	Capacity	
Alfred-10	12-14.4 kWh	16.8-24 kWh
STRONG ENERGY		
PV-Input		
Recommended max. PV power	1:	
Max. PV Input voltage	1000 V	
PV startup voltage	150 V	
MPPT voltage range	160-950 V	
No. of MPP15		2
Max. no. of PV-strings per MPP1		1 + 2
Max. Input current per MPPT	207	A + 30A
Max. Short circuit current per MFFT	30 A + 40A	
Battery		
Battery Cell chemistry	LFP (Lithium	Iron Phosphate)
Battery Cell chemistry No. of battery modules	LFP (Lithium 5 - 6	Iron Phosphate) 7 - 10
Battery Cell chemistry No. of battery modules Nominal voltage	LFP (Lithium 5 - 6 250-300 V	Iron Phosphate) 7 - 10 350-500 V
Battery Cell chemistry No. of battery modules Nominal voltage Nominal capacity	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depth	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95%
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge current	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / dischage power	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / discharge powerAC Grid	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / dischage powerAC GridGrid voltage	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / discharge powerAC GridGrid voltageGrid frequency	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / discharge powerAC GridGrid voltageGrid frequencyNominal power	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 50 Hz 0 kW
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / dischage powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmax	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 2 1 1	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 50 Hz 0 kW 1 kW
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / discharge powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmaxMax. apparent power	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1 1 1 1	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 50Hz 0 kW 1 kW 1 kVA
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / discharge powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmaxMax. apparent powerNominal current	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1 1 1 1 1 1 3 x	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 50 Hz 0 kW 1 kW 1 kW 1 kVA 14.5 A
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / dischage powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmaxMax. apparent powerNominal currentMax. current	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1 1 1 1 1 1 3 x 3 x 3 x	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 30Hz 0 kW 1 kVA 1 kVA 14.5 A x 25 A
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / discharge powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmaxMax. apparent powerNominal currentMax. currentTHDI	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1 1 1 1 1 3 x 3 x 3 x	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 50Hz 0 kW 1 kVA 1 kVA 1 kVA 14.5 A x 25 A 3%
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / dischage powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmaxMax. apparent powerNominal currentMax. currentTHDIPower factor (cosq)	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1 1 1 1 1 3 x 3 x 3 x 3 x	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 30/400V AC 50 Hz 0 kW 1 kVA 1 kVA 1 kVA 14.5 A x 25 A 3% Ieading - 0.8 lagging)
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / dischage powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmaxMax. aurrentMax. currentPower factor (cosφ)Backup power	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1 1 1 3 x 3 x 3 x 3 x 1 (adjustable 0.8	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 30Hz 0 kW 1 kVA 1 kVA 1 kVA 14.5 A x 25 A 3% Ieading - 0.8 lagging)
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / dischage powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmaxMax. apparent powerNominal currentMax. currentTHDIPower factor (cosφ)Backup powerNominal powerNominal power	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1 1 1 1 1 1 3 x 3 x 3 x 1 (adjustable 0.8	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 50Hz 0 kW 1 kW 1 kVA 1 kVA 14.5 A x 25 A 3% leading - 0.8 lagging)
BatteryCell chemistryNo. of battery modulesNominal voltageNominal capacityMax. discharge depthMax. charge / discharge currentMax. charge / discharge powerAC GridGrid voltageGrid frequencyNominal powerMax. active power PEmaxMax. currentMax. currentTHDIPower factor (cosφ)Backup powerNominal powerNominal powerNominal powerCost of the powerCost of the powerCost of the powerNominal powerCost of the powerNominal powerCost of the powerNominal powerNominal powerNominal powerNominal powerNominal powerNominal powerNominal power (short time)Cost of the powerNax. power (short time)Cost of the power	LFP (Lithium 5 - 6 250-300 V 12-14.4 kWh 12.5-15 kW / 11.3 kW 3/N/PE 2 5 1 1 1 1 1 3 x 3 x 3 x 1 (adjustable 0.8	Iron Phosphate) 7 - 10 350-500 V 16.8-24 kWh 95% 50 A 15 kW / 11.3 kW 230/400V AC 50 Hz 0 kW 1 kW 1 kVA 1 kVA 14.5 A x 25 A 3% Ieading - 0.8 lagging) 0 kVA in), 15 kVA (10 s)

Subject to changes and errors, all information without guarantee

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		
General Data Ambient temperature discharge/charge	-20° +60°C /	/ 0°C +55°C
General Data Ambient temperature discharge/charge Air humidity rel.	-20° +60°C / 5% - 95% (nor	/ 0°C +55°C n condensing)
General Data Ambient temperature discharge/charge Air humidity rel. Max. altitude	-20° +60°C / 5% - 95% (nor 4000 m (power de	/ 0°C +55°C n condensing) erating > 2000 m)
General Data Ambient temperature discharge/charge Air humidity rel. Max. altitude Topology	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor	/ 0°C +55°C n condensing) erating > 2000 m) merless
General DataAmbient temperature discharge/chargeAir humidity rel.Max. altitudeTopologyParallel operation	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor Ye	/ 0°C +55°C n condensing) erating > 2000 m) merless es
General DataAmbient temperature discharge/chargeAir humidity rel.Max. altitudeTopologyParallel operationMounting	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor Ye On ground, se	/ 0°C +55°C n condensing) erating > 2000 m) merless es es
General DataAmbient temperature discharge/chargeAir humidity rel.Max. altitudeTopologyParallel operationMountingIngress protection	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor Ye On ground, se	/ 0°C +55°C n condensing) erating > 2000 m) merless es ecured to wall 55
General DataAmbient temperature discharge/chargeAir humidity rel.Max. altitudeTopologyParallel operationMountingIngress protectionDimensions (W*H*D)	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor Ye On ground, se IPé 780 x 1760 x 240 mm (6 Bat.)	/ 0°C +55°C n condensing) erating > 2000 m) merless es ecured to wall 65 780 x 1620 x 480 mm (10 Bat.)
General DataAmbient temperature discharge/chargeAir humidity rel.Max. altitudeTopologyParallel operationMountingIngress protectionDimensions (W*H*D)Weight	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor Ye On ground, se IPe 780 x 1760 x 240 mm (6 Bat.) 215 kg (6 Bat.)	/ 0°C +55°C n condensing) erating > 2000 m) merless es ecured to wall 55 780 x 1620 x 480 mm (10 Bat.) 315 kg (10 Bat.)
General DataAmbient temperature discharge/chargeAir humidity rel.Max. altitudeTopologyParallel operationMountingIngress protectionDimensions (W*H*D)WeightCooling & noise	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor Ye On ground, se IPé 780 x 1760 x 240 mm (6 Bat.) 215 kg (6 Bat.) passive, <3	<pre>/ 0°C +55°C n condensing) erating > 2000 m) merless es ccured to wall 65 780 x 1620 x 480 mm (10 Bat.)</pre>
General DataAmbient temperature discharge/chargeAir humidity rel.Max. altitudeTopologyParallel operationMountingIngress protectionDimensions (W*H*D)WeightCooling & noiseCommunication interfaces	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor Ye On ground, se IPe 780 x 1760 x 240 mm (6 Bat.) 215 kg (6 Bat.) passive, <3 WiFi/LAN/Bluetooth (Monitoring A CAN (Battery), digitale	<pre>/ 0°C +55°C n condensing) erating > 2000 m) merless es ecured to wall 65 780 x 1620 x 480 mm (10 Bat.) 315 kg (10 Bat.) 0dB @ 1m App), RS485 (Smart Meter, HEMS), e inputs for RSE/DRM</pre>
General DataAmbient temperature discharge/chargeAir humidity rel.Max. altitudeTopologyParallel operationMountingIngress protectionDimensions (W*H*D)WeightCooling & noiseCommunication interfacesDisplay, UI	-20° +60°C / 5% - 95% (nor 4000 m (power de Transfor Ye On ground, se IPe 780 x 1760 x 240 mm (6 Bat.) 215 kg (6 Bat.) passive, <3 WiFi/LAN/Bluetooth (Monitoring A CAN (Battery), digitale Status-LED-Panel	/ 0°C +55°C n condensing) erating > 2000 m) merless es ecured to wall 65 780 x 1620 x 480 mm (10 Bat.) 315 kg (10 Bat.) 0dB @ 1m App), RS485 (Smart Meter, HEMS), inputs for RSE/DRM , Monitoring App

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





780mm

240mm

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!