

Operation of LED-Retrofit Lamps LED Star Reflector PAR16 GU10 with various Dimmers



Legend:	green	dimmmability very good (under 25% light)
	yellow	dimmmable (under 40% light)
	red	dimmmability critical (flickering and/or noise possible, and/or only more than 40% light)
	white	not tested

T: Trailing edge phase dimmer
L: Leading edge phase dimmer
U: Universal dimmer



Manufacturer	Dimmer-Type, Model	Mains/ Power	Load Range [W]	Dimming Method	PAR16 35 36°		PAR16 50 36°		PAR16 80 36°		PAR16 80 60°		PAR16 80 120°	
					no of lamps	dim range	no of lamps	dim range	no of lamps	dim range	no of lamps	dim range	no of lamps	dim range
ABB	STD 50-3	230/50Hz	60-500	L	1-20	99-2%	100-0%	100-0%	85-0%	87-0%	85-0%	87-0%	85-0%	87-0%
Altenburger	50,3	230/50Hz			1-3	99-0%	100-0%	91-0%	92-0%	92-0%	92-0%	92-0%	92-0%	92-0%
AURORA	DSP 400	230/50Hz	400	L	1-11	99-0%	97-0%	100-0%	89-0%	89-0%	89-0%	89-0%	89-0%	89-0%
Berker	2861	230/50Hz	50-420	U	1-10	99-0%		100-0%	88-0%	88-0%	88-0%	88-0%	88-0%	88-0%
Bticino	L/N/NT4411NHC/HD/HS4411	230/50Hz			1-9	100-0%	100-0%	100-0%	93-0%	92-0%	93-0%	92-0%	93-0%	92-0%
bticino	NT4402N	230/50Hz	500	R			100-0%							
Busch-Jaeger	6513 U-102	230/50Hz	420	T	1-20	100-0%	100-0%	100-0%						
Busch-Jaeger	6523 U-102	230/50Hz	40-420	T	1-4	100-9%	100-0%	100-0%	94-3%	93-3%	94-3%	93-3%	94-3%	93-3%
Busch-Jaeger	2250 U	230/50Hz	60-600	L			65-0%	100-0%	90-1%	87-1%	90-1%	87-1%	90-1%	87-1%
Busch-Jaeger	6526 U	230/50Hz			1-20	99-20%								
CENTURY CONTROL	MULTI DIMMER	230/50Hz	60-600	U	1-4	99-0%	100-0%	100-0%	90-0%	90-0%	90-0%	90-0%	90-0%	90-0%
DimMax	420SL	230/50Hz	200	L/T					92-0%	91-0%	92-0%	91-0%	92-0%	91-0%
DINUY	RE EL1 LE1	230/50Hz	400	LED			100-0%	100-0%	91-0%	91-0%	91-0%	91-0%	91-0%	91-0%
Domintell	DimMax 420 SL	230/50Hz	200	L/T	1-16	100-0%			92-0%	91-0%	92-0%	91-0%	92-0%	91-0%
ELKO	400GLI	230/50Hz			1-11	100-0%	98-0%	100-0%	92-3%	90-0%	92-3%	90-0%	92-3%	90-0%
ELKO	315GLE	230/50Hz	20-315	T	1-20	100-0%	96-0%	100-0%	91-3%	90-0%	91-3%	90-0%	91-3%	90-0%
ELKO	600GLE/I	230/50Hz			1-11	99-1%	99-0%	100-0%	91-0%	91-0%	91-0%	91-0%	91-0%	91-0%
ELKO	600GLI	230/50Hz	40-600	U	1-20	99-0%	100-14%	100-14%	91-2%	91-2%	91-2%	91-2%	91-2%	91-2%
ELKO	420GLE/I	230/50Hz	40-420	U	1-17	100-0%		100-0%						
ELKO	1000LRI	230/50Hz			1-20	99-0%	99-0%	100-0%	87-0%	87-0%	87-0%	87-0%	87-0%	87-0%
ELKO	630GLE	230/50Hz	20-630	U	1-20	100-7%		100-0%	92-1%	92-1%	92-1%	92-1%	92-1%	92-1%
Eltako	EUD61NPN-UC	230/50Hz	5-400	R / L / C	1-15	100-0%	100-0%	100-0%	89-1%	88-1%	89-1%	88-1%	89-1%	88-1%
Feller	40200.LEDxxx	230/50Hz			1-20	100-1%			94-0%	93-0%	94-0%	93-0%	94-0%	93-0%
Feller	40600.RLC	230/50Hz	20-600	U	1-11	99-1%	99-0%	100-0%	91-0%	91-0%	91-0%	91-0%	91-0%	91-0%
Feller	40600.RC	230/50Hz			1-20	100-7%		100-0%	92-1%	92-1%	92-1%	92-1%	92-1%	92-1%
Feller	40600.RL	230/50Hz			1-20	99-0%	100-14%	100-14%	91-2%	91-2%	91-2%	91-2%	91-2%	91-2%
Feller	40420.RLC	230/50Hz			1-17	100-0%		100-0%						
Feller	31000	230/50Hz			1-20	99-0%	99-0%	100-0%	87-0%	87-0%	87-0%	87-0%	87-0%	87-0%
Gira	226200	230/50Hz			1-20	100-0%	100-20%	100-0%	90-0%	89-0%	90-0%	89-0%	90-0%	89-0%
Gira	030700	230/50Hz	20-525	T	1-20	100-0%	96-0%	100-0%	89-0%	89-0%	89-0%	89-0%	89-0%	89-0%
Gira	117600	230/50Hz	50-420	U	1-16	100-7%	100-0%	100-7%						
Gira	217400	230/50Hz	4X20-250	KNX-U	1	99-41%	100-0%	100-0%	90-29%	90-27%	90-29%	90-27%	90-29%	90-27%
Hager	WUD87	230/50Hz	400	LED-U	1-18	100-0%	100-0%	100-0%	92-0%	91-0%	92-0%	91-0%	92-0%	91-0%
Hamilton	KP1X40	230/50Hz	400				94-25%	100-0%						
Hugo Müller	paladin 872110 led	230/50Hz					100-0%	100-0%	91-0%	91-0%	91-0%	91-0%	91-0%	91-0%
Jung	225 NVDE	230/50Hz	20-500	L	1-20	100-0%	100-20%	100-0%	90-0%	89-0%	90-0%	89-0%	90-0%	89-0%
Jung	225 TDE	230/50Hz			1-20	100-0%	96-0%	100-0%	89-0%	89-0%	89-0%	89-0%	89-0%	89-0%
Jung	254 UDIE1	230/50Hz			1-16	100-7%	100-0%	100-7%						
Legrand	281084	230/50Hz	500	L										
Legrand	617030	230/50Hz	600	L										
Jung	1224 LEDUDE	230/50Hz		LED						91-6%		91-6%		91-6%
Jung	3904 REGHE	230/50Hz			1	99-41%	100-0%	100-0%	90-29%	90-27%	90-29%	90-27%	90-29%	90-27%
Legrand	665114	230/50Hz	400	U	1-9	100-0%	100-0%	100-0%	93-0%	92-0%	93-0%	92-0%	93-0%	92-0%
Legrand	574319/574339	230/50Hz	400	U	1-9	100-0%	100-0%	100-0%	93-0%	92-0%	93-0%	92-0%	93-0%	92-0%
Legrand	572239/572739	230/50Hz	400	U	1-9	100-0%	100-0%	100-0%	93-0%	92-0%	93-0%	92-0%	93-0%	92-0%
Legrand	078407/079207	230/50Hz	400	U	1-9	100-0%	100-0%	100-0%	93-0%	92-0%	93-0%	92-0%	93-0%	92-0%
Legrand	048869/048871	230/50Hz	400	U	1-9	100-0%	100-0%	100-0%	93-0%	92-0%	93-0%	92-0%	93-0%	92-0%
Legrand	067083/048869	230/50Hz	400	U	1-9	100-0%	100-0%	100-0%	93-0%	92-0%	93-0%	92-0%	93-0%	92-0%
Legrand	770061	230/50Hz	400	RL	1-14	100-0%	94-0%	100-1%						
Legrand	099314	230/50Hz	300	RL	1-12	100-0%	100-7%	100-1%	66-2%		66-2%		66-2%	
Legrand	770062	230/50Hz	400	RLC	1-16	100-0%	99-0%	100-0%	82-1%	86-1%	82-1%	86-1%	82-1%	86-1%
MASTER	DM-DGL	230/50Hz	1000	U / LED			100-0%	100-0%						
MASTER	DM-2500	230/50Hz	2500	U / LED	1-20	99-0%	100-0%	100-0%						
Merten	MEG5136-0000	230/50Hz			1-20	100-0%	96-0%	100-0%	91-3%	90-0%	91-3%	90-0%	91-3%	90-0%
Merten	MEG5134-0000	230/50Hz			1-20	100-1%			94-0%	93-0%	94-0%	93-0%	94-0%	93-0%
Merten	MEG5139-0000	230/50Hz			1-11	99-1%	99-0%	100-0%	91-0%	91-0%	91-0%	91-0%	91-0%	91-0%
Merten	MEG5137-0000	230/50Hz			1-20	100-7%		100-0%	92-1%	92-1%	92-1%	92-1%	92-1%	92-1%
Merten	MEG5133-0000	230/50Hz			1-20	99-0%	100-14%	100-14%	91-2%	91-2%	91-2%	91-2%	91-2%	91-2%
Merten	MEG5138-0000	230/50Hz			1-17	100-0%		100-0%						
Merten	MEG 5170-0300	230/50Hz	10-200	U	1-3	100-0%	100-0%	100-7%	90-0%	89-0%	90-0%	89-0%	90-0%	89-0%
Merten	MEG 5131	230/50Hz	40-400	L	1-16	99-0%	99-0%	100-0%	94-0%	94-0%	94-0%	94-0%	94-0%	94-0%
Merten	MEG 5132	230/50Hz			1-16	99-0%	99-0%	100-0%	94-0%	94-0%	94-0%	94-0%	94-0%	94-0%
Merten	MEG 5140	230/50Hz	9-100	L	1-3	99-0%	100-17%	100-17%	92-0%	91-0%	92-0%	91-0%	92-0%	91-0%
Merten	MEG 5135	230/50Hz	60-1000	L	1-20	99-0%	99-0%	100-0%	87-0%	87-0%	87-0%	87-0%	87-0%	87-0%
MK	K4501	230/50Hz	180	L	1-4	99-0%	100-7%	100-0%	88-1%	87-7%	88-1%	87-7%	88-1%	87-7%
NEXUS	881P-01	230/50Hz	400	L	1-11	100-0%	58-0%	100-0%	92-1%	92-1%	92-1%	92-1%	92-1%	92-1%
Legrand	617031	230/50Hz	1000	L	1-20	100-3%								
NIKO	310-0190001901	230/50Hz	5-200	U	1-6	99-0%	100-0%	100-0%	94-0%	93-0%	94-0%	93-0%	94-0%	93-0%
NIKO	330-0070000701	230/50Hz	5-200	U	1-5	99-0%	100-0%	100-0%	92-0%	92-0%	92-0%	92-0%	92-0%	92-0%
Odace	S520512	230/50Hz			1-20	100-1%			94-0%	93-0%	94-0%	93-0%	94-0%	93-0%

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Legend:	green	dimmbailtity very good (under 25% light)
	yellow	dimmmable (under 40% light)
	red	dimmbailtity critical (flickering and/or noise possible, and/or only more than 40% light)
	white	not tested



T: Trailing edge phase dimmer
L: Leading edge phase dimmer
U: Universal dimmer

Manufacturer	Dimmer-Type, Model	Mains/ Power	Load Range [W]	Dimming Method	PAR16 35 36°		PAR16 50 36°		PAR16 80 36°		PAR16 80 60°		PAR16 80 120°	
					no of lamps	dim range	no of lamps	dim range	no of lamps	dim range	no of lamps	dim range	no of lamps	dim range
Odace	S520511	230/50Hz			1-20	99-0%	100-14%	100-14%	91-2%	91-2%	91-2%	91-2%	91-2%	91-2%
Odace	S520515	230/50Hz			1-17	100-0%		100-0%						
Odace	S520518	230/50Hz			1-3	99-0%	100-17%	100-17%	92-0%	91-0%	92-0%	91-0%	92-0%	91-0%
Osram	HTI DALI 315 DIM	230/50Hz	20-315	DALI-T	1-2	100-0%	96-0%	100-0%	94-0%	94-0%	94-0%	94-0%	94-0%	94-0%
PEHA	435 HAN	230/50Hz	60-600	L	1-20	100-2%	100-0%	100-0%	91-0%	91-0%	91-0%	91-0%	91-0%	91-0%
Schneider	400GLI	230/50Hz	40-400	T	1-11	100-0%	98-0%	100-0%	92-3%	90-0%	92-3%	90-0%	92-3%	90-0%
Legrand	078405	230/50Hz	600	RL	1-20	100-0%								
Bticino	L/N/NT4408HC/HD/HS4408	230/50Hz			1-20	100-0%								
Schneider	SBD315RC	230/50Hz			1-20	100-0%	96-0%	100-0%	91-3%	90-0%	91-3%	90-0%	91-3%	90-0%
Schneider	SBD200LED	230/50Hz	400		1-20	100-1%			94-0%	93-0%	94-0%	93-0%	94-0%	93-0%
Schneider	SBD600RCRL	230/50Hz			1-11	99-1%	99-0%	100-0%	91-0%	91-0%	91-0%	91-0%	91-0%	91-0%
Schneider	SBD630RC	230/50Hz			1-20	100-7%		100-0%	92-1%	92-1%	92-1%	92-1%	92-1%	92-1%
Schneider	SBD600RL	230/50Hz			1-20	99-0%	100-14%	100-14%	91-2%	91-2%	91-2%	91-2%	91-2%	91-2%
Schneider	SBD420RCRL	230/50Hz			1-17	100-0%		100-0%						
Schneider	5170	230/50Hz			1-3	100-0%	100-0%	100-7%	90-0%	89-0%	90-0%	89-0%	90-0%	89-0%
Schneider	SBD400RL	230/50Hz			1-16	99-0%	99-0%	100-0%	94-0%	94-0%	94-0%	94-0%	94-0%	94-0%
Schneider	SBDSP	230/50Hz			1-3	99-0%	100-17%	100-17%	92-0%	91-0%	92-0%	91-0%	92-0%	91-0%
Schneider	ATTD1000RL	230/50Hz			1-20	99-0%	99-0%	100-0%	87-0%	87-0%	87-0%	87-0%	87-0%	87-0%
Shuttle	SDIM-T-LED-500W	230/50Hz	2-500	T & LED-T	1-20	100-0%	100-0%	100-0%	92-0%	92-0%	92-0%	92-0%	92-0%	92-0%
Siemens	5TC8 284	230/50Hz	20-525	T	1-20	100-3%	100-0%	100-0%	87-0%	87-0%	87-0%	87-0%	87-0%	87-0%
Siemens	5WG1-527-1AB31	230/50Hz	20-500	KNX-U	1-20	99-0%	100-0%	100-0%	85-0%	84-0%	85-0%	84-0%	85-0%	84-0%
theben	DIMAX 544 plus P	230/50Hz	250	T										
theben	DIMAX 534 plus	230/50Hz	400	T										
VADSBO	LD 220	230/50Hz	1-200	U	1-16	100-0%	100-0%	100-0%	89-1%	89-1%	89-1%	89-1%	89-1%	89-1%
VARILIGHT	HQ3W	230/50Hz	400		1-20	100-0%	72-0%	100-0%	65-0%	65-0%	65-0%	65-0%	65-0%	65-0%
VARILIGHT	JQP401W	230/50Hz	400	T				100-0%		87-3%		87-3%		87-3%
Vimar	20135	230/50Hz	3 - 100	U	1-8	100-0%	100-0%	100-0%	85-1%	85-1%	85-1%	85-1%	85-1%	85-1%
ZANO	WH401	230/50Hz	400	L	1-11	100-0%		100-0%	99-3%	60-3%	99-3%	60-3%	99-3%	60-3%
ZANO	WH251	230/50Hz	250							53-0%		53-0%		53-0%
ZANO	Z GRID 700	230/50Hz	250	LED			91-0%	100-0%						
ZANO	Z GRID 500	230/50Hz	500					100-0%	89-0%	89-0%	89-0%	89-0%	89-0%	89-0%

Typical values. Test performed with regarded lamps named. The test results reflect the measurement of the individual devices that were used in tests. Radium does not take over any responsibility, warranty or liability that this results can also be achieved by using the devices under other conditions or when using successor models of the tested devices or different models of the same manufacturer. The test results were achieved by using the above mentioned LED-lamp types.

Radium does not take over any responsibility, warranty or liability that these results can also be achieved by using the devices under other conditions or when using other LED-lamp types.

Due to the big number of electronic components and many other influence factors noise can emerge in unfavourable condiditons, which may be well audible in the case of resonance.

Generally speaking, employment of trailing edge dimmers is recommended. They require the neutral wire for installation.

Changes, errors and omissions excepted.