



Yuasa Endurance Range **YUASA** VRLA Batteries



- Typical 10 year service life
- Suitable for use in any orientation (excluding continuous use inverted)
- Standard case material is flame retardant to (UL94) HBO
- Designed, manufactured & tested to IEC896-2 and BS6290-4
-  Approval

Description

AN ENHANCED VRLA DESIGN FOR CRITICAL DC STANDBY APPLICATIONS

The Yuasa Endurance range provide an extremely reliable and versatile valve regulated lead acid battery, designed to meet the requirements of high integrity applications such as Telecommunications and the Utility industry.

Their unique construction and sealing techniques ensures that no electrolyte leakage can occur, and provides safe and effective operation in any orientation, and meets all requirements of the International Air Transport Association (I.A.T.A Dangerous Goods Regulations) to allow transportation by air.

All Yuasa Endurance batteries have been designed and tested to ensure full compliance with BS 6920 Part 4 and are UL approved, requiring virtually no maintenance throughout the designed service life of 10 years plus.

They are equipped with a safe, low pressure venting system which is designed to release excess gas and reseal automatically in the event the internal gas pressure rises to an unacceptable level.

The Yuasa Endurance range is typically suited for standby applications, examples of which are:

- Telephone Exchanges
- Telecommunications
- Uninterruptible Power Supplies (UPS)
- Emergency Lighting
- Alarm Systems
- Security Systems
- Computers

Product Specification

Voltage Range:

nominal voltages 2V, 4V and 6V ranges

Capacity Range:

nominal capacity
 2V range 320Ah - 480Ah
 4V range 80Ah - 160Ah
 6V range 80Ah - 160Ah

Charging

charging methods (recommended) constant voltage charging
 Two stage constant voltage charging

recommended float charge 2.26 Volts per cell \pm 0.005V
 (at 20°C)

NOTE: High ripple current will greatly reduce the service life of a battery

General:

operating temperature range
 charge -15 to +50°C
 discharge -20 to +60°C
 storage -20 to +50°C
 (fully charged condition)

Conforms to BS 6290 Part 4 / IEC896-2

Battery Selection Chart

TABLE 1 CONSTANT CURRENT DISCHARGE PERFORMANCE DATA

END VOLTS per cell	AMPS / AH AUTONOMY @ 20 DEG C																		
	MINUTES							HOURS											
	5	10	15	20	25	30	45	1	1.5	2	3	4	5	6	7	8	9	10	24
1.60	3.4	2.4	1.9	1.5	1.3	1.2	.89	.72	.52	.41	.29	.23	.19	.16	.14	.13	.11	.10	.04
1.63	3.3	2.4	1.8	1.5	1.3	1.1	.88	.72	.52	.41	.29	.23	.19	.16	.14	.13	.11	.10	.04
1.65	3.2	2.3	1.8	1.5	1.3	1.1	.88	.71	.51	.41	.29	.23	.19	.16	.14	.13	.11	.10	.04
1.67	3.1	2.3	1.8	1.5	1.3	1.1	.87	.71	.51	.41	.29	.23	.19	.16	.14	.13	.11	.10	.04
1.70	3.1	2.2	1.8	1.5	1.3	1.1	.87	.70	.51	.41	.29	.22	.18	.16	.14	.13	.11	.10	.04
1.75	2.7	2.1	1.7	1.4	1.2	1.1	.85	.68	.50	.39	.28	.22	.18	.16	.14	.12	.11	.10	.04
1.80	2.4	1.9	1.5	1.3	1.1	1	.81	.66	.48	.38	.27	.21	.18	.15	.13	.12	.11	.10	.04
1.85	2	1.6	1.3	1.2	1	.97	.76	.62	.46	.37	.27	.21	.17	.15	.13	.12	.11	.10	.04

Table 1, above, will allow battery selection to be made for Constant Current load conditions. It should be used by mapping the required load time to the allowed end of discharge voltage "End Volts". The figure obtained is the constant current output available for each 1Ah Endurance battery unit, divide this number into the required load to calculate required battery capacity.

Example: Load condition 22A constant current
 Load time 4 hours
 Load voltage, nominal 48V to end voltage 40.8V

- As lead acid batteries have a nominal single cell voltage of 2V each, divide nominal load voltage by 2 to determine the number of cells required, 48V / 2V = 24 cells.
- Divide End voltage by the answer to 1 above, to determine "End Volts" per cell, 40.8V / 24 cells = 1.7Vpc
- Using table 1, map End Volts per cell "1.7" against Load time "4 hrs" to give constant current output of 0.22
- Divide answer "0.22" into Load of 22A to give battery capacity required i.e. 100Ah
- From table 2, below, select battery model and quantity, i.e. EN100-6 times 8pcs.

TABLE 2 GENERAL SPECIFICATION

Model	Nominal Voltage	Nominal Capacity (Ah)	Dimensions				Terminals
	(V)	(10Hr)	L (mm)	W (mm)	Height over Terminals (mm)	Weight Approx (Kg)	
EN80-4	4	80	200	208	238	17	8mm STUD
EN80-6	6	80	200	208	238	22	8mm STUD
EN100-4	4	100	200	208	238	17.5	8mm STUD
EN100-6	6	100	200	208	238	23	8mm STUD
EN160-4	4	160	206	210	240	24	8mm STUD
EN160-6	6	160	305	210	240	35	8mm STUD
EN320-2	2	320	206	210	240	24	8mm STUD
EN480-2	2	480	305	210	240	35	8mm STUD

CAUTION

Follow these precautions when using and charging these batteries:



- Avoid short-circuit
- Do not charge in a sealed container
- Service life and operational characteristics will be affected by temperature
- AC Ripple reduces service life

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