

# DIMMER COMPATIBILITY PAR20 + PAR30 + PAR 38

## BASIC INFORMATION:

### 1. WHAT IS THE PRODUCT CODE AND WHERE DO I FIND IT?

The product code describes the lamp type. It contains 7 letters and digits and is starting with "A". Below an example for the product code of the stamp of the lamp:



220-240V **AC01770** 2700K  
 13 W 50/60 Hz 27 mA  
 Made in Germany XXX-XXXX

### 2. HOW CAN I READ THE FOLLOWING CHARTS?

**Legend:**  
 Information about the dimmability of the lamps. Green means very good dimmability, yellow means limited dimmability, red means undesired dimmability etc.

List of dimmers tested in laboratory conditions

Legend					SUPERSTAR PAR16 35 36*				SUPERSTAR PAR16 50 36*				SUPERSTAR PAR16 80 36*				SUPERSTAR PAR16 80 120*			
Very good dimmability with indicated number of lamps (dimming range greater than 75%)																				
Limited dimmability with indicated number of lamps (dimming range smaller than 75%)																				
Undesired dimmability																				
Not relevant																				
Not tested																				
Dimmer					EAN/Basic Code		EAN/Basic Code		EAN/Basic Code		EAN/Basic Code		EAN/Basic Code		EAN/Basic Code		EAN/Basic Code			
Brand	Model	Voltage range	Power	Type	Number of Lamps	Dimming range	Number of Lamps	Dimming range	Number of Lamps	Dimming range	Number of Lamps	Dimming range	Number of Lamps	Dimming range	Number of Lamps	Dimming range				
ABB	STD 50-3	230V50Hz	60-500	L	1-20	98% - 15%	1-13	98% - 20%	1-8	97% - 23%	1-8	97% - 23%	1-8	97% - 23%	1-8	97% - 23%				
Altenburger Electronic	50 30	230V50Hz	15-350	T	2-20	98% - 15%	2-20	97% - 12%	2-20	98% - 16%	2-20	98% - 16%	2-20	98% - 16%	2-20	98% - 16%				
ALPORA	DSP 400	230V50Hz	400	L	1-10	98% - 1%	2-10	97% - 1%	1-4	96% - 1%	1-4	96% - 1%	1-4	96% - 1%	1-4	96% - 1%				
Berker	2861	230V50Hz	50-420	U	1-20	98% - 27%	1-20	98% - 26%	1-20	97% - 27%	1-20	97% - 27%	1-20	97% - 27%	1-20	97% - 27%				
Blicino	LNN1441N	230V50Hz			1-15	98% - 1%	1-10	97% - 5%	1-6	94% - 7%	1-6	94% - 7%	1-6	94% - 7%	1-6	94% - 7%				
Blicino	LNN14408	230V50Hz			2-20	98% - 1%	2-9	98% - 1%	1-6	97% - 9%	1-6	97% - 9%	1-6	97% - 9%	1-6	97% - 9%				
Blicino	NT4402N	230V50Hz	500	R	3-19	99% - 19%	2-12	97% - 19%	1-8	95% - 22%	1-8	95% - 22%	1-8	95% - 22%	1-8	95% - 22%				
Busch-Jaeger	6513 U-102	230V50Hz	40-420	T	2-20	99% - 15%	2-20	98% - 17%	2-20	98% - 21%	2-20	98% - 21%	2-20	98% - 21%	2-20	98% - 21%				
Busch-Jaeger	6523 U-102	230V50Hz	420	T	1-10	96% - 22%	1-10	97% - 26%												
Busch-Jaeger	2250 U	230V50Hz	60-600	L	1-10	98% - 1%	2-14	98% - 16%	1-9	97% - 15%	1-9	97% - 15%	1-9	97% - 15%	1-9	97% - 15%				
Busch-Jaeger	6526 U	230V50Hz			1-13	98% - 34%	1-10	97% - 35%	1-5		1-5		1-5		1-5					
Busch-Jaeger	2247 U-500	230V50Hz			1-20	98% - 15%	1-13	98% - 20%	1-8	97% - 23%	1-8	97% - 23%	1-8	97% - 23%	1-8	97% - 23%				
CENTURY CONTROL	MULTI DIMMER	230V50Hz	60-600	L	2-13	98% - 1%	1-10	98% - 5%	1-6	97% - 9%	1-6	97% - 9%	1-6	97% - 9%	1-6	97% - 9%				
DINUY	RE EL1LE1	230V50Hz	400	LED	1-11	98% - 1%	1-10	99% - 1%	1-5	99% - 7%	1-5	99% - 7%	1-5	99% - 7%	1-5	99% - 7%				
ELKO	400GLI	230V50Hz			1-10		1-10		1-4	97% - 1%	1-4	97% - 1%	1-4	97% - 1%	1-4	97% - 1%				
ELKO	315GLE	230V50Hz	20-315	T	2-20	98% - 6%	1-20	98% - 7%	1-20	97% - 10%	1-20	97% - 10%	1-20	97% - 10%	1-20	97% - 10%				
ELKO	600GLE	230V50Hz	40-600	U	1-20	98% - 1%	1-13	97% - 1%	1-8	96% - 1%	1-8	96% - 1%	1-8	96% - 1%	1-8	96% - 1%				
ELKO	420GLEI	230V50Hz	40-420	U	1-14	98% - 1%	1-13	97% - 4%	1-10	97% - 19%	1-10	97% - 19%	1-10	97% - 19%	1-10	97% - 19%				

Information about the OSRAM lamp type

Assessment of the results into categories. Includes the number of lamps and the related dimming range

# DIMMER KOMPATIBILITÄT PAR20 + PAR30 + PAR 38

## BASISINFORMATIONEN:

### 1. WAS IST DER PRODUKTCODE UND WO FINDE ICH IHN?

Der Produktcode beschreibt den Lampentyp. Er besteht aus sieben Buchstaben und Ziffern und beginnt mit einem "A". Nachfolgend ein Beispiel eines Produktcodes auf dem Aufdruck der Lampe.



220-240V **AC01770** 2700K  
 13 W 50/60 Hz 27 mA  
 Made in Germany XXX-XXXX

### 2. WIE LESE ICH DIE FOLGENDEN TABELLEN?

Legende: Angaben zur Dimmbarkeit der Lampen. Grün bedeutet eine sehr gute Dimmbarkeit mit der angegebenen Lampenanzahl, gelb bedeutet eine eingeschränkte Dimmbarkeit, rot bedeutet, dass unerwünschte dimmverhalten auftreten kann etc.




Liste der getesteten Dimmer

Legend					SUPERSTAR PAR16 35 36*				SUPERSTAR PAR16 50 36*				SUPERSTAR PAR16 60 36*				SUPERSTAR PAR16 60 120*			
Very good dimmability with indicated number of lamps (dimming range greater than 75%)																				
Limited dimmability with indicated number of lamps (dimming range smaller than 75%)																				
Undesired dimmability																				
Not relevant																				
Not tested																				
Dimmer					EAN/Basic Code				EAN/Basic Code				EAN/Basic Code				EAN/Basic Code			
Brand	Model	Voltage range	Power	Type	405283330133/AC01184 405283330157/AC01192				405283330171/AC01187 405283330199/AC01194				405283330210/AB41305 405283330232/AB41306				405807503668/AC03049 405807503632/AC03051			
ABB	STD 50-3	230V50Hz	60-500	L	1-20	98%	15%	1-13	98%	20%	1-8	97%	23%	1-8	97%	23%				
Altenburger Electronic	50 30	230V50Hz	15-350	T	2-20	98%	15%	2-20	97%	12%	2-20	98%	16%	2-20	98%	16%				
AUDRIA	DSP 400	230V50Hz	400	L	1-10	98%	1%	2-10	97%	1%	1-4	96%	1%	1-4	96%	1%				
Berker	2861	230V50Hz	50-420	U	1-20	98%	27%	1-20	98%	26%	1-20	97%	27%	1-20	97%	27%				
Bicimo	LANIT441N	230V50Hz			1-15	98%	1%	1-10	97%	5%	1-6	94%	7%	1-6	94%	7%				
Bicimo	LANIT4408	230V50Hz			2-20	98%	1%	2-9	98%	1%	1-6	97%	3%	1-6	97%	3%				
Bicimo	NT4402N	230V50Hz	500	R	3-18	99%	19%	2-12	97%	19%	1-8	95%	22%	1-8	95%	22%				
Busch-Jaeger	6513 U-102	230V50Hz	40-420	T	2-20	99%	15%	2-20	98%	17%	2-20	98%	21%	2-20	98%	21%				
Busch-Jaeger	6523 U-102	230V50Hz	420	T	1-10	96%	22%	1-10	97%	26%										
Busch-Jaeger	2250 U	230V50Hz	60-600	L	1-10			2-14	98%	16%	1-9	97%	15%	1-9	97%	15%				
Busch-Jaeger	6526 U	230V50Hz			1-13	98%	34%	1-10	97%	35%	1-5			1-5						
Busch-Jaeger	2247 U-500	230V50Hz			1-20	98%	15%	1-13	98%	20%	1-8	97%	23%	1-8	97%	23%				
CENTURY CONTROL	MULTI DIMMER	230V50Hz	60-600	L	2-13	98%	1%	1-10	98%	5%	1-6	97%	9%	1-6	97%	9%				
DINJY	RE EL1LE1	230V50Hz	400	LED	1-11	98%	1%	1-10	98%	1%	1-5	99%	7%	1-5	99%	7%				
ELKO	400GLI	230V50Hz			1-10			1-13			1-4	97%	1%	1-4	97%	1%				
ELKO	316GLE	230V50Hz	20-315	T	2-20	98%	6%	1-20	98%	7%	1-20	97%	10%	1-20	97%	10%				
ELKO	600GLI	230V50Hz	40-600	U	1-20	98%	1%	1-13	97%	1%	1-8	96%	1%	1-8	96%	1%				
ELKO	420GLEI	230V50Hz	40-420	U	1-14	98%	1%	1-13	97%	4%	1-10	97%	19%	1-10	97%	19%				




Angaben zum OSRAM Lampentyp

Bewertung der Testergebnisse in Ampel Kategorien. Beinhaltet sowohl die Lampenanzahl als auch den dimmbaren Bereich




## DIMMER COMPATIBILITY PAR20 + PAR30 + PAR 38

Legend					PARATHOM DIM PAR20 50 36°		PARATHOM DIM PAR30 75 36°		PARATHOM DIM PAR38 100 30°	
Very good dimmability with indicated number of lamps (dimming range greater than 75%)										
Limited dimmability with indicated number of lamps (dimming range smaller than 75%)					EAN / Basic Code		EAN / Basic Code		EAN / Basic Code	
Undesired dimmability										
Not relevant										
Not tested					40580758 13199 / AC02414		40580758 13236 / AC02415		40580758 13250 / AC02416	
Dimmer					Dimming range 1 Lamp	Dimming range 4 Lamps	Dimming range 1 Lamp	Dimming range 4 Lamps	Dimming range 1 Lamp	Dimming range 4 Lamps
Brand	Model	Voltage range	Power	Type						
ABB	STD 50-3	230/50Hz	60-500	L	83%	63%	59%	57%	71%	70%
Altenburger Electronic	50.30	230/50Hz	15-350	T	68%	80%	70%	77%		84%
AURORA	DSP 400	230/50Hz	400	L	98%	98%	99%	99%	71%	72%
Berker	2861	230/50Hz	50-420	T	58%	63%	54%	60%	66%	68%
Bticino	L/N/NT4411N	230/50Hz	400	L	90%	90%	89%	89%	92%	92%
Bticino	L/N/NT4408	230/50Hz	600	L	99%	99%	98%	98%	99%	99%
Bticino	NT4402N	230/50Hz	500	R	70%	70%	67%	68%	75%	75%
Busch-Jaeger	6513 U-102	230/50Hz	40-420	T			66%	66%	70%	70%
Busch-Jaeger	6523 U-102	230/50Hz	100	L	87%	87%	89%	89%	91%	91%
Busch-Jaeger	2250 U	230/50Hz	60-600	L	90%		78%	79%	86%	99%
Busch-Jaeger	6526 U	230/50Hz	420	L						
Busch-Jaeger	2247 U-500	230/50Hz	60-500	L	83%	63%	59%	57%	71%	70%
CENTURY CONTROL	MULTI DIMMER	230/50Hz	60-600	L	75%	70%	69%	68%	80%	78%
DINUY	RE EL1 LE1	230/50Hz	400	L/T			96%	95%	98%	98%
ELKO	400GLI	230/50Hz	40-400	T		66%			72%	72%
ELKO	315GLE	230/50Hz	20-	T	66%	66%	67%	67%	73%	77%
ELKO	600GLI	230/50Hz	40-600	L	98%	99%	99%	99%	98%	99%
ELKO	420GLE/I	230/50Hz	40-420	U	99%	90%	84%	84%	89%	89%
ELKO	1000LRI	230/50Hz	1000	L	98%	98%	97%	97%	99%	99%
ELKO	600GLE/I	230/50Hz	400	L/T	99%	90%	98%	98%	99%	99%
ELKO	630GLE	230/50Hz	20-630	T	85%		81%	84%	87%	99%
Eltako	EUD61NPN-UC	230/50Hz	5-400	R/L/C						
Feller	40200.LEDxxx	230/50Hz	525	T	70%	73%	66%	69%	89%	76%
Feller	40600.RL	230/50Hz	40-600	L	98%	99%	99%	99%	98%	99%
Feller	40600.RC	230/50Hz	20-630	T	85%		81%	84%	87%	99%
Feller	40420.RLC	230/50Hz	600	L	99%	90%	84%	84%	89%	89%
Feller	31000	230/50Hz	1000	L	98%	98%	97%	97%	99%	99%
Feller	40600 RLC	230/50Hz	400	L/T	99%	99%	98%	98%	99%	99%
GIRA	226200	230/50Hz	20-500	L	82%	82%	96%	96%	97%	96%
Gira	030700	230/50Hz	20-525	T	63%	63%	71%	71%	70%	71%
Gira	117600	230/50Hz	50-420	U	63%		54%	59%	64%	68%
Gira	217400	230/50Hz	250	T	78%	83%	75%	79%	82%	85%
Gira	1224 LEDUDE	230/50Hz		LED	88%	88%	83%	84%	87%	89%

## DIMMER COMPATIBILITY PAR20 + PAR30 + PAR 38

Legend					PARATHOM DIM PAR20 50 36°		PARATHOM DIM PAR30 75 36°		PARATHOM DIM PAR38 100 30°			
Very good dimmability with indicated number of lamps (dimming range greater than 75%)												
Limited dimmability with indicated number of lamps (dimming range smaller than 75%)					EAN / Basic Code		EAN / Basic Code		EAN / Basic Code			
Undesired dimmability					40580758 13199 / AC02414		40580758 13236 / AC02415		40580758 13250 / AC02416			
Not relevant					Dimming range 1 Lamp		Dimming range 4 Lamos		Dimming range 1 Lamp		Dimming range 4 Lamos	
Not tested					Dimming range 1 Lamp		Dimming range 4 Lamos		Dimming range 1 Lamp		Dimming range 4 Lamos	
Brand	Model	Voltage range	Power	Type	Dimming range 1 Lamp	Dimming range 4 Lamos	Dimming range 1 Lamp	Dimming range 4 Lamos	Dimming range 1 Lamp	Dimming range 4 Lamos		
Hager	WUD87	230/50Hz	400	LED-U								
Hamilton	KP1X40	230/50Hz	400	L		83%	78%	77%	85%	83%		
Hugo Müller	paladin 872110 led	230/50Hz	400	L/T			96%	95%				
Jung	225 NVDE	230/50Hz	20-500	L	82%	82%	96%	96%	97%	96%		
Jung	225 TDE	230/50Hz	20-525	T	63%	63%	71%	71%	70%	71%		
Jung	254 UDIE1	230/50Hz	50-420	U	63%		54%	59%	89%	68%		
Jung	3904 REGHE	230/50Hz	250	T	78%	83%	75%	79%	82%	85%		
Jung	1224 LEDUDE	230/50Hz		LED	88%	88%	83%	84%	87%	89%		
Legrand	665114	230/50Hz	400	L	90%	90%	89%	89%	92%	92%		
Legrand	078407 / 079207	230/50Hz	400	L	90%	90%	89%	89%	92%	92%		
Legrand	281080	230/50Hz	500	L	85%		98%	98%	99%	99%		
Legrand	281084	230/50Hz	500	L	85%							
Legrand	048871	230/50Hz	3-150	LED	85%							
Legrand	617030	230/50Hz	600	L	68%	55%	53%	51%	65%	64%		
Legrand	770061	230/50Hz	400	RL	99%	99%	53%	79%	65%	64%		
Legrand	099314	230/50Hz	300	L	98%	99%	99%	99%	99%	99%		
Legrand	770062	230/50Hz	400	T	99%	99%	99%	99%	99%	99%		
Legrand	617031	230/50Hz	1000	L	55%	53%			63%	59%		
Legrand	078405	230/50Hz	600	L	99%	99%	98%	98%	99%	99%		
MASTER	DM-DGL	230/50Hz	1000	L								
MASTER	DM-2500	230/50Hz	2500	L	99%	99%	98%	98%	99%	99%		
Merten	MEG5136-0000	230/50Hz	20-	T	66%	66%	67%	67%	73%	77%		
Merten	MEG5134-0000	230/50Hz	525	T	70%	73%	66%	69%	89%	76%		
Merten	MEG5133-0000	230/50Hz	40-600	L	98%	99%	99%	99%	98%	99%		
Merten	MEG5137-0000	230/50Hz	20-630	T	85%		81%	84%	87%	99%		
Merten	MEG5138-0000	230/50Hz	40-420	U	99%	90%	84%	84%	89%	89%		
Merten	MEG 5170-0300	230/50Hz	10-200	T						99%		
Merten	MEG 5131	230/50Hz	40-400	L	98%	99%	97%	98%	99%	99%		
Merten	MEG 5132	230/50Hz	40-400	L	98%	99%	97%	98%	99%	99%		
Merten	MEG 5140	230/50Hz	9-100	L	98%	98%	97%	97%	98%	98%		
Merten	MEG 5135	230/50Hz	60-100C	L	98%	98%	97%	97%	99%	99%		
Merten	MEG5139-0000	230/50Hz	400	L/T	99%	90%	98%	98%	99%	99%		
MK	K4501	230/50Hz	180	L	83%	83%	79%	78%	86%	85%		

## DIMMER COMPATIBILITY PAR20 + PAR30 + PAR 38

Legend					PARATHOM DIM PAR20 50 36°	PARATHOM DIM PAR30 75 36°	PARATHOM DIM PAR38 100 30°			
Very good dimmability with indicated number of lamps (dimming range greater than 75%)										
Limited dimmability with indicated number of lamps (dimming range smaller than 75%)										
Undesired dimmability					EAN / Basic Code					
Not relevant					EAN / Basic Code					
Not tested					40580758 13199 / AC02414	40580758 13236 / AC02415	40580758 13250 / AC02416			
Dimmer					Dimming range 1 Lamp	Dimming range 4 Lamps	Dimming range 1 Lamp	Dimming range 4 Lamps	Dimming range 1 Lamp	Dimming range 4 Lamps
Brand	Model	Voltage range	Power	Type						
NEXUS	881P-01	230/50Hz	400	L	98%	99%	99%	99%	99%	99%
NIKO	310-01900 / 01901	230/50Hz	200	L / T	88%	88%	82%	83%	88%	88%
NIKO	330-00700 / 00701	230/50Hz	200	L / T	75%	75%	74%	74%	79%	80%
Odace	S520512	230/50Hz	525	T	70%	73%	66%	69%	89%	76%
Odace	S520511	230/50Hz	40-600	L	98%	99%	99%	99%	98%	99%
Odace	S520515	230/50Hz	40-420	U	99%	90%	84%	84%	89%	89%
Odace	S520518	230/50Hz	9-100	L	98%	98%	97%	97%	98%	98%
Osram	HTI DALI 315 DIM	230/50Hz	20-315	DALI-T	82%	82%	80%	80%	83%	84%
PEHA	435 HAN	230/50Hz	60-600	L	83%	98%	95%	98%	96%	96%
Schneider	400GLI	230/50Hz	40-400	T		66%			72%	72%
Schneider	SBD315RC	230/50Hz	20-	T	66%	66%	67%	67%	73%	77%
Schneider	SBD200LED	230/50Hz	525	T	70%	73%	66%	69%	89%	76%
Schneider	SBD600RL	230/50Hz	40-600	L	98%	99%	99%	99%	98%	99%
Schneider	SBD630RC	230/50Hz	20-630	T	85%		81%	84%	87%	99%
Schneider	SBD420RCRL	230/50Hz	40-420	U	99%	90%	84%	84%	89%	89%
Schneider	5170	230/50Hz	10-200	T						99%
Schneider	SBD400RL	230/50Hz	40-400	L	98%	99%	97%	98%	99%	99%
Schneider	SBD SPL	230/50Hz	9-100	L	98%	98%	97%	97%	98%	98%
Schneider	ATTD1000RL	230/50Hz	1000	L	98%	98%	97%	97%	99%	99%
Schneider	SBD600RCRL	230/50Hz	400	L / T	99%	90%	98%	98%	99%	99%
Shuttle	SDIM-T-LED-500W	230/50Hz	2-500	T & LED-T						
Siemens	5TC8 284	230/50Hz	20-525	T	71%	71%	84%	84%	87%	88%
Siemens	5WG1-528-1AB31	230/50Hz	500	T	98%	99%	98%	99%	99%	99%
VADSBO	LD 220	230/50Hz	1-200	U						
VARILIGHT	HQ3W	230/50Hz	400	L						
VARILIGHT	JQP401W	230/50Hz	400	T				99%		
Vimar	20135	230/50Hz	100	L / T	65%	65%	62%	61%	72%	73%
ZANO	WH401	230/50Hz	400	L						
ZANO	WH251	230/50Hz	250	L	95%	99%	99%	99%	99%	99%
ZANO	Z GRID 700	230/50Hz	250	LED	98%	98%	97%	96%	99%	98%
ZANO	Z GRID 500	230/50Hz	500	L	95%	99%	98%	98%	99%	99%

**Please Note:**

- The compatibility list is based upon testing conducted by the manufacturer in a lab simulated environment, and the results can vary in certain field applications due to a number of factors. OSRAM does not take over any responsibility, warranty or liability that this results can also achieved by using the devices under other conditions, or when using successor models of the tested devices, or different models of the same manufacturer, or when using other LED lamp types
- The absence of a dimmer from this chart does not necessarily imply incompatibility.
- Please reference the dimmer manufacturer's instructions for installation.
- LED lamps contain several electronic components. Under unfavourable conditions these can lead to acoustic noise. In case of resonance even low noise can cause audible effect. Possible factors influencing this are the installation, the design of the lamp holder and the luminaire (acoustic resonance effect) as well as the dimmer or the transformer (harmonics or electronic resonance).
- Subject to change without notice
- Errors and omission excepted
- Always make sure to use the most recent release

**Application Notes:**

- For best dimming results trailing edge dimmer type is recommended.
- Trailing edge type dimmer requires the neutral wire for installation.

**Bitte beachten:**

- Die Kompatibilitätsliste basiert auf Tests, die der Hersteller in einer im Labor simulierten Umgebung durchgeführt hat. Die Ergebnisse können aufgrund verschiedener Faktoren in manchen Praxisanwendungen abweichen. OSRAM übernimmt keinerlei Verantwortung, Garantie oder Haftung dafür, dass diese Ergebnisse tatsächlich mit den Geräten unter anderen Bedingungen, mit Nachfolgemodellen der getesteten Geräte, mit anderen Modellen desselben Herstellers oder bei Verwendung anderer LED-Lampentypen erreicht werden.
- Das Fehlen eines Dimmers in der Abbildung bedeutet nicht, dass ein Dimmer nicht kompatibel ist.
- Lesen Sie stets die Installationsanweisungen des Dimmerherstellers.
- LED-Lampen bestehen aus mehreren elektronischen Komponenten. Unter ungünstigen Bedingungen können diese Störgeräusche erzeugen. Im Resonanzfall können selbst geringe Geräusche einen hörbaren Effekt hervorrufen. Einflussfaktoren können die Installation, die Gestaltung des Lampenträgers, die Leuchte (akustischer Resonanzeffekt), der Dimmer oder der Trafo (Oberschwingungen oder elektronische Resonanz) sein.
- Änderungen vorbehalten.
- Irrtümer und Auslassungen vorbehalten.
- Vergewissern Sie sich, dass Sie stets die aktuellste Version benutzen.

**Anwendungshinweis:**

- Um bestmögliche Dimmergebnisse zu erzielen, wird die Verwendung von Phasenabschnitt-Dimmern empfohlen.
- Phasenabschnitt-Dimmer erfordern bei der Installation einen Neutralleiter.

LEDVANCE GmbH

Head Office:

Parkring 29-33  
85748 Garching, Germany  
Phone +49 89 780673-100  
Fax +49 89 780673-XXX  
[www.ledvance.com](http://www.ledvance.com)