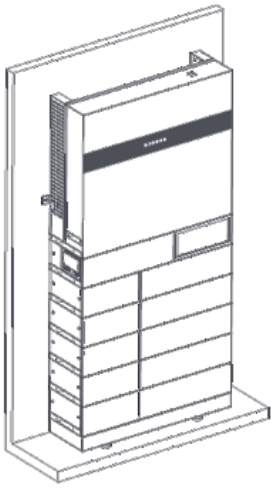
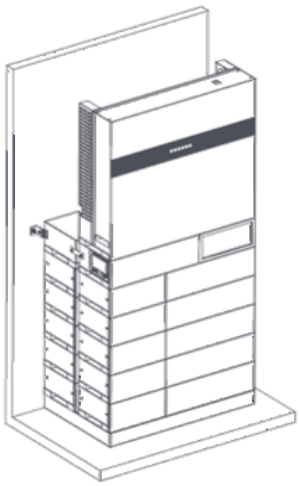
Alfred-10	Capacity	
	12-14.4 kWh	16.8-24 kWh

STRONG ENERGY

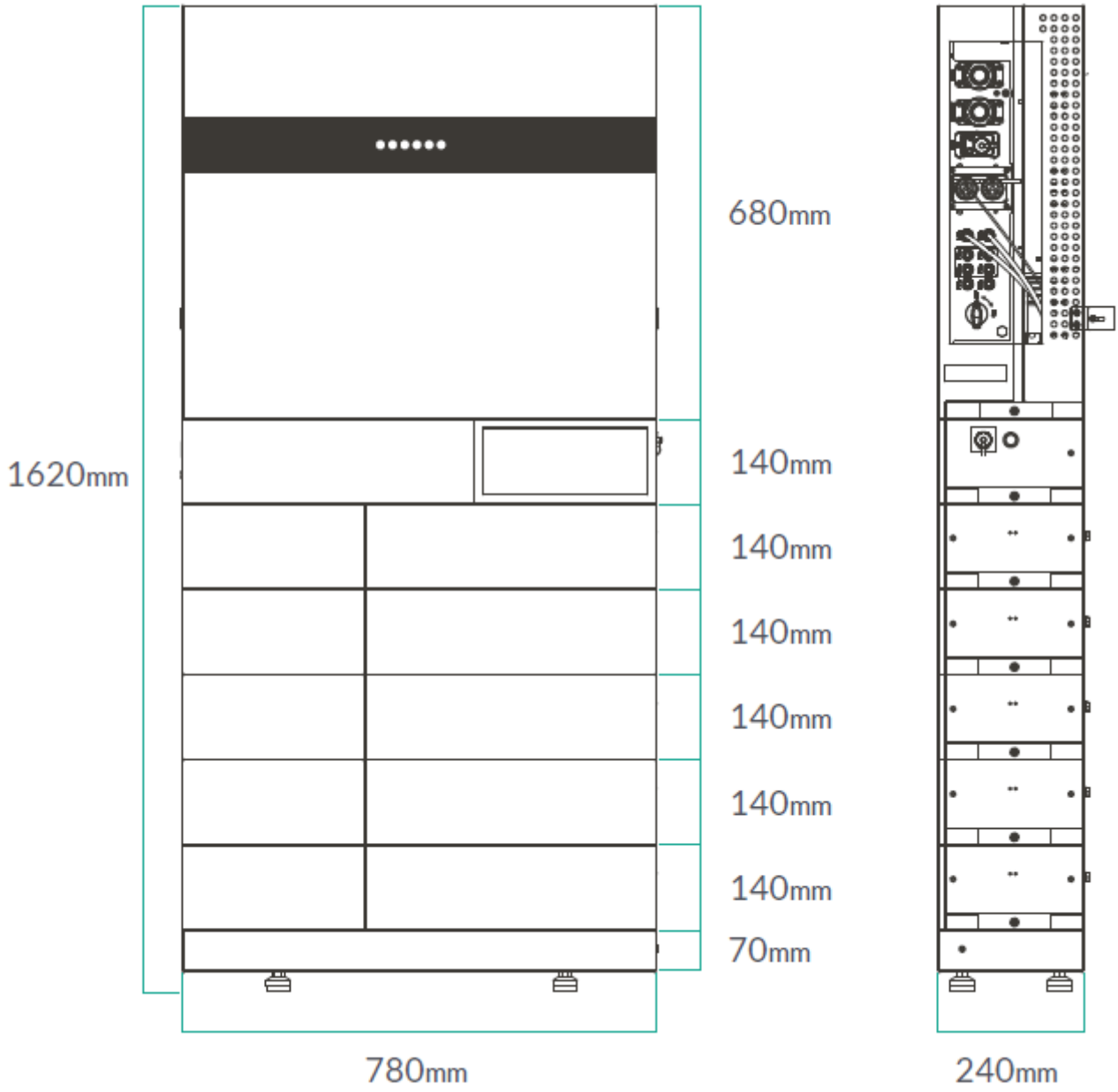




PV-Input		
Recommended max. PV power	15 kWp	
Max. PV input voltage	1000 V	
PV startup voltage	150 V	
MPPT voltage range	160-950 V	
No. of MPPTs	2	
Max. no. of PV-strings per MPPT	1 + 2	
Max. input current per MPPT	20 A + 30A	
Max. short circuit current per MPPT	30 A + 40A	
Battery		
Cell chemistry	LFP (Lithium Iron Phosphate)	
No. of battery modules	5 - 6	7 - 10
Nominal voltage	250-300 V	350-500 V
Nominal capacity	12-14.4 kWh	16.8-24 kWh
Max. discharge depth	95%	
Max. charge / discharge current	50 A	
Max. charge / dischage power	12.5-15 kW / 11.3 kW	15 kW / 11.3 kW
AC Grid		
Grid voltage	3/N/PE 230/400V AC	
Grid frequency	50Hz	
Nominal power	10 kW	
Max. active power PE_{max}	11 kW	
Max. apparent power	11 kVA	
Nominal current	3 x 14.5 A	
Max. current	3 x 25 A	
THDI	3%	
Power factor (cosφ)	1 (adjustable 0.8 leading - 0.8 lagging)	
Backup power		
Nominal power	10 kVA	
Max. power (short time)	12 kVA (5 min), 15 kVA (10 s)	
Switching time	10 ms from active operation, 60 s from standby	

Effiency		
Max. efficiency	98.4%	
European efficiency	97.9%	
Max. efficiency for charging/discharging	98%	
Safety and protection features		
DC-switch	Yes	
PV reverse polarity protection	Yes	
Battery reverse polarity protection	Yes	
Output short circuit protection	Yes	
Output overcurrent protection	Yes	
Output overvoltage protection	Yes	
Isolation fault detection	Yes	
GFCI	Yes	
Anti islanding	Yes	
Internal PE-N bridge relay (Offgrid / EPS)	Yes	
Overvoltage protection	DC Type II, AC Type II	
General Data		
Ambient temperature discharge/charge	-20° ... +60°C / 0°C ... +55°C	
Air humidity rel.	5% - 95% (non condensing)	
Max. altitude	4000 m (power derating > 2000 m)	
Topology	Transformerless	
Parallel operation	Yes	
Mounting	On ground, secured to wall	
Ingress protection	IP65	
Dimensions (W*H*D)	780 x 1760 x 240 mm (6 Bat.)	780 x 1620 x 480 mm (10 Bat.)
Weight	215 kg (6 Bat.)	315 kg (10 Bat.)
Cooling & noise	passive, <30dB @ 1m	
Communication interfaces	WiFi/LAN/Bluetooth (Monitoring App), RS485 (Smart Meter, HEMS), CAN (Battery), digitale inputs for RSE/DRM	
Display, UI	Status-LED-Panel, Monitoring App	
Certification	Unit & Network protection certificate i.a.w. VDE-AR-N 4105, all standards for german grid connection, (CE, RoHS, EN-ISO-13849, EN-IEC-61000/62109/62477/62619, VDE-AR-E 2510), certification for other european countries in preparation	

ALFRED All-in-One PV energy storage system
Hybrid-inverter, 2 MPPTs, high input current for latest generation of PV modules
Modular LFP-battery, capacity 12 - 24 kWh
True 3-phase backup power system with full inverter nominal power, black start capability
Ingress protection IP65, outdoor installation
Quick installation with minimized wiring work
Easy commissioning
Monitoring and settings via App, either local (bluetooth) oder remote (WiFi/Ethernet)
Award-winning clean design



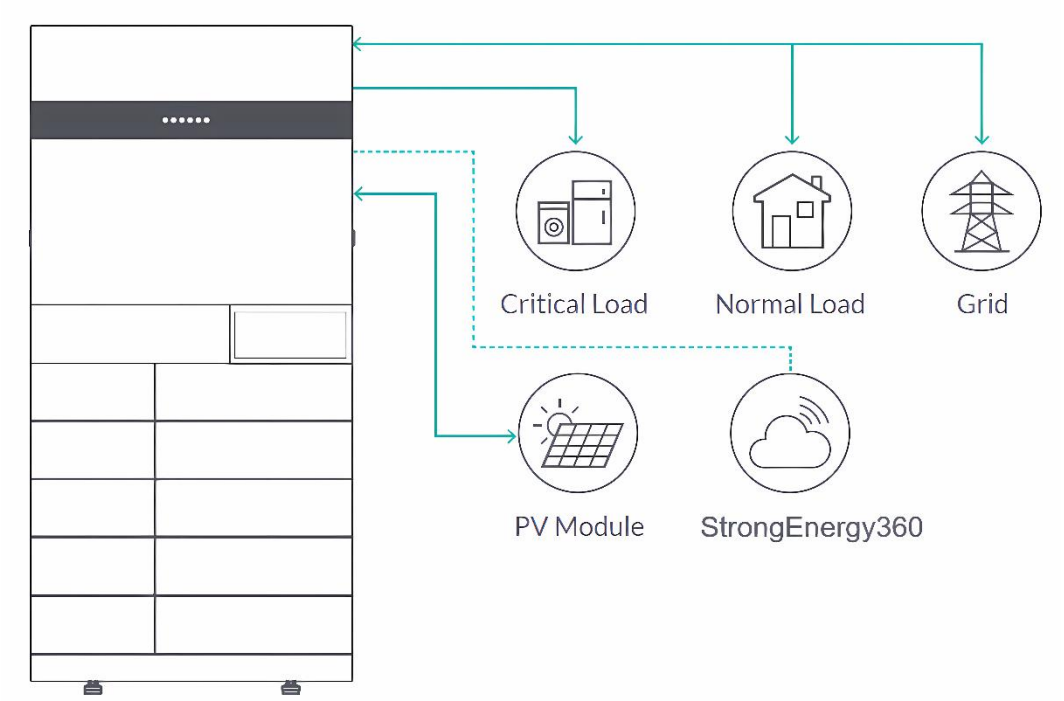
Standard-Installation

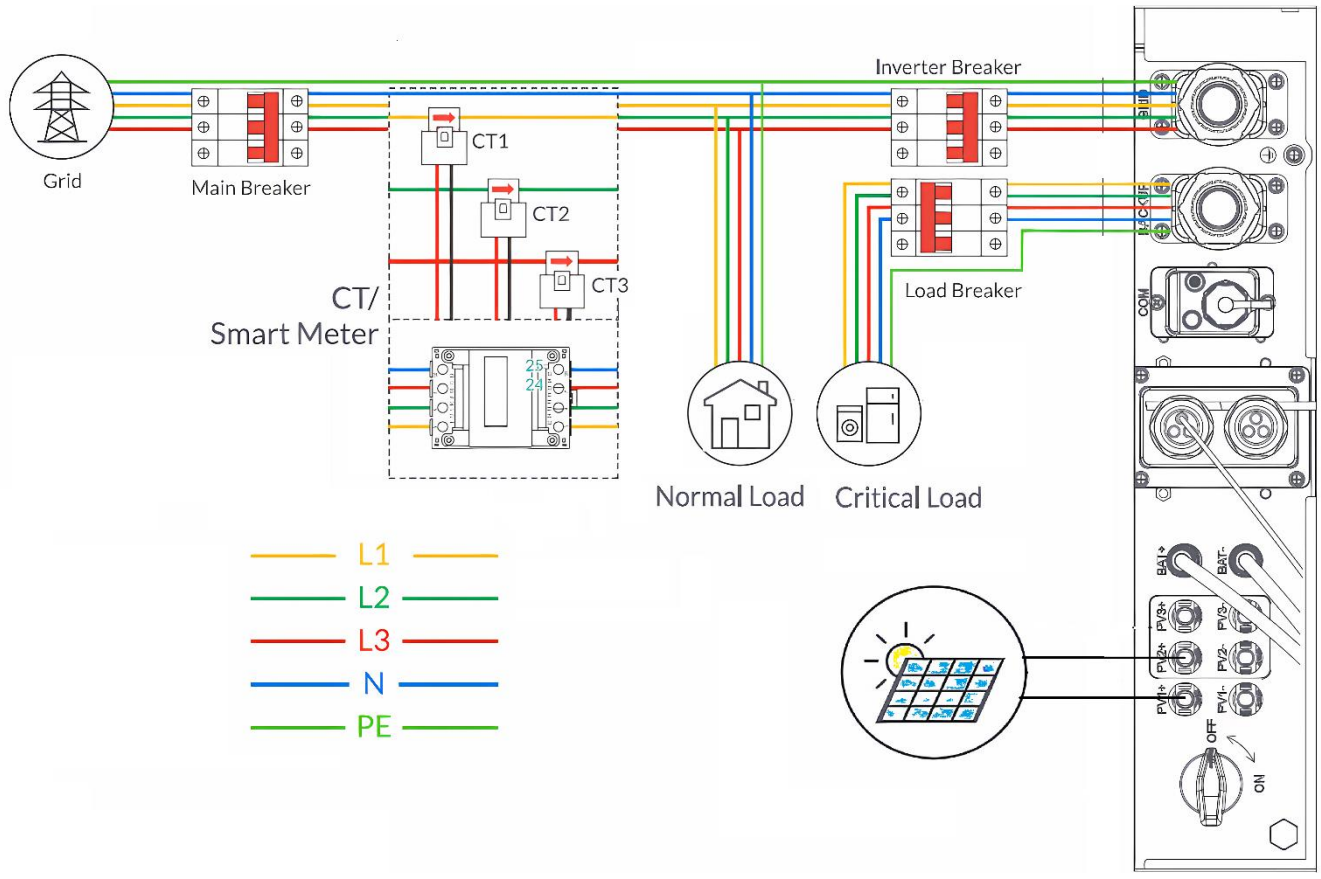
Backup-power connection on inverter, use is optional

- Integrated grid disconnection relay

Power sensor on grid connection point:

- Current transformers connected directly to CT input on inverter
- Optional: Smart Meter DTSU666 with RS485 modbus data connection





Switchbox (optional)

Prewired distribution box

- Blends smoothly with ALFRED overall design, adds 240 mm to system height
- Overall height for ALFRED with 6 battery modules + Switchbox: 2000 mm
- Pre-wired connectors for fast & easy hook up to inverter

Integrated 80A Smartmeter

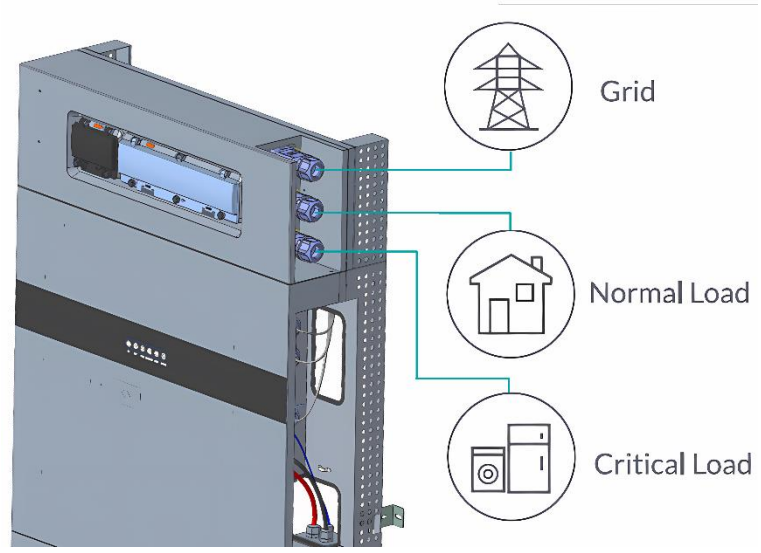
- RS485 data cable prewired, just plug into RJ45 receptable on inverter
- No more mixed up phases or inverted CTs

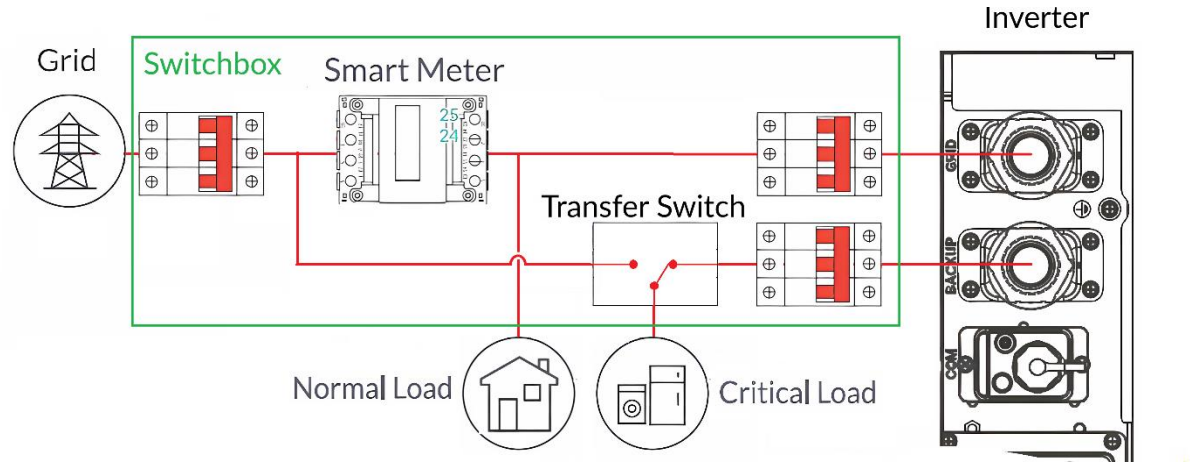
Integrated automatic transfer switch for critical loads

- In case of grid failure, critical loads are powered from PV and battery
- In case of inverter shutdown, critical loads are automatically switched over to grid power

Minimal changes to main electrical cabinet

- 3 x 32 A circuit breakers for grid, inverter, and backup integrated into Switchbox
- Just run 3 x 5-wire cables from main cabinet to Switchbox
- No mounting space for additional circuit breakers or Smartmeter needed in main cabinet





Switchbox makes the installation easier - and the power supply more reliable!