



# LV8 AC 2-Level – High performance modular drive for industrial AC applications

## Diversity to meet customer requirements

For more than 40 years GE's Power Conversion Business is delivering equipment being used for testing automobiles and automobile components. The newly modified LV8 drive has been widely used for test bench applications. The successful testing of future technologies in E-drives with LV8 AC 2-Level test bench systems provides comprehensive, reliable and relevant measuring results for alternative drives.

## LV8 AC 2-Level – high performance application

GE Power Conversions' LV8 platform can significantly cut energy costs and lowers grid disturbances while reducing environmental impact. With its active front end (AFE) variant and regenerative capability, the LV8 AC 2-Level drives are designed for variable speed up to 25,000rpm and a power range from 250kVA up to 4MVA.

## High performance & flexibility

- Modular design
- Adaptable to the most varied special requirements
- High efficiency of power electronics
- Advanced control structures for line converter, induction motors and permanent magnet synchronous motors
- Flexible overload cycles
- Combination with remaining LV8 platform on common DC bus
- Up to 1,500Hz output frequencies
- Real time ethernet control topology

Its modular design allows the LV8 to be adjusted to customer demands such as specific power ratings and dimensions. LV8 is built to handle dynamically adaptable pulse frequencies of up to 12kHz.

These characteristics allow the converter to supply an almost sinusoidal motor voltage. When paired with a suitable filter, the LV8 is well-suited for drive-revamping applications, as it permits the continued use of existing machines not designed for converter operation. It is possible to combine it with LV8 3-Level inverters as well as to integrate our LV8 DC/DC-converters onto the same DC-link for hybrid applications.

**Real time ethernet control components in combination with high output frequencies make the LV8 platform the preferred choice for dynamic high-speed applications.**

## Customized options

The LV8 AC 2-Level can be fitted with additional options to meet special requirements:

- Forced air cooled or liquid cooled design
- Pulse frequencies up to 12kHz
- Protection classes IP23 to IP54
- Safety functions SS1 and STO with PL e
- EMC Options: C2 & EMC ILA
- Braking chopper
- User code integration for specific customer requirements

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## LV8 System & Performance Data

*High performance  
meets flexibility  
to fulfill unique  
customer needs.*

Parameter	Value
Mains supply voltage	<b>3 AC 380 - 440 V ±10%</b> <b>3 AC 480 V ±10%</b> <b>3 AC 690 V ±10%</b>
Mains frequency	<b>50/60 Hz ± 2%</b>
Max. short-circuit current of the mains supply	<b>40 kA (50kA on request)</b>
Power factor	<b>cos Φ = 1 or adjustable (depending on the power reserves)</b>
Output frequency induction motors	<b>0 - 600 Hz (higher frequencies on request)</b>
Output frequency PM synchronous motors	<b>0 - 1500 Hz</b>
Efficiency at rated power	<b>&gt; 97% for power electronics part</b>
Pulse frequency	<b>2,5 - 12 kHz (up to 16 kHz on request)</b>
Frequency accuracy	<b>0,01%</b>
Speed accuracy	<b>0,05% (in steady state, with encoder)</b>
Torque accuracy	<b>1-3% (for torque control)</b>
Active current rise time (depending on sample rate, PWM & motor characteristics)	<b>≤ 2 ms (for induction motor)</b> <b>≤ 1 ms (for PM motor)</b>
Environmental temperature	<b>During operation: +5 ... +40°C (55°C optional with derating)</b> <b>Storage: -20 ... +65°C</b>
Environmental class	<b>EN 60721-3-3: 3K3 / 3M2 / 3C2 / 2K2, no occurrence of salt fog</b>
Insulation coordination	<b>Pollution Degree 2 according to DIN EN 60664-1 and UL840</b>
Installation altitude	<b>≤ 1000 m above sea level</b> <b>Up to 2000 m with derating</b>
Installation side	<b>Indoor installation</b>
Cubicles	<b>Rittal, Type VX25, with double-bit key and rod lock</b>
Air humidity	<b>5 - 85% (condensate in the converter room must be avoided)</b>
Noise level	<b>≤ 80 dB (A) measured at 1 m distance</b>
Degree of protection	<b>IP23, others on request</b>
Cooling	<b>Air-cooled, partially liquid-cooled</b>
Color	<b>RAL 7035</b>
Dimensions and weights	<b>Project specific</b>
Approvals	<b>CE, UL, IEC 61800-5-1</b>

## LV8 AFE Type Data

Variety of flexible overload cycles available to fit your specific needs.

Parallel connections of up to five line converters possible

Line converter, air-cooled at ambient temperature 40°C at 2.5 kHz					
Type Designation	Line Voltage	Motor Voltage	Rated Power	Rated Current	DC-Link Voltage
	[V]	[V]	[kVA]	[A]	[VDC]
LV8404A-AFE	380 – 440	400 – 440	381	550	720
LV8405AX-AFE	380 – 440	400 – 440	416	600	720
LV8407A-AFE	380 – 440	400 – 440	637	920	720
LV8504A-AFE	480	460 – 500	367	530	790
LV8504AX-AFE	480	460 – 500	388	560	790
LV8506A-AFE	480	460 – 500	589	850	790
LV8604A-AFE	690	690	388	325	1070
LV8610A-AFE	690	690	910	762	1070

Line converter, liquid-cooled at inlet temperature 40°C at 2.5 kHz					
Type Designation	Line Voltage	Motor Voltage	Rated Power	Rated Current	DC-Link Voltage
	[V]	[V]	[kVA]	[A]	[VDC]
LV8405W40-AFE	380 – 440	400 – 440	416	600	720
LV8405W40X-AFE	380 – 440	400 – 440	416	600	720
LV8407W40-AFE	380 – 440	400 – 440	637	920	720
LV8505W40-AFE	480	460 – 500	416	600	790
LV8505W40X-AFE	480	460 – 500	416	600	790
LV8507W40-AFE	480	460 – 500	637	920	790
LV8606W40-AFE	690	690	514	430	1070
LV8611W40-AFE	690	690	1100	920	1070
LV8607W40Y-AFE12	690	690	625	524	1250

Line converter, liquid-cooled at inlet temperature 25°C at 2.5 kHz					
Type Designation	Line Voltage	Motor Voltage	Rated Power	Rated Current	DC-Link Voltage
	[V]	[V]	[kVA]	[A]	[VDC]
LV8405W25-AFE	380 – 440	400 – 440	416	600	720
LV8405W25X-AFE	380 – 440	400 – 440	416	600	720
LV8407W25-AFE	380 – 440	400 – 440	637	920	720
LV8505W25-AFE	480	460 – 500	416	600	790
LV8505W25X-AFE	480	460 – 500	416	600	790
LV8507W25-AFE	480	460 – 500	637	920	790
LV8606W25-AFE	690	690	562	470	1070
LV8611W25-AFE	690	690	1100	920	1070
LV8607W25Y-AFE12	690	690	674	565	1250

## LV8 AC 2-Level Type Data

Flexible overload cycles available to fit your specific needs.

Parallel connections of up to five motor inverters possible

### Motor inverter, air-cooled at ambient temperature 40°C

Type Designation	Motor Voltage	Rated Power	Rated current							DC-Link Voltage
			2.5 kHz	4 kHz	5 kHz	6 kHz	8 kHz	10 kHz	12 kHz	
	[V]	[kVA]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[VDC]
LV8404A-T IB	380 – 440	381	550	460	400	320	270	210	160	720
LV8405AX-T IB	380 – 440	416	600	470	405	350	270	205	155	720
LV8407A-T IB	380 – 440	637	920	650	520	--	--	--	--	720
LV8505A-T IB	460 – 500	459	530	420	365	315	240	140	100	790
LV8505AX-T IB	460 – 500	485	560	425	360	300	220	155	115	790
LV8508A-T IB	460 – 500	736	850	600	480	--	--	--	--	790
LV8604A-T IB	690	388	325	205	145	95	--	--	--	1070
LV8610A-T IB	690	910	762	450	330	--	--	--	--	1070

### Motor inverter, liquid-cooled at inlet temperature 40°C

Type Designation	Motor Voltage	Rated Power	Rated current							DC-Link Voltage
			2.5 kHz	4 kHz	5 kHz	6 kHz	8 kHz	10 kHz	12 kHz	
	[V]	[kVA]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[VDC]
LV8405W40-T IB	380 – 440	416	600	590	535	485	390	320	265	720
LV8405W40X-T IB	380 – 440	416	600	600	600	575	470	390	325	720
LV8407W40-T IB	380 – 440	637	920	920	920	--	--	--	--	720
LV8506W40-T IB	460 – 500	519	600	560	500	445	355	280	230	790
LV8506W40X-T IB	460 – 500	519	600	600	580	510	405	330	270	790
LV8508W40-T IB	460 – 500	796	920	920	920	--	--	--	--	790
LV8606W40-T IB	690	514	430	315	245	195	--	--	--	1070
LV8611W40-T IB	690	1100	920	900	750	--	--	--	--	1070

### Motor inverter, liquid-cooled at inlet temperature 25°C

Type Designation	Motor Voltage	Rated Power	Rated current							DC-Link Voltage
			2.5 kHz	4 kHz	5 kHz	6 kHz	8 kHz	10 kHz	12 kHz	
	[V]	[kVA]	[A]	[A]	[A]	[A]	[A]	[A]	[A]	[VDC]
LV8405W25-T IB	380 – 440	416	600	600	600	570	465	390	325	720
LV8405W25X-T IB	380 – 440	416	600	600	600	600	540	455	390	720
LV8407W25-T IB	380 – 440	637	920	920	920	--	--	--	--	720
LV8506W25-T IB	460 – 500	519	600	600	585	525	425	350	290	790
LV8506W25X-T IB	460 – 500	519	600	600	600	590	475	390	325	790
LV8508W25-T IB	460 – 500	796	920	920	920	--	--	--	--	790
LV8606W25-T IB	690	562	470	375	310	255	165	--	--	1070
LV8611W25-T IB	690	1100	920	920	860	--	--	--	--	1070