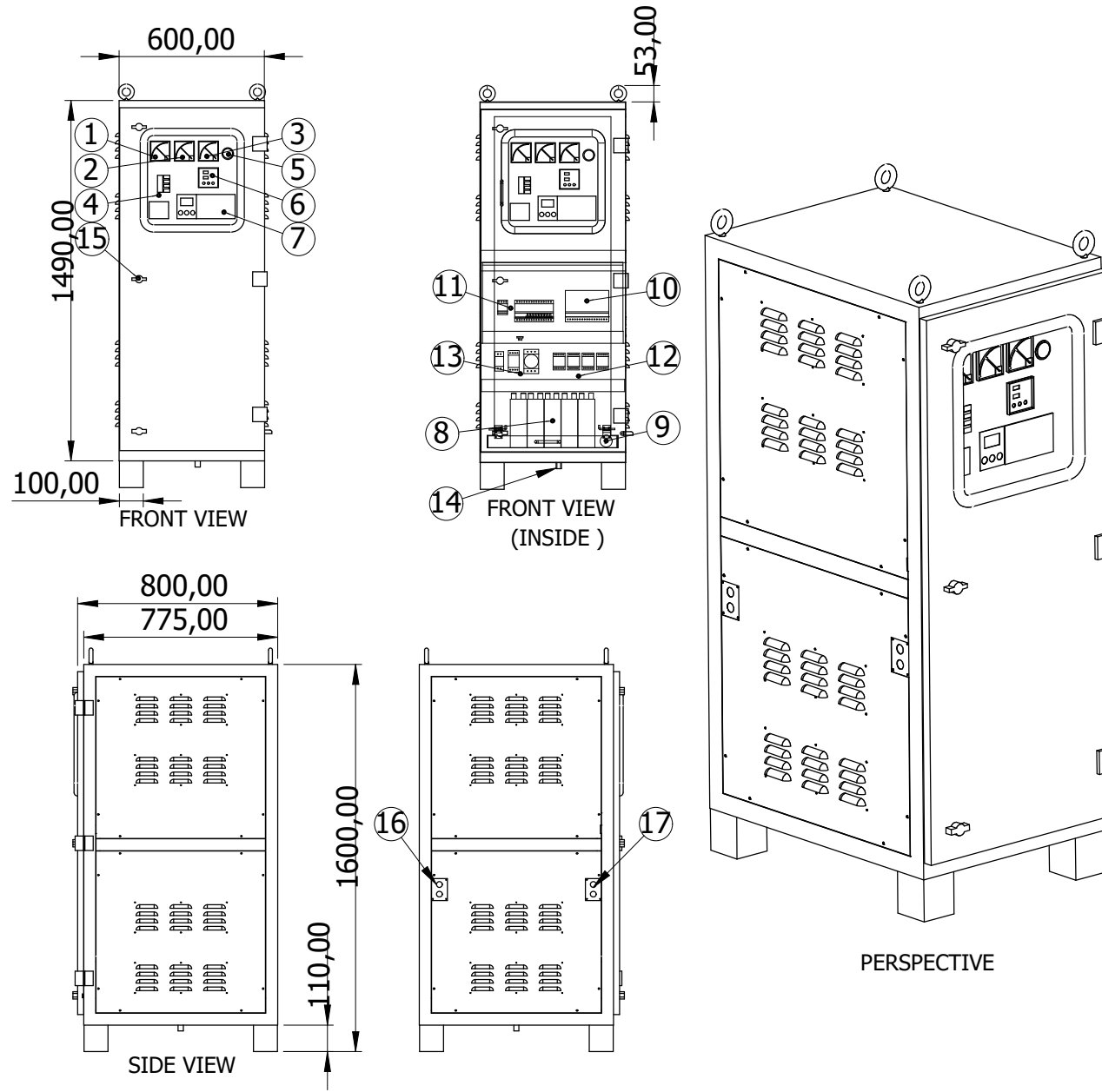


PERSPECTIVE

Cable Gland (Open)

Cable Gland (Closed)

Issue-Remarks	Date	Name	Client	Manufacturer:	Descr.	Title	Page
01-FOR APPROVAL	11.05.2020	Samet KARAKAYA	Project Name:	ÖLESAN	30V DC, 10A-TRIPPING UNIT	GENERAL ARRANGEMENT DRAWING-GENERAL ARRANGEMENT-2	4
00-FOR INFORMATION	05.02.2019	Gökhan DÜNDAR	Spec : EPM-P4/S6-021	Supplier:	Model : ASC-1030 10A Product Code : 01.11.30.10.24.13.4.11.1	Drawing No : TUQT-RLS-30-GA	Total Page 17



COMPONENT CODE LIST	
BATTERY AMPERMETER	1
LOAD AMPERMETER	2
OUTPUT-LOAD VOLTMETER	3
AC MCB (1 Pole) Output MCB (1 Pole) Battery MCB (1 Pole)	4
Load-Output Voltage Selector Switch	5
RLS104 Slave Unit	6
RLS103 Master Unit	7
25 x SAFT Nicd Batteries	8
Battery Tray Lock	9
RLS 102 Relay PCB	10
2 Pole AC MCB with Auxiliary Contact 2 Pole SCADA MCB with Auxiliary Contact 2 Pole SWITCHGEAR MCB with Auxiliary Contact 2 Pole BATTERY MCB with Auxiliary Contact	11
Dry Contact & Auxiliary Contact Outputs	12
240VAC Socket	13
Drain Valve	14
Padlock	15
Cable Gland (Open)	16
Cable Gland (Closed)	17