

SPB OVERVIEW

Valve Regulated AGM batteries

The SPB range of SUNLIGHT Valve Regulated Lead Acid batteries has been developed as advanced series, to provide reliable performance in the Uninterruptible Power Supply, Telecom, Information Technology and Emergency Power Supply Systems.

The Valve Regulated Lead Acid (VRLA) battery is a rechargeable battery type with a safety valve, which allows the internal pressure to be released in case of overcharge. This battery type is maintenance free as there is no need for topping-up water or electrolyte during the entire service life.

The SUNLIGHT SPB range of VRLA batteries features models with capacity from 33 up to 200Ah. SUNLIGHT SPB batteries have been developed to offer competitive solutions to the demanding market requirements, with specifications focused on high quality and reliability.

APPLICATIONS

UPS systems
Emergency power supply in power generation plants and substations
Telecommunications and electrical equipment
Switchboards
Robots, control equipment and other factory automation equipment
Security and fire alarm systems
Broadcasting systems
Various telemeter equipment
Signalization



CERTIFIED QUALITY

- The SUNLIGHT SPB 12V batteries are recognized by UL (File No MH18852).
- The SUNLIGHT Manufacturing Plant is certified according to ISO 9001:2000 and ISO 14001:2004.
- The SUNLIGHT SPB batteries comply with IEC 60896 Part 21 & 22 and BS6290 Part 4.
- As a member of EUROBAT organization SYSTEMS SUNLIGHT S.A. closely monitors the latest developments in the battery industry.
- Products are 100% tested and checked prior to shipment.
- The SUNLIGHT SPB batteries are completely recyclable.

QUALITY FEATURES & PRODUCT BENEFITS

High Performance

With low internal resistance and efficient discharge characteristics, SUNLIGHT SPB batteries can be applied to many fields, both in cycle and stand by use.

Maintenance Free

During the service life, there is no need to check the level of the electrolyte or to add water. The gases produced during electrolysis are almost completely recombined to water (up to 99%) through an effective reaction between hydrogen and oxygen.

Safety Valve Design

Excessive gas produced by overcharge or an incorrect charging method is released through the safety valve, which detects rising internal pressure and allows gas to exit; then automatically reseals.

Separator Technology

The Absorbent Glass Mat (AGM) separator, used in the SUNLIGHT batteries, is a highly porous material, which achieves maximization of oxygen diffusion and facilitates the reaction of active materials in the plates. The separator also maintains a constant distance between the positive and the negative plates and immobilizes the electrolyte, so that the possibility of acid leakage is minimized.

Performance on Wide Temperature Range

SUNLIGHT SPB batteries operate within a wide range of temperature while the optimum temperature for the operation of the battery is 20°C - 25°C.

Low Self-discharge Rate

Using a lead / calcium grid alloy, the self-discharge is minimum. The battery can be stored for 9 months under normal conditions (20°C - 25°C) with no permanent effect on the capacity or the expected service life.

Leak and Spill Proof Container

The construction of the SUNLIGHT SPB battery guarantees that no electrolyte leakage can occur from the terminals or case. A highly resistant plastic material is used, available in either standard ABS (UL94 HB) or flame retardant type (UL94 V-0).

Float Service Life

The nominal service life is 12 years in float / standby applications (20°C).

Multi-position Usage

The sealed construction of the battery allows perfect operation in any position (vertical or horizontal but not completely inverted position).

The ideal energy solution for stationary applications

FEATURES OF SPB RANGE

- Capacity Range: 33Ah to 200Ah
- Design Life: 12 years at 20°C
- Classified as: Long Life, according to EUROBAT guide 1999
- Configurations: 12V blocks available

PRODUCT RANGE

Battery Type	Nominal Voltage (V)	Nominal Capacity (Ah) at 1.80 Vpc (25°)		Length (mm)	Width (mm)	Height (mm)	Overall Height (mm)	Typical Weight (kg)	Terminal Position	Terminal Type	Internal Resistance (mΩ)
		20h	10h								
SPB 12 - 33	12	34	33	195	130	155	168	11.00	A	M6/Φ14	10.0
SPB 12 - 40	12	44	40	197	165	170	170	13.80	B	M6/Φ14	9.5
SPB 12 - 55	12	62	55	229	138	208	213	18.00	A	M6/Φ14	7.2
SPB 12 - 65	12	68	65	350	167	179	179	22.40	A	M6/Φ14	6.8
SPB 12 - 75	12	77	75	258	166	206	215	22.50	A	M6/Φ14	6.6
SPB 12 - 80	12	82	80	350	167	179	179	23.10	A	M6/Φ14	6.5
SPB 12 - 100	12	106	100	330	171	215	222	32.00	A	M6/Φ14	5.7
SPB 12 - 120	12	124	120	410	176	224	224	36.20	A	M8/Φ16	5.3
SPB 12 - 150	12	164	150	482	170	240	240	47.00	A	M8/Φ16	4.5
SPB 12 - 200	12	210	200	522	238	218	223	65.00	D	M8/Φ16	3.5

DRAWINGS

Terminal Torque Settings

M6 Terminal	6-8 Nm
M8 Terminal	9-12 Nm

Case Dimensions

Terminals

Terminal Positions

DIAGRAMS

Available Capacity vs. Temperature

Cycle Life vs. Depth of Discharge (DoD)

Typical Charging Time vs. Depth of Discharge (Initial charging current=0.2 C₁₀)

Charging Voltage - Stand by Use

Charging Voltage - Cycle Use

Self-discharge Characteristics

Temperature	Shelf Life
0 - 20°C	12 months
21 - 30°C	7 months
31 - 40°C	4 months
41 - 50°C	2,5 months

Performance Data

Discharge Constant Current at 25°C (Amperes)

End Voltage 1.90V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	52.6	41.7	27.5	20.9	17.3	11.5	9.0	5.9	3.2	1.7
SPB 12-40	64.9	51.4	33.4	25.3	20.8	13.3	10.2	6.9	3.9	2.1
SPB 12-55	94.1	76.5	51.0	38.3	31.3	18.9	14.1	9.3	5.3	3.0
SPB 12-65	106.8	86.7	55.9	41.7	34.1	20.3	15.0	10.3	6.3	3.3
SPB 12-75	127.0	108.0	71.8	53.7	43.5	25.6	18.8	12.9	7.3	3.8
SPB 12-80	136.3	112.6	73.8	55.5	45.1	26.7	19.7	13.2	7.8	4.0
SPB 12-100	145.9	121.5	82.7	63.0	52.2	32.1	24.2	16.4	9.7	5.1
SPB 12-120	184.2	153.4	100.9	76.3	61.0	36.3	26.8	18.7	11.6	6.1
SPB 12-150	224.2	191.3	128.4	96.9	79.0	48.5	36.5	24.6	14.5	8.0
SPB 12-200	273.0	233.0	163.7	129.1	106.2	65.4	49.2	33.4	19.3	10.2

End Voltage 1.85 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	56.2	44.1	28.8	21.7	17.9	11.8	9.2	6.1	3.2	1.7
SPB 12-40	69.3	54.5	35.0	26.3	21.5	13.7	10.5	7.1	3.9	2.1
SPB 12-55	100.5	81.1	53.4	39.8	32.4	19.4	14.4	9.5	5.4	3.0
SPB 12-65	114.0	91.9	58.5	43.4	35.4	20.9	15.3	10.5	6.4	3.4
SPB 12-75	134.0	112.0	73.9	55.3	44.4	26.1	19.1	13.1	7.4	3.8
SPB 12-80	143.5	117.4	76.0	56.9	46.1	27.2	20.0	13.4	7.9	4.1
SPB 12-100	158.8	132.5	91.8	65.5	54.0	33.0	24.7	16.7	9.8	5.2
SPB 12-120	196.5	161.9	105.0	79.0	62.9	37.2	27.4	19.1	11.8	6.1
SPB 12-150	241.7	207.1	141.9	100.8	81.6	49.9	37.4	25.1	14.7	8.1
SPB 12-200	291.0	246.0	170.4	133.8	109.6	67.1	50.3	34.1	19.7	10.4

End Voltage 1.80V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	59.8	46.6	30.0	22.5	18.5	12.1	9.4	6.2	3.3	1.7
SPB 12-40	73.7	57.5	36.5	27.3	22.3	14.0	10.7	7.2	4.0	2.2
SPB 12-55	106.9	85.6	55.8	41.4	33.6	19.9	14.7	9.7	5.5	3.1
SPB 12-65	121.3	97.0	61.1	45.1	36.6	21.5	15.7	10.7	6.5	3.4
SPB 12-75	141.0	117.0	76.1	56.4	45.4	26.6	19.4	13.3	7.5	3.8
SPB 12-80	150.7	122.2	78.2	58.2	47.0	27.7	20.3	13.6	8.0	4.1
SPB 12-100	171.0	141.1	96.1	68.0	55.8	33.9	25.3	17.1	10.0	5.3
SPB 12-120	209.0	170.4	109.2	81.8	64.9	38.3	28.1	19.5	12.0	6.2
SPB 12-150	258.3	219.2	148.0	104.0	84.1	51.2	38.3	25.7	15.0	8.2
SPB 12-200	310.0	259.0	177.2	138.1	113.0	68.8	51.5	34.8	20.0	10.5

End Voltage 1.75 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	63.4	49.1	31.3	23.4	19.1	12.4	9.6	6.3	3.4	1.7
SPB 12-40	78.1	60.5	38.0	28.3	23.0	14.4	11.0	7.3	4.1	2.2
SPB 12-55	113.3	90.1	58.1	43.0	34.7	20.5	15.1	9.9	5.6	3.1
SPB 12-65	128.6	102.1	63.7	46.7	37.8	22.1	16.1	10.9	6.6	3.5
SPB 12-75	148.0	121.0	78.2	58.0	46.4	27.0	19.7	13.5	7.6	3.9
SPB 12-80	157.9	127.0	80.5	59.7	48.0	28.1	20.6	13.8	8.1	4.2
SPB 12-100	183.2	148.5	99.1	70.4	57.6	34.8	25.9	17.4	10.2	5.3
SPB 12-120	221.0	178.9	113.4	84.3	66.9	39.2	28.7	19.9	12.2	6.3
SPB 12-150	275.0	228.8	152.2	107.3	86.6	52.4	39.1	26.2	15.3	8.3
SPB 12-200	328.0	272.0	184.0	142.8	116.4	70.6	52.7	35.5	20.3	10.6

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Performance Data

Discharge Constant Current at 25°C (Amperes)

End Voltage 1.70V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	67.0	51.5	32.6	24.3	19.8	12.8	9.9	6.4	3.4	1.8
SPB 12-40	82.5	63.6	39.6	29.4	23.8	14.8	11.2	7.5	4.1	2.2
SPB 12-55	119.7	94.6	60.5	44.5	35.8	21.0	15.4	10.1	5.7	3.2
SPB 12-65	135.8	107.2	66.3	48.4	39.1	22.6	16.4	11.1	6.7	3.5
SPB 12-75	154.0	126.0	80.3	59.5	47.3	27.5	20.0	13.7	7.7	3.9
SPB 12-80	165.1	131.9	82.7	61.0	49.0	28.6	20.9	14.0	8.2	4.2
SPB 12-100	194.8	156.3	100.2	72.9	59.4	35.7	26.5	17.8	10.3	5.4
SPB 12-120	233.0	187.4	117.5	87.0	68.8	40.2	29.3	20.3	12.4	6.4
SPB 12-150	290.5	240.1	153.3	110.7	89.2	53.8	40.0	26.7	15.5	8.4
SPB 12-200	347.0	285.0	190.7	147.5	119.8	72.3	53.8	36.2	20.7	10.8

End Voltage 1.65 V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	70.5	54.0	33.9	25.1	20.4	13.1	10.1	6.5	3.5	1.8
SPB 12-40	86.9	66.6	41.1	30.3	24.5	15.2	11.5	7.6	4.2	2.3
SPB 12-55	126.1	99.2	62.9	46.0	36.9	21.6	15.8	10.3	5.8	3.2
SPB 12-65	143.1	112.4	68.9	50.2	40.3	23.2	16.8	11.3	6.8	3.6
SPB 12-75	161.0	131.0	82.5	60.6	48.3	28.0	20.3	13.9	7.8	4.0
SPB 12-80	172.4	136.7	84.9	62.4	50.0	29.1	21.2	14.2	8.3	4.3
SPB 12-100	209.8	163.0	101.7	75.3	61.2	36.6	27.1	18.1	10.5	5.5
SPB 12-120	246.0	196.0	121.7	89.8	70.8	41.2	30.0	20.6	12.6	6.5
SPB 12-150	311.5	248.7	155.1	114.0	91.7	55.0	40.8	27.2	15.8	8.5
SPB 12-200	365.0	298.0	197.5	152.2	123.2	74.1	55.0	36.9	21.0	10.9

End Voltage 1.60V/cell										
	10 min	15 min	30 min	45 min	1 h	2 h	3 h	5 h	10 h	20 h
SPB 12-33	74.1	56.5	35.1	25.9	21.0	13.4	10.3	6.7	3.5	1.8
SPB 12-40	91.3	69.7	42.7	31.4	25.3	15.6	11.7	7.8	4.3	2.3
SPB 12-55	132.5	103.7	65.2	47.5	38.1	22.1	16.1	10.5	5.9	3.2
SPB 12-65	150.3	117.5	71.5	51.8	41.5	23.8	17.2	11.6	6.9	3.6
SPB 12-75	168.0	135.0	84.6	62.1	49.2	28.4	20.6	14	7.9	4.0
SPB 12-80	179.6	141.5	87.1	63.8	51.0	29.6	21.5	14.4	8.4	4.3
SPB 12-100	221.3	169.7	104.0	77.7	63.0	37.5	27.7	18.5	10.7	5.6
SPB 12-120	258.0	204.0	125.9	92.5	72.7	42.1	30.6	21.0	12.8	6.6
SPB 12-150	326.2	258.2	159.7	117.9	94.3	56.4	41.7	27.7	16.0	8.6
SPB 12-200	384.0	311.0	204.0	156.6	126.6	75.8	56.1	37.6	21.4	11.1

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Performance Data

Discharge Constant Power at 25°C (Watts/cell)

End Voltage 1.90V/cell										
	5 min	10min	15 min	30min	45 min	1 h	2h	3h	5h	10h
SPB 12-33	138.6	103.8	81.4	54.7	41.7	34.6	23.1	18.2	12.3	6.7
SPB 12-40	168.1	125.8	100.0	65.9	50.7	42.2	27.6	21.1	14.4	8.1
SPB 12-55	233.0	183.7	147.2	100.2	76.5	63.3	40.8	29.9	18.6	10.6
SPB 12-65	264.0	201.0	164.6	111.0	83.4	68.5	42.6	31.1	20.9	12.8
SPB 12-75	285.0	235.0	194.0	132.0	101	83.0	50.6	36.9	24.8	14.1
SPB 12-80	322.0	267.0	222.0	151.1	115.2	94.4	57.4	41.6	27.5	16.3
SPB 12-100	352.5	283.8	235.9	166.5	129.2	108.3	68.7	50.2	33.1	19.6
SPB 12-120	407.0	351.0	297.0	210.0	161.0	129.9	77.4	57.1	39.5	24.5
SPB 12-150	488.8	436.3	375.6	271.9	210.0	174.0	108.4	78.4	51.6	30.4
SPB 12-200	591.0	530.0	453.0	346.0	274.0	226.0	139.9	102.1	69.7	40.3

End Voltage 1.85 V/cell										
	5 min	10min	15 min	30min	45 min	1 h	2h	3h	5h	10h
SPB 12-33	148.8	109.9	85.6	56.9	43.1	35.7	23.6	18.6	12.4	6.5
SPB 12-40	180.4	133.2	105.1	68.6	52.5	43.5	28.2	21.5	14.6	8.0
SPB 12-55	250.0	194.5	154.8	104.3	79.2	65.3	41.7	30.5	18.8	10.7
SPB 12-65	284.0	213.0	173.0	115.5	86.3	70.7	43.5	31.6	21.2	12.9
SPB 12-75	305.0	247.0	202.0	136.0	104.0	84.8	51.4	37.5	25.2	14.2
SPB 12-80	341.0	277.0	229.0	154.0	116.8	95.4	57.8	41.8	27.7	16.3
SPB 12-100	389.6	305.0	254.4	182.9	133.1	111.1	70.0	50.9	33.4	19.6
SPB 12-120	442.0	370.0	309.0	216.0	165.0	132.8	78.8	57.9	39.8	24.6
SPB 12-150	535.5	464.1	400.7	296.9	216.0	177.9	110.3	79.6	52.1	30.5
SPB 12-200	641.0	559.0	472.0	356.0	281.0	231.0	142.4	103.6	70.3	40.6

End Voltage 1.80V/cell										
	5 min	10min	15 min	30min	45 min	1 h	2h	3h	5h	10h
SPB 12-33	159.0	116.0	89.8	59.1	44.6	36.8	24.1	18.9	12.6	6.7
SPB 12-40	192.7	140.6	110.2	71.3	54.3	44.8	28.9	21.9	14.7	8.2
SPB 12-55	267.0	205.0	162.4	108.4	81.9	67.3	42.7	31.0	19.0	10.8
SPB 12-65	303.0	225.0	181.5	120.0	89.2	72.8	44.5	32.2	21.4	13.0
SPB 12-75	326.0	259.0	210.0	140.0	106.0	86.6	52.3	38.2	25.6	14.4
SPB 12-80	360.0	288.0	236.0	156.8	118.4	96.5	58.1	42.0	27.8	16.4
SPB 12-100	425.4	324.9	268.3	190.0	137.0	114.0	71.3	51.7	33.7	19.7
SPB 12-120	476.0	389.0	322.0	222.0	169.0	135.7	80.1	58.8	40.2	24.7
SPB 12-150	580.2	490.0	419.6	306.6	221.0	181.8	112.2	80.7	52.6	30.7
SPB 12-200	691.0	587.0	491.0	366.0	287.0	236.0	144.8	105.1	71.0	40.8

End Voltage 1.75 V/cell										
	5 min	10min	15 min	30min	45 min	1 h	2h	3h	5h	10h
SPB 12-33	169.2	122.1	93.9	61.3	46.1	37.8	24.6	19.2	12.7	6.9
SPB 12-40	205.0	148.0	115.4	74.0	56.1	46.1	29.5	22.2	14.9	8.4
SPB 12-55	284.0	216.0	169.9	112.4	84.6	69.2	43.6	31.5	19.2	10.9
SPB 12-65	322.0	237.0	189.9	124.5	92.1	74.9	45.5	32.7	21.6	13.1
SPB 12-75	346.0	272.0	218.0	144.0	109.0	88.5	53.2	38.8	25.9	14.6
SPB 12-80	379.0	299.0	243.0	159.6	120.0	97.5	58.5	42.2	27.9	16.4
SPB 12-100	461.4	345.1	279.8	194.6	140.9	116.9	72.6	52.5	34.0	19.8
SPB 12-120	510.0	408.0	334.0	229.0	172.9	138.6	81.4	59.6	40.6	24.9
SPB 12-150	625.2	516.0	434.7	312.2	226.0	185.7	114.1	81.8	53.1	31.0
SPB 12-200	741.0	615.0	510.0	376.0	294.0	241.0	147.2	106.5	71.7	41.0

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Performance Data

Discharge Constant Power at 25°C (Watts/cell)

End Voltage 1.70V/cell										
	5 min	10min	15 min	30min	45 min	1 h	2h	3h	5h	10h
SPB 12-33	179.4	128.2	98.1	63.5	47.5	38.9	25.1	19.5	12.9	6.9
SPB 12-40	217.0	155.4	120.5	76.6	57.8	47.4	30.1	22.6	15.1	8.3
SPB 12-55	301.0	227.0	177.5	116.5	87.3	71.2	44.5	32.1	19.4	10.9
SPB 12-65	342.0	249.0	198.4	129.0	95.0	77.1	46.4	33.3	21.9	13.2
SPB 12-75	368.0	284.0	227.0	148.0	112.0	90.4	54.1	39.4	26.4	14.8
SPB 12-80	398.0	309.0	249.0	162.5	121.6	98.6	58.9	42.5	28.1	16.5
SPB 12-100	495.4	363.6	292.1	195.1	144.8	119.7	73.9	53.2	34.3	19.8
SPB 12-120	545.0	426.0	347.0	235.0	176.9	141.5	82.8	60.4	40.9	25.0
SPB 12-150	667.4	539.7	450.1	311.5	231.0	189.6	116.0	83.0	53.6	31.1
SPB 12-200	791.0	644.0	529.0	386.0	301.0	246.0	149.7	108.0	72.3	41.3

End Voltage 1.65 V/cell										
	5 min	10min	15 min	30min	45 min	1 h	2h	3h	5h	10h
SPB 12-33	189.5	134.3	102.3	65.8	49.0	40.0	25.7	19.9	13.0	7.0
SPB 12-40	230.0	162.8	125.7	79.3	59.6	48.8	30.7	23.0	15.2	8.4
SPB 12-55	318.0	238.0	185.1	120.6	90.0	73.2	45.4	32.6	19.7	11.1
SPB 12-65	361.0	260.0	207.0	133.5	98.0	79.2	47.4	33.8	22.1	13.3
SPB 12-75	389.0	297.0	235.0	152.0	114.0	92.3	55.0	40.0	26.8	15.0
SPB 12-80	418.0	320.0	256.0	165.3	123.2	99.6	59.2	42.7	28.2	16.5
SPB 12-100	539.2	389.2	302.3	196.8	148.7	122.6	75.2	54.0	34.6	20.1
SPB 12-120	579.0	445.0	359.0	241.0	180.9	144.4	84.1	61.2	41.3	25.3
SPB 12-150	721.7	573.8	463.3	312.6	236.0	193.4	117.9	84.1	54.1	31.4
SPB 12-200	840.0	672.0	548.0	396.0	308.0	251.0	152.1	109.5	73.0	41.5

End Voltage 1.60V/cell										
	5 min	10min	15 min	30min	45 min	1 h	2h	3h	5h	10h
SPB 12-33	199.7	140.4	106.5	68.0	50.4	41.1	26.2	20.2	13.1	6.8
SPB 12-40	242.0	170.1	130.8	82.0	61.4	50.1	31.4	23.4	15.4	8.5
SPB 12-55	335.0	248.0	192.6	124.6	92.6	75.2	46.4	33.1	19.9	11.2
SPB 12-65	381.0	272.0	215.0	138.0	100.9	81.4	48.4	34.4	22.4	13.3
SPB 12-75	412.0	310.0	245.0	156.0	117.0	94.2	55.9	40.6	27.1	15.3
SPB 12-80	437.0	330.0	263.0	168.2	124.8	100.6	59.6	42.9	28.3	16.5
SPB 12-100	573.8	408.0	312.5	199.9	152.6	125.5	76.6	54.7	35.0	20.2
SPB 12-120	613.0	464.0	371.0	247.0	184.9	147.3	85.5	62.1	41.7	25.4
SPB 12-150	764.7	597.9	475.4	317.0	242.0	197.3	119.7	85.2	54.6	31.5
SPB 12-200	890.0	701.0	567.0	407.0	315.0	256.0	154.5	111.0	73.6	41.9

Design and/or specifications are subject to change without prior notice. For clarifications and updated information, please contact your local SUNLIGHT sales representative.



Notes

ADDED VALUE SERVICES

- Design and implementation of turn-key solutions
- Installation & maintenance services according to EN50272-2 safety requirements (CE compliance)**
- 360° Technical Support 24x7 through SUNLIGHT Global Partners Network
- Training and consulting**
- Battery Collection and Recycling Services

WHY SUNLIGHT

30 years of Experience in Battery

- TOP 2 in the global advanced technology
- TOP 5 in the European industrial battery sector
- 98% of battery production is being exported
- Design and manufacturing thousands of premium solutions complying to demanding requirements

"One Stop Solution"

- From single components/products to turn-key solutions
- Robust high quality products & services portfolio
- Lifetime value maximization & total cost of ownership approach

Extensive Global Know-how & Experience

- Co-operation with TOP telecom operators and equipment providers worldwide
- A fast growing Global Partners Network

Exceptional Customer Service

- Highly experienced engineering team for design & development
- Pre-Sales & After-Sales Service providing global support
- Project Management competence

