

UNINTERRUPTIBLE POWER SYSTEMS · IEC / UK MARKET

RED3300-E Series
Three-phase Online UPS

10 – 200 kVA · 380/400/415 Vac · 3:3 phase · double conversion

Tower UPS for commercial, industrial and IT critical loads — including the PureWave T30 and T40 — in standard (internal battery) and long-run (external battery) builds, with parallel redundancy and efficiency up to 95.5 %.

DOCUMENT NO.	SDE-DS-IEC-001
REVISION	V1.0
DATE	6 November 2026
MARKET	United Kingdom / IEC

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Units. All quantities are stated in SI units to UK practice (V, A, kVA/kW, Ah, °C, mm, kg, m ASL). Figures are typical values for reference only and are not a basis for engineering design.

1 Overview

The RED3300-E Series is a three-phase in / three-phase out, true double-conversion online UPS family for the UK and other IEC markets, rated at 380/400/415 Vac. DSP control and, on 50 kVA and above, a three-level inverter give double-conversion efficiency up to 95.5 % and ECO-mode efficiency up to 99 %. Every model accepts 100 % unbalanced load and is generator-compatible.

Two builds are offered at each rating. **Standard (S)** units carry their batteries internally for short autonomy; **long-run (H)** units are supplied without batteries and are paired with matched external battery cabinets sized to the autonomy required. The **PureWave T30** and **T40** are the 30 kVA and 40 kVA long-run models (RED3330H-E and RED3340H-E).



10 – 40 kVA 50 – 80 kVA standard (S) 50 – 200 kVA long-run (H)

2 Key features

10 – 40 kVA

- High power density; online double conversion with DSP control
- N+X parallel redundancy, up to 4 units in parallel
- Wide input voltage range 208 – 478 Vac; wide input frequency range 40 – 70 Hz; input current distortion < 3 %

50 – 200 kVA

- Wide input voltage range 138 – 485 Vac (phase voltage 80 – 280 Vac); no derating at ≥ 305 Vac
- Input power factor up to 0.99
- Three-level inverter topology, efficiency up to 95.5 %
- Parallel expansion to 6 units, with shared battery option

- Optimised battery strings: 10 – 30 kVA 16/18/20 blocks (30 – 50 supported); 40 kVA 30 – 50 blocks; 7 Ah / 9 Ah 12 V
- Charging current up to 20 A (settable); dual input source (optional on standard units)
- Segment LCD as standard; 2.4" TFT colour or 7" colour LCD optional
- ECO mode, intelligent fan speed control, self-test at start-up, cold start, 50/60 Hz frequency-converter mode
- Protection: short circuit, overload, over-temperature, battery overcharge and over-discharge, output low voltage, fan fault alarm
- USB, RS-232, RS-485, parallel port, dry contact, intelligent slot; SNMP card, dry-contact card and battery temperature sensor optional
- Output power factor 1.0 — supplies 100 % unbalanced load; accepts fully inductive or capacitive loads
- Power Walk-In soft start reduces inrush and the generator rating required
- LBS (load bus synchronisation) for dual-bus systems
- 50 – 80 kVA S models: integrated battery, up to 6 internal battery groups — no separate battery cabinet
- Long-run H models: VRLA or lithium-ion batteries
- USB, RS-485, RS-232, SNMP and dry-contact card

3 Range at a glance and model code

Table 2 — Range at a glance

Range	Models	Battery	Parallel	AC efficiency	Section
10 – 40 kVA standard (S)	RED3310S-E … RED3340S-E	Internal VRLA	Up to 4 units (N+X)	Up to 95.2 %	4
10 – 40 kVA long-run (H)	RED3310H-E … RED3340H-E	External VRLA cabinet	Up to 4 units (N+X)	Up to 95.2 %	4
50 – 80 kVA standard (S)	RED3350S-E … RED3380S-E	Internal VRLA, up to 6 groups	Up to 6 units	Up to 95.5 %	5
50 – 200 kVA long-run (H)	RED3350H-E … RED33200H-E	External VRLA or Li-ion	Up to 6 units	Up to 95.5 %	6

Model code. RED33 + rating (kVA) + build + -E. S = standard unit, batteries fitted internally; H = long-run unit, battery not included; -E = IEC / 380 – 415 Vac version. Example: **RED3330H-E** is a 30 kVA long-run unit (PureWave T30).

4 10 – 40 kVA

Table 3 — 10 – 40 kVA: common data (S and H models)

Parameter	Value
INPUT	
Nominal voltage	380/400/415 Vac, 3-phase + N + PE
Operating voltage range	305 – 478 Vac (full load); 208 – 478 Vac (50 % load)
Input power factor	≥ 0.99
Input current distortion (THDi)	≤ 3 % (linear load)
Input frequency range	40 – 70 Hz
Bypass voltage range	Max. voltage: 220 V: +25 % (optional +10 %, +15 %, +20 %); 230 V: +20 % (optional +10 %, +15 %); 240 V: +15 % (optional +10 %) Min. voltage: −45 % (optional −20 %, −30 %)
Bypass frequency range	50/60 Hz ±10 %

Parameter	Value
OUTPUT	
Nominal voltage	380/400/415 Vac, 3-phase + N + PE
Voltage regulation	±1 %
Output frequency	Line mode: ±1 % / ±2 % / ±4 % / ±5 % / ±10 % of rated frequency (optional); battery mode: 50/60 Hz (±0.1 %)
Crest factor	3 : 1
Voltage distortion (THDv)	≤ 2 % linear load; ≤ 5 % non-linear load
Overload — AC mode	≤110 % 60 min; ≤125 % 10 min; ≤150 % 1 min; >150 % immediate transfer to bypass
Overload — battery mode	≤110 % 10 min; ≤125 % 1 min; ≤150 % 5 s; >150 % immediate shutdown
EFFICIENCY	
AC mode	10 kVA: up to 93.5 %; 15 – 20 kVA: up to 94.5 %; 30 – 40 kVA: up to 95.2 %
ECO mode	10 kVA: up to 98.0 %; 15 – 20 kVA: up to 98.2 %; 30 – 40 kVA: up to 98.6 %
BATTERY	
Battery type	VRLA (maintenance-free lead-acid)
ENVIRONMENTAL	
Operating temperature	0 – 40 °C
Storage temperature	−25 – 55 °C (without battery)
Relative humidity	0 – 95 % (non-condensing)
Altitude	< 1000 m ASL; derating required above 1000 m
STANDARDS	
Safety	IEC/EN 62040-1, IEC/EN 62477-1
EMC	IEC/EN 62040-2 (IEC 61000-2-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11)
Performance	IEC 62040-3:2021, EN IEC 62040-3:2021

Table 4 — 10 – 40 kVA standard (S) models, internal batteries

Model	kVA/ kW	Battery voltage (Vdc)	Charging current max. (A)	W × D × H (mm)	Weight (kg)	Noise (dB)
RED3310S-E	10/10	Chassis 1: ±120 (20 × 9 Ah) (20 × 7 Ah, 2 × 20 × 7/9 Ah, 3 × 20 × 7/9 Ah optional) Chassis 2: ±96 (16 × 9 Ah)	1.35 (2.7 optional)	Chassis 1: 250 × 900 × 868 Chassis 2: 250 × 645 × 715	Chassis 1: 129 (20 × 9 Ah) Chassis 2: 80 (16 × 9 Ah)	< 55
RED3315S-E	15/15	±120 (2 × 20 × 9 Ah) (2 × 20 × 7 Ah, 3 × 20 × 7/9 Ah optional)	2.7	250 × 900 × 868	186 (2 × 20 × 9 Ah)	< 55
RED3320S-E	20/20	±120 (2 × 20 × 9 Ah) (2 × 20 × 7 Ah, 3 × 20 × 7/9 Ah optional)	2.7	250 × 900 × 868	187 (2 × 20 × 9 Ah)	< 58
RED3330S-E	30/30	±120 (3 × 20 × 9 Ah) (3 × 20 × 7 Ah optional)	4.05	250 × 900 × 868	236 (3 × 20 × 9 Ah)	< 61
RED3340S-E	40/40	±180 (2 × 30 × 9 Ah) (2 × 30 × 7 Ah optional)	2.7	250 × 900 × 868	239 (2 × 30 × 9 Ah)	< 64

Table 5 — 10 – 40 kVA long-run (H) models, external batteries

Model	kVA/kW	Charging current max. (A)	W × D × H (mm)	Weight (kg)	Noise (dB)
RED3310H-E	10/10	14	250 × 580 × 655	35	< 55
RED3315H-E	15/15	16	250 × 580 × 655	39	< 55
RED3320H-E	20/20	18	250 × 580 × 655	40	< 58
RED3330H-E PureWave T30	30/30	20	250 × 580 × 655	43	< 61
RED3340H-E PureWave T40	40/40	20	250 × 580 × 655	46	< 64

Table 6 — 10 – 40 kVA long-run (H) models: battery

Parameter	Value
Battery voltage — 10 – 30 kVA	±96/108/120 Vdc; 16 – 20 blocks (16 default). 20 blocks: no power derating; 18 blocks: output PF 0.8/0.9; 16 blocks: output PF 0.7/0.8. ±180 – 300 Vdc (30 – 50 blocks) also supported
Battery voltage — 40 kVA	±180 – 300 Vdc (30 – 50 blocks)

Table 7 — Matching battery cabinets for 10 – 40 kVA (VRLA, with neutral connection)

Cabinet	System voltage (Vdc)	Blocks	Capacity (Ah)	W × D × H (mm)	Weight 7/9 Ah (kg)
RED-BT 40-120N	±120	2 × 20	7/9	250 × 619 × 616 (with castors)	122/134
RED-BT 80-120N (20 kVA)	±120	4 × 20	7/9	250 × 900 × 868 (with castors)	244/265
RED-BT 80-120N (30 kVA)	±120	4 × 20	7/9	250 × 900 × 868 (with castors)	244/265
RED-BT 60-180N (40 kVA)	±180	2 × 30	7/9	250 × 900 × 868 (with castors)	200/215
RED-BT 80-240N (40 kVA)	±240	2 × 40	7/9	250 × 900 × 868 (with castors)	244/265

Table 8 — Battery cabinets: common data

Parameter	Value
Battery type	VRLA (maintenance-free lead-acid)
Typical recharge time	6 – 8 h (to 90 % of full capacity)
Typical battery life	3 – 5 years, depending on discharge cycling and ambient temperature
Operating temperature / humidity	0 – 40 °C; 0 – 95 % (non-condensing)
Altitude	< 1000 m ASL; derating required above 1000 m
Noise	< 40 dB
Safety	IEC/EN 62040-1, IEC/EN 62477-1
Designation	e.g. RED-BT 80-240N: 80 = number of blocks in the cabinet; 240 = battery system voltage; N = with neutral connection

5 50 – 80 kVA standard (S) models

Table 9 — 50 – 80 kVA standard (S) models, internal batteries

Model	kVA/kW	Charging current max. (A)	W × D × H (mm)	Weight (kg)	Noise (dB)
RED3350S-E	50/50	20	600 × 1000 × 2000	740	< 58
RED3360S-E	60/60	20	600 × 1000 × 2000	950	< 60
RED3380S-E	80/80	40	600 × 1000 × 2000	1000	< 62

Table 10 — 50 – 80 kVA standard (S) models: series data

Parameter	Value
INPUT	
Nominal voltage	380/400/415 Vac, 3-phase + N + PE
Operating voltage range	138 – 305 Vac at 40 % load; 305 – 485 Vac at 100 % load (phase voltage 80 – 280 Vac)
Input power factor	≥ 0.99
Input current distortion (THDi)	≤ 3 % (linear load)
Bypass frequency range	50/60 Hz ±10 %
OUTPUT	
Nominal voltage	380/400/415 Vac, 3-phase + N + PE
Voltage regulation	±1 %
Output frequency	Line mode: synchronised with input; when input frequency exceeds ±10 % (±1 % / ±2 % / ±4 % / ±5 % optional), output 50/60 Hz (±0.1); battery mode: 50/60 Hz ±0.2 %
Crest factor	3 : 1
Voltage distortion (THDv)	≤ 2 % linear load; ≤ 4 % non-linear load
Overload — bypass mode	30 °C: 135 % long term; 40 °C: 125 % long term; >1000 % for 100 ms
EFFICIENCY	
AC mode	Up to 95.5 %
ECO mode	Up to 99 %
Bypass voltage range	Max. voltage: 220 V: +25 % (optional +10 %, +15 %, +20 %); 230 V: +20 % (optional +10 %, +15 %); 240 V: +15 % (optional +10 %) Min. voltage: −45 % (optional −20 %, −30 %)
Overload — inverter mode	≤110 % 60 min; ≤125 % 10 min; ≤150 % 1 min; >150 % immediate inverter shutdown
BATTERY	
Battery type	VRLA, internal (up to 6 battery groups)
Battery voltage	±240 Vdc (6 × 40 blocks, 12 V 9 Ah)
ENVIRONMENTAL	
Operating temperature	0 – 40 °C
Storage temperature	−25 – 55 °C (without battery)
Relative humidity	0 – 95 % (non-condensing)
Altitude	< 1000 m ASL; derating required above 1000 m
STANDARDS	
Safety	IEC/EN 62040-1, IEC/EN 62477-1
EMC	IEC/EN 62040-2 (IEC 61000-2-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11)
Performance	IEC 62040-3:2021, EN IEC 62040-3:2021

6 50 – 200 kVA long-run (H) models

Table 11 — 50 – 200 kVA long-run (H) models, external batteries

Model	kVA/kW	Charging current max. (A)	W × D × H (mm)	Weight (kg)	Noise (dB)
RED3350H-E	50/50	20	250 × 828 × 868	80	< 55
RED3360H-E	60/60	20	250 × 828 × 868	83	< 58
RED3380H-E	80/80	40	442 × 850 × 1200	144	< 60
RED33100H-E	100/100	40	442 × 850 × 1200	147	< 62
RED33120H-E	120/120	60	442 × 850 × 1200	152	< 62
RED33150H-E	150/150	60	442 × 850 × 1200	190	< 63
RED33160H-E	160/160	60	442 × 850 × 1200	200	< 63
RED33180H-E	180/180	60	442 × 850 × 1200	220	< 64
RED33200H-E	200/200	60	442 × 850 × 1200	230	< 66

Table 12 — 50 – 200 kVA long-run (H) models: series data

Parameter	Value
INPUT	
Nominal voltage	380/400/415 Vac, 3-phase + N + PE
Operating voltage range	138 – 305 Vac at 40 % load; 305 – 485 Vac at 100 % load (phase voltage 80 – 280 Vac)
Input power factor	≥ 0.99
Input current distortion (THDi)	≤ 3 % (linear load)
Bypass frequency range	50/60 Hz ±10 %
OUTPUT	
Nominal voltage	380/400/415 Vac, 3-phase + N + PE
Voltage regulation	±1 %
Output frequency	Line mode: synchronised with input; when input frequency exceeds ±10 % (±1 % / ±2 % / ±4 % / ±5 % optional), output 50/60 Hz (±0.1); battery mode: 50/60 Hz ±0.2 %
Crest factor	3 : 1
Voltage distortion (THDv)	≤ 2 % linear load; ≤ 4 % non-linear load
Overload — bypass mode	30 °C: 135 % long term; 40 °C: 125 % long term; >1000 % for 100 ms
EFFICIENCY	
AC mode	Up to 95.5 %
ECO mode	Up to 99 %
Bypass voltage range	Max. voltage: 220 V: +25 % (optional +10 %, +15 %, +20 %); 230 V: +20 % (optional +10 %, +15 %); 240 V: +15 % (optional +10 %) Min. voltage: −45 % (optional −10 %, −15 %, −20 %, −30 %)
Overload — inverter mode	50 – 180 kVA: ≤110 % 60 min; ≤125 % 10 min; ≤150 % 1 min; >150 % 1.2 s inverter shutdown 200 kVA: ≤110 % 60 min; ≤125 % 1 min; >125 % 1.2 s inverter shutdown
BATTERY	
Battery type	VRLA or lithium-ion, external
Battery voltage	360 – 600 Vdc
ENVIRONMENTAL	

Parameter	Value
Operating temperature	0 – 40 °C
Storage temperature	−25 – 55 °C (without battery)
Relative humidity	0 – 95 % (non-condensing)
Altitude	< 1000 m ASL; derating required above 1000 m
STANDARDS	
Safety	IEC/EN 62040-1, IEC/EN 62477-1
EMC	IEC/EN 62040-2 (IEC 61000-2-2, IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11)
Performance	IEC 62040-3:2021, EN IEC 62040-3:2021

7 Certification and application notes

- Designed and tested to IEC/EN 62040-1 (safety), IEC/EN 62040-2 (EMC) and IEC/EN 62040-3 (performance), and IEC/EN 62477-1.
- EMC certificates of conformity (EMC Directive 2014/30/EU; EN IEC 62040-2:2018, EN 61000-3-12:2011, EN 61000-3-11:2000) cover the 10 – 20 kVA models (certificate ES201225018E) and the 30 – 40 kVA models (certificate ES201225020E). Copies are available on request.
- Altitude above 1000 m ASL requires derating.
- Battery autonomy, string configuration and battery cabinet selection are sized per project — contact us with load and runtime requirements.
- Specifications are subject to change without prior notice.

8 Contact

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