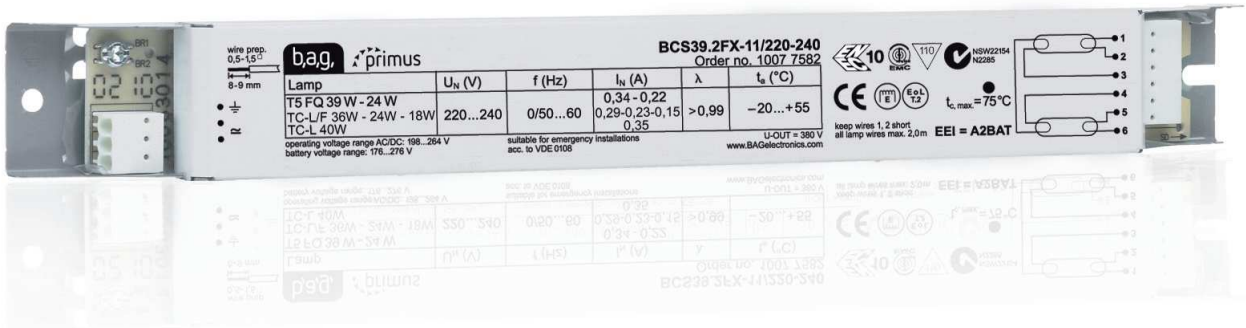


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Non dimmable electronic control gear units for T5, T8 and TC-L/F- fluorescent lamps



Performance characteristics

- Compact housing with a flat design for space-saving installation in luminaires
- Best possible Energy Efficiency Class EEI = A2BAT
- Suitable for operation of T5 High Efficiency Lamps for optimal energy saving
- Extended lifetime*:
75.000 h at $t_c = t_{c,max}$; failure rate $\leq 10\%$
100.000 h at $t_c = t_{c,max} - 10\text{ K}$; failure rate $\leq 10\%$
- Over Voltage Protected: 320 VAC 48 h/ 350 VAC 2 h
- Flicker free light due to high frequency operation of the lamp; no stroboscopic effect
- Constant lamp output independent of mains voltage fluctuations
- Energy controlled, electrode preserving lamp warm start for maximum lamp life independent of the switching frequency; starting time: 1,5 s
- Reliable lamp start even at low temperatures of -20°C
- Electrode preserving warm start for maximum lamp life, even at increased switching frequency; starting time $< 1,5\text{ s}$
- Multipower- Technology: Suitable for operation of different lamps and wattages with same ECG
- Automatic safety switch-off in case of abnormal lamp operation, e.g. defective electrodes and end of lamp life; tested acc. to EN 61347-2-3/A1 + Test 2
- Suitable for luminaires with protection class 2
- Automatic restart after lamp replacements
- Certified as thermally protected ballasts, e.g. for application in ∇ -luminaires
- Suitable for direct current operation and application in emergency lighting installations : Conforms to requirements for emergency lighting acc. to EN 61347-2-3/J
- Fast restart of the lamps after short mains interruptions
- Conformance with international regulations regarding safety and operation, electromagnetic compatibility and immunity to interference

*For more details please see technical data on page 2

ECG model

Version	Order no	Lamp
BCS14.3-4FR-01/220-240	10052868	3/4 x T5 FH 14 W
BCS35.1FX-11/220-240	10077579	1 x T5 FH 14/21/28/35 W
BCS35.2FX-11/220-240	10077580	2 x T5 FH 14/21/28/35 W
BCS39.1FX-11/220-240	10077581	1 x T5 FQ 24/39 W
		1 x TC-L/-F 18/24/36 W
		1 x TC-L 40 W
		1 x T8 18/36 W
BCS39.2FX-11/220-240	10077582	2 x T5 FQ 24/39 W
		2 x TC-L/-F 18/24/36 W
		2 x TC-L 40 W
		2 x T8 18/36 W
BCS49.1FX-11/220-240	10077583	1 x T5 FQ 49 W
BCS49.2FX-11/220-240	10077584	2 x T5 FQ 49 W
BCS54.1FX-11/220-240	10077585	1 x T5 FQ 54 W
		1 x TC-L 55 W
		1 x T8 58 W
BCS54.2FX-11/220-240	10077586	2 x T5 FQ 54 W
		2 x TC-L 55 W
		2 x T8 58 W
BCS80.1FX-11/220-240	10077587	1 x T5 FQ 80 W
		1 x TC-L 80 W
BCS80.2FX-11/220-240	10095407	2 x T5 FQ 80 W
		2 x TC-L 80 W

Markings



Technical data

Mains voltage supply	
Rated voltage range	220 V – 240 V
Max. admissible voltage range (continuous)	198 V – 264 V
Frequency	0/ 50 Hz ... 60 Hz
Battery operation	
Voltage range for continuous operation	198 VDC – 278 VDC
Lowest limiting value for temporary operation	176 VDC - 198 VDC ¹⁾
Behaviour at mains overvoltage	
Switch-off of the lamp(s) at	approx. 320 VAC ²⁾
Overvoltage protection	350 VAC / 2 h
Leakage current	< 0.5 mA / ECG
Ignition time of the lamp	< 1.5 s ³⁾
Behaviour in case of defective lamp	Switch-off of the lamp(s)
Automatic restart after lamp replacement	yes
Max. temperature at housing surface	+ 110 °C (acc. EN 61 347-2-3/C)
Nominal service life: (failure rate ≤ 10 %)	100.000 h at $t_c = t_{c, max} - 10K$ 75.000 h ³⁾ at $t_c = t_{c, max}$
Lamp and mains terminals	
Type	90°-connector with release function ⁴⁾
Wire cross section	0.5 mm ² – 1.5 mm ²
Wire stripping length	8.0 mm – 9.0 mm
Lamp wire lengths	see "wiring diagrams"

¹⁾ Reliable lamp ignition only for ≥ 198 VDC, for max. 0,5 h

²⁾ Automatic lamp restart after reaching the nominal input voltage range

³⁾ For BCS80.1FX;BCS39.2FX;BCS49.2FX, BCS80.2FX lifetime at $t_c=t_{c,max}$ 50.000 h 75.000 h at $t_c,max-5K$

⁴⁾ Order Number for release tool: 10075741

⁵⁾ For BCS35.2 and BCS14.3-4FR ignition time <1 s

Admissible temperatures

Version	Ambient (t_a)	Case (t_c)
BCS49.1FX; BCS14.3-4FR	– 20 °C ... + 60 °C	max. + 70 °C
BCS54.1FX; BCS35.1FX; BCS39.1FX	– 20 °C ... + 60 °C	max. + 75 °C
BCS35.2FX	– 20 °C ... + 55 °C	max. + 70 °C
BCS39.2FX; BCS49.2FX; BCS80.1FX	– 20 °C ... + 55 °C	max. + 75 °C
BCS54.2FX	– 25 °C ... + 55 °C	max. + 80 °C
BCS80.2FX	– 20 °C ... + 55 °C	max. + 75 °C

Inrush current / Circuit breaker

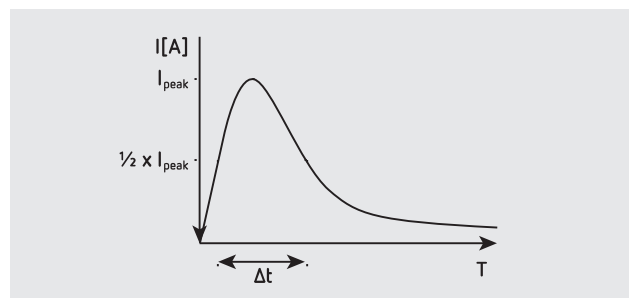
Version	typ $I_{peak} / \Delta t$	No. of ECG at single-pole circuit breakers			
		LS-Typ	10 A	16 A	20 A 25 A
BCS14.3-4FR	27 A / 210 µs	B	18	28	35 55
		C	22	44	55 66
BCS35.1FX BCS39.1FX	24 A / 120 µs	B	29	47	59 74
		C	47	75	94 117
BCS49.1FX	22 A / 155 µs	B	24	39	49 61
		C	34	54	68 85
BCS54.1FX	25 A / 147 µs	B	23	37	46 58
		C	30	49	61 76
BCS80.1FX	38 A / 130 µs	B	17	27	34 42
		C	21	34	43 54
BCS39.2FX	39 A / 125 µs	B	17	27	34 43
		C	24	38	48 60
BCS35.2FX	36 A / 94 µs	B	24	38	48 59
		C	39	63	79 98
BCS49.2FX	45 A / 118 µs	B	16	25	31 39
		C	17	27	34 42
BCS54.2FX	44 A / 150 µs	B	12	20	25 31
		C	17	28	35 44
BCS80.2FX	58 A / 285 µs	B	4	7	9 11
		C	7	12	14 18

All data for $U_{supply} = 230$ VAC, mains impedance = 1 Ω

In case of multipolar CB the max. no. is reduced by 20 %

The max. number may differ depending on CB manufacturer. Please consider the specifications of the manufacturer.

Basically, CB with C-characteristics are recommended to be used in lighting groups.



Non dimmable electronic control gear units for T5, T8 and TC-L/F- fluorescent lamps

Operating data



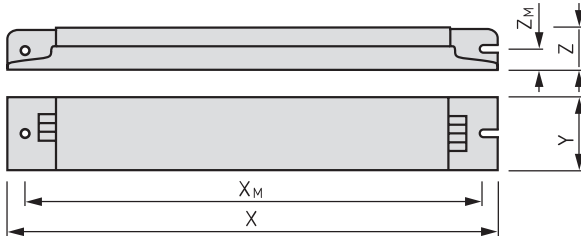
Version	Lamp	System rating	Input current*	Operating frequency	Power factor	Lamp power	Lamp socket	EEI	Approvals
		W	A	kHz		W			
BCS14.3-4FR-01/220-240	3 × T5 FH 14 W	47	0,22	50	0,96	41	G5	A2BAT	a, b
	4 × T5 FH 14 W	59	0,26	50	0,96	55	G5	A2BAT	a, b
BCS35.1FX-11/220-240	1 × T5 FH 14 W	17	0,08	48	0,93	14	G5	A2	a, b
	1 × T5 FH 21 W	24	0,10	48	0,96	21	G5	A2	a, b
	1 × T5 FH 28 W	31	0,14	48	0,98	28	G5	A2BAT	a, b
	1 × T5 FH 35 W	39	0,17	48	0,99	35	G5	A2BAT	a, b
BCS35.2FX-11/220-240	2 × T5 FH 14 W	31	0,15	51	0,97	28	G5	A2BAT	a, b
	2 × T5 FH 21 W	47	0,21	51	0,97	42	G5	A2BAT	a, b
	2 × T5 FH 28 W	64	0,28	51	0,97	56	G5	A2BAT	a, b
	2 × T5 FH 35 W	74	0,34	51	0,97	70	G5	A2BAT	a, b
BCS39.1FX-11/220-240	1 × T5 FQ 24 W	27	0,12	44	0,98	23	G5	A2	a, b
	1 × T5 FQ 39 W	41	0,18	44	0,97	38	G5	A2BAT	a, b
	1 × TC-L/-F 18 W	19	0,08	44	0,96	16	2G11/2G10	A2	a, b
	1 × TC-L/-F 24 W	26	0,12	44	0,98	22	2G11/2G10	A2	a, b
	1 × TC-L/-F 36 W	37	0,16	44	0,99	32	2G11/2G10	A2BAT	a, b
	1 × TC-L 40 W	41	0,18	44	0,99	40	2G11	A2BAT	a, b
	1 × T8 18 W	20	0,09	44	0,98	18	G13	A2	-
	1 × T8 36 W	36	0,16	44	0,99	33	G13	A2BAT	-
BCS39.2FX-11/220-240	2 × T5 FQ 24 W	53	0,24	42	0,98	46	G5 G5	A2BAT	a, b
	2 × T5 FQ 39 W	82	0,35	42	0,99	68	G5	A2BAT	a, b
	2 × TC-L/-F 18 W	34	0,15	42	0,96	28	2G11/2G10	A2BAT	a, b
	2 × TC-L/-F 24 W	50	0,23	42	0,98	44	2G11/2G10	A2BAT	a, b
	2 × TC-L/-F 36 W	67	0,29	42	0,99	60	2G11/2G10	A2BAT	a, b
	2 × TC-L 40 W	86	0,35	42	0,99	80	2G11	A2BAT	a, b
	2 × T8 18 W	39	0,17	42	0,96	33	G13	A2BAT	-
	2 × T8 36 W	71	0,31	42	0,99	63	G13	A2BAT	-
BCS49.1FX-11/220-240	1 × T5 FQ 49 W	54	0,23	52	0,99	49	G5	A2BAT	a, b
BCS49.2FX-11/220-240	2 × T5 FQ 49 W	109	0,48	52	0,99	98	G5	A2BAT	a, b
BCS54.1FX-11/220-240	1 × T5 FQ 54 W	59	0,26	45	0,99	54	G5	A2BAT	a, b
	1 × TC-L 55 W	60	0,26	45	0,99	55	2G11	A2BAT	a, b
	1 × T8 58 W	55	0,25	45	0,99	50	G13	A2BAT	a, b
BCS54.2FX-11/220-240	2 × T5 FQ 54 W	107	0,47	46	0,99	96	G5	A2BAT	a, b
	2 × TC-L 55 W	108	0,47	46	0,99	97	2G11	A2BAT	a, b
	2 × T8 58 W	109	0,48	45	0,99	98	G13	A2BAT	-
BCS80.1FX-11/220-240	1 × T5 FQ 80 W	87	0,38	47	0,99	80	G5	A2BAT	a, b
	1 × TC-L 80 W	87	0,38	47	0,99	80	2G11	A2BAT	a, b
BCS80.2FX-11/220-240	2 × T5 FQ 80 W	172	0,75	46	0,99	160	G5	A2BAT	a, b
	2 × TC-L 80 W	168	0,73	46	0,99	160	2G11	A2BAT	a, b
	2 × T8 70 W	147	0,62	46	0,99	140	G13	A2	-
	2 × T5 Eco 70 W	155	0,66	46	0,99	146	G5	A2	-

* at $U_{Mains} = 230 \text{ VAC}$

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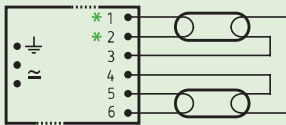
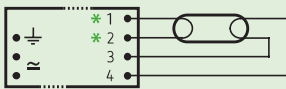
Non dimmable electronic control gear units for T5, T8 and TC-L/F- fluorescent lamps

Dimensions

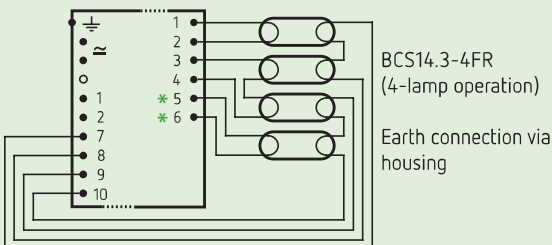
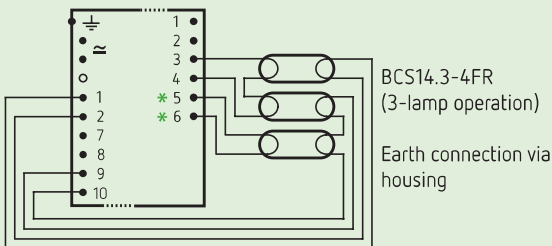


Version	X	X _M	Y	Z	Z _M	Weight
	mm	mm	mm	mm	mm	kg
BCS14.3-4FR	280	270	42	21	9	0,250
BCS35.1FX; BCS39.1FX; BCS49.1FX	280	270	30	21	9	0,175
BCS54.1FX	280	270	30	21	9	0,190
BCS35.2FX; BCS39.2FX; BCS49.2FX; BCS54.2FX; BCS80.1FX	280	270	30	21	9	0,200
BCS80.2FX	425	415	30	21	86	0,350

Wiring diagrams



* keep lamp wires as short as possible
Terminal 1,2: max. 1m
Terminal 3,4,5,6: max. 1m



* keep lamp wires as short as possible
Terminal 5, 6: max. 1m
Terminal 1, 2, 3, 7, 8, 9, 10: max. 2m

Conformance with regulations

EN 61 347-1	General and safety requirements
EN 61 347-2-3	
EN 61 347-2-3/C	Requirements for thermally protected ballasts
EN 61347	Particular additional safety requirements for a.c./d.c. supplied electronic ballasts for emergency lighting
EN 60 929	Performance requirements
EN 50 294	Measurement method of total input power of ballast-lamp circuits
EN 61 000-3-2	Limits for harmonic current emissions
EN 61 000-3-3	Limitation of voltage fluctuations and flicker
General EMC immunity:	
EN 61 000-4-2	Electrostatic discharge
EN 61 000-4-3	Radiated, radio-frequency, electromagnetic field
EN 61 000-4-4	Electrical fast transient/burst
EN 61 000-4-5	Surge
EN 61 000-4-6	Conducted disturbances, induced by radio-frequency fields
EN 61 000-4-8	Power frequency magnetic field
EN 61 000-4-11	Voltage dips, short interruptions and voltage variations
EN 61 547	EMC immunity: equipment for general lighting purposes
EN 55 015	Radio disturbances, frequencies < 300MHz (CDN method)
Environmental tests for mechanical capacity:	
IEC 60 068-2-6	Test Fc: vibrations (sinusoidal)
IEC 60 068-2-27	Test Ea: shock and bump
IEC 60 068-2-29	Test Eb: shock and bump
Quality management certified according to ISO 9001	