CC LINEAR LEDSET

ComfortLine LEDSet L-R3

186585, 186586, 186587, 186588

Typical Applications

Built-in in linear luminaires for

- Office lighting
- Industrial lighting

LED set 1

ComfortLine LEDSet L-R3

- **SELECTABLE OUTPUT CURRENT VIA LEDSET**
- **VERY LOW RIPPLE CURRENT: < 2%**
- **SUITABLE FOR EMERGENCY ESCAPE LIGHTING SYSTEMS ACC. TO EN 50172**
- **LONG SERVICE LIFE: UP TO 100,000 HRS.**
- **PRODUCT GUARANTEE: 5 YEARS**

5 YEARS GUARANTEE

VS LIGHTING SOLUTIONS

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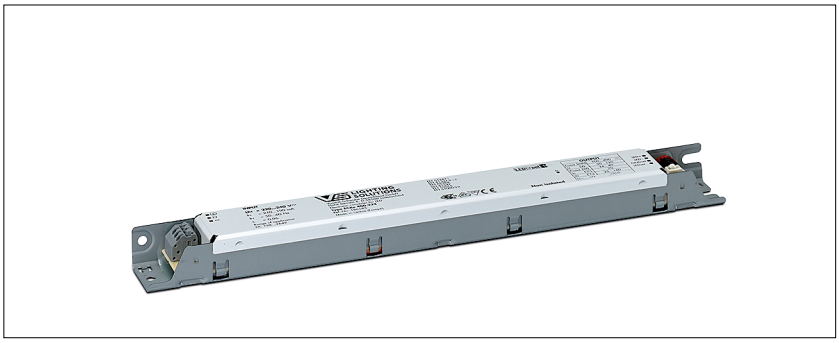
ComfortLine LEDSet L-R3



Product features
- Linear casing shape

Functions
- Selectable current output by secondary side LEDSet terminal.
- The output current can be freely adjusted between 100 mA and 800 mA by using a resistor (according LEDSet standard).
- LEDSet resistor ist not included.
- Suitable for central battery system for emergency lighting acc. to EN 50172

Electrical features
- Mains voltage: 220–240 V ±10%
- Mains frequency: 50–60 Hz
- DC operation: 198–276 V, 0 Hz
- Push-in terminals: 0.2–1.5 mm²
- Power factor at full load
  186585, 186586: > 0.96
  186587, 186588: > 0.98
- Max. working voltage (U_{OUT}): 250 V
- Secondary side switching of LED modules is not allowed.

Safety features
- Protection against transient main peaks up to 1 kV (between L and N) and up to 2 kV (between L/N and PE)
- Electronic short-circuit protection
- Overtemperature protection
- Protection against "no load" operation
- Degree of protection: IP20
- Protection class I

Packaging units

Ref. No.	Packaging unit		
	Pieces per box	Boxes per pallet	Weight g
186585	30	64	180
186586	30	64	190
186587	30	64	183
186588	30	64	190

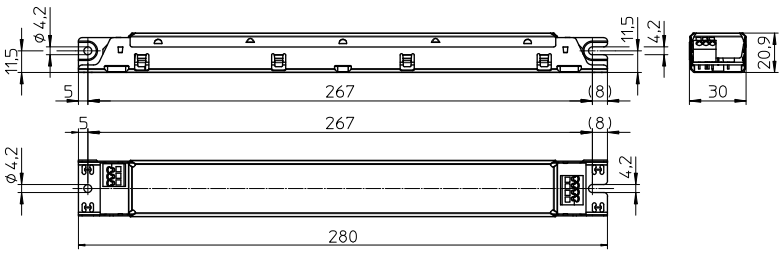
IP20 | 130 | 0% NO LOAD OPERATION | IEEE 1789-2015 | EL | 50 000 hours Min. Service Lifetime | Guarantee 5 years

Applied standards
- EN 61347-1
- EN 61347-2-13
- EN 61547
- EN 61000-3-2
- EN 62384
- EN 55015

Dimensions
- Casing: M7.1
- Length: 280 mm
- Width: 30 mm
- Height: 21 mm

Current adjustment

LED set 1



Product guarantee
- 5 years
- The conditions for the Product Guarantee of the Vossloh-Schwabe Group shall apply as published on our homepage (www.vossloh-schwabe.com).
  We will be happy to send you these conditions upon request.

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CC-ComfortLine-LEDSet-L-R3_186585-186586-186587-186588_EN – 2/8 – 04/2025

Electrical characteristics

Max. output W	Type	**Ref. No.**	Voltage 50–60 Hz V	Mains current mA	Inrush current A / µs	Current output DC mA (± 5%)	Voltage output DC (V)	THD at full load % (230 V)	Efficiency at full load % (230 V)	Ripple 100 Hz %
40	ECXe 400.223	**186585**	220–240	210–190	21.7 / 135	100–400	30–120	< 19.5	> 90	< 2
40	ECXe 800.224	**186586**	220–240	210–200	36.9 / 245	400–800	30–70	< 17	> 93	< 0.9
85	ECXe 400.225	**186587**	220–240	410–380	32.6 / 194	100–400	100–225	< 9.8	> 94	< 1.3
85	ECXe 800.226	**186588**	220–240	420–390	36.9 / 245	400–800	30–130	< 16.5	> 93	< 0.9

Maximum ratings

Exceeding the maximum ratings can lead to reduction of service life or destruction of the drivers.

Ref. No.	Ambient temperature range		Operation humidity range		Storage temperature range		Storage humidity range		Max. operation temperature at t_c point	Degree of protection
	°C min.	°C max.	% min.	% max.	°C min.	°C max.	% min.	% max.	°C	
186585	–25	+60	5	60	–40	+85	5	95	+70	IP20
186586	–25	+50							+75	
186587	–25	+50							+65	
186588	–25	+50							+75	

Expected service life time

at operation temperatures at t_c point

Operation current	Ref. No. 186585		186586, 186588		186587	
All	60 °C	70 °C	65 °C	75 °C	55 °C	65 °C
hrs.	100,000	50,000	100,000	50,000	100,000	50,000

Product labels

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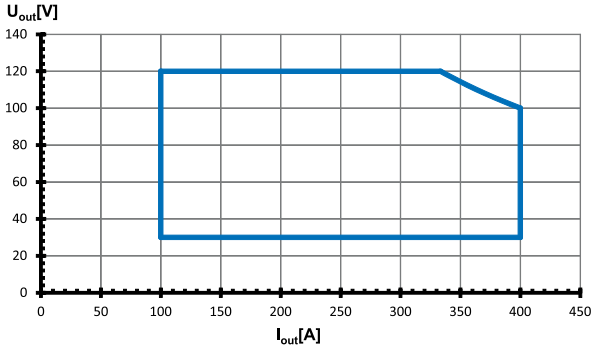
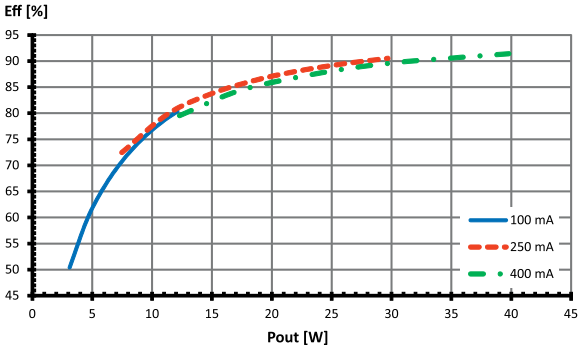
Typ. performance graphs for 186585 / Type ECXe 400.223

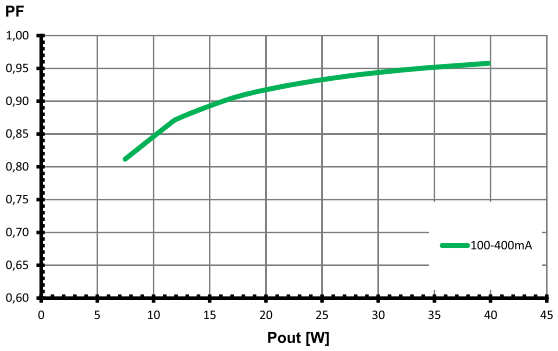
Working area



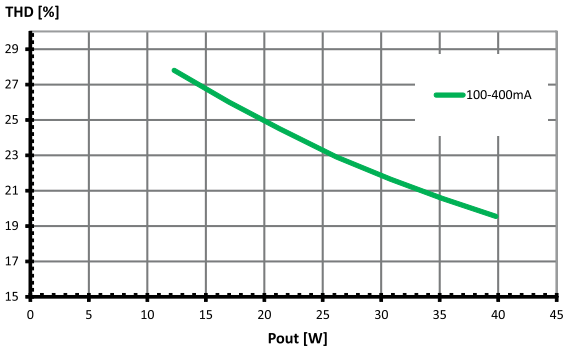
Efficiency



Power factor

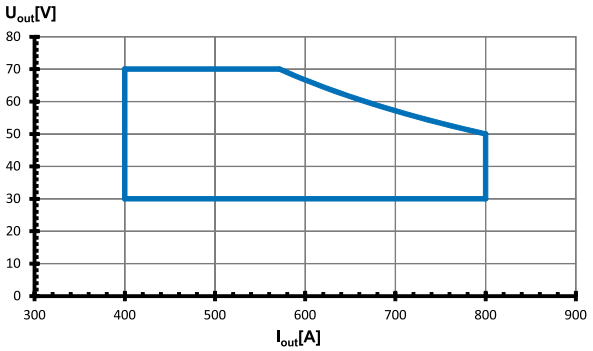


Total harmonic factor (THD)



Typ. performance graphs for 186586 / Type ECXe 800.224

Working area



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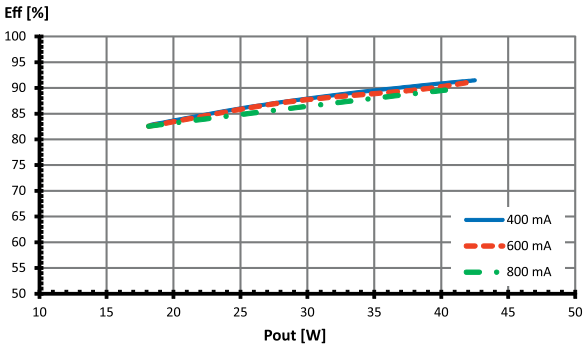
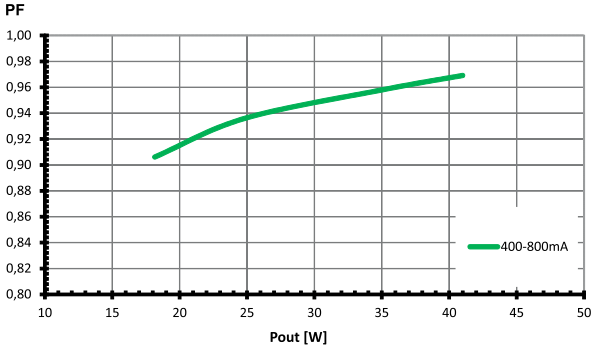
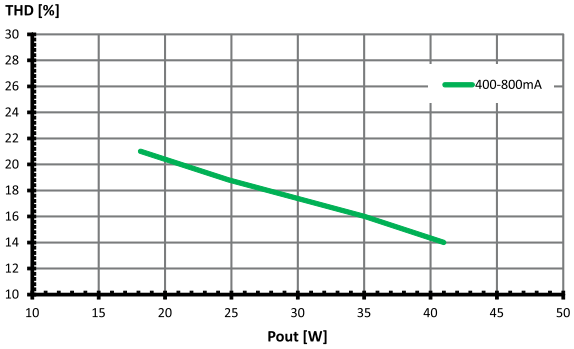


Power factor



Total harmonic factor (THD)



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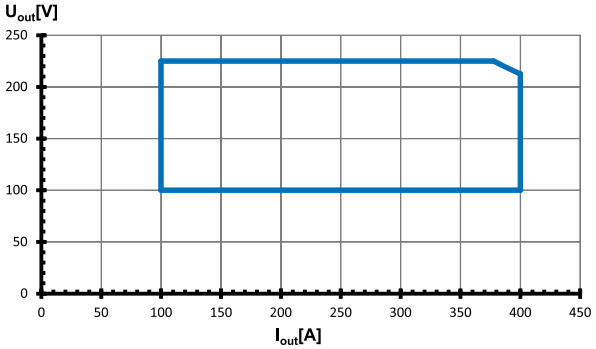
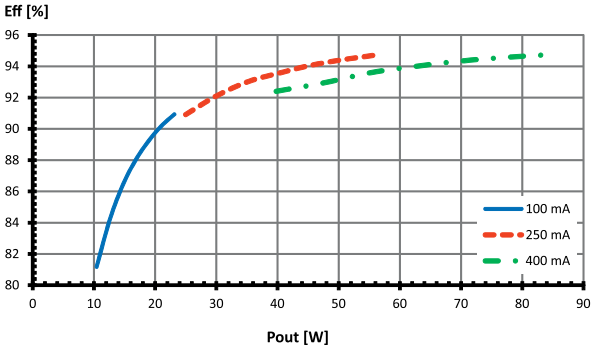
Typ. performance graphs for 186587 / Type ECXe 400.225

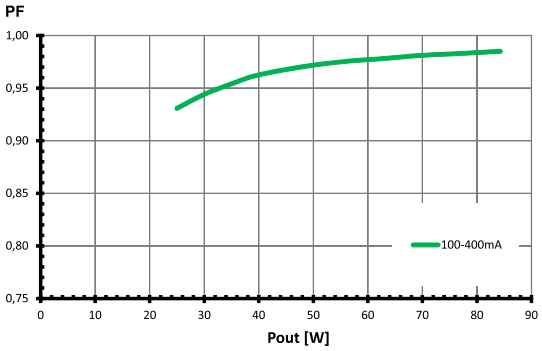
Working area



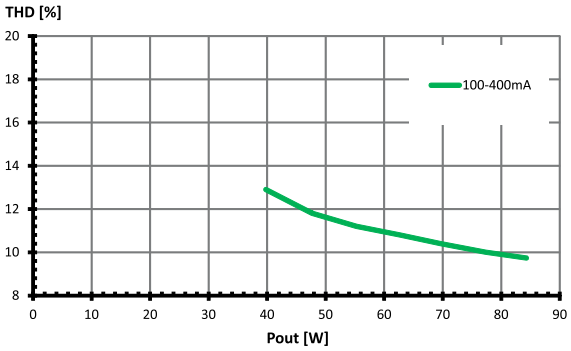
Efficiency



Power factor

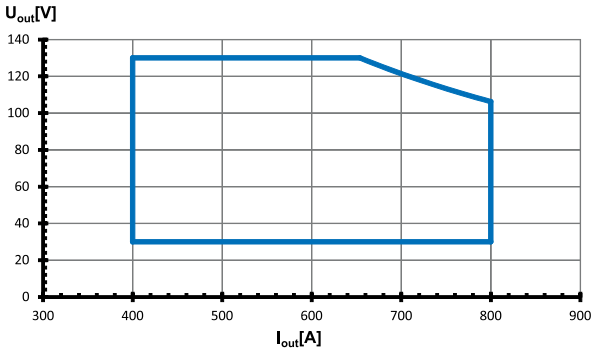


Total harmonic factor (THD)

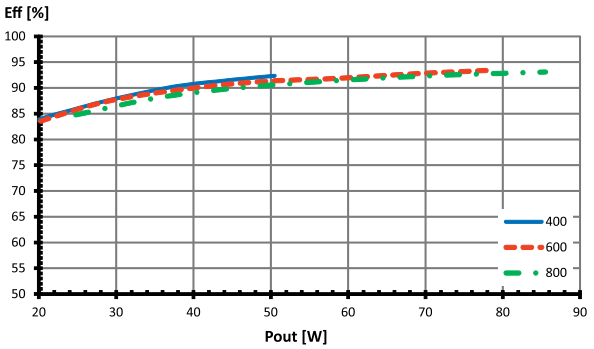


Typ. performance graphs for 186588 / Type ECXe 800.226

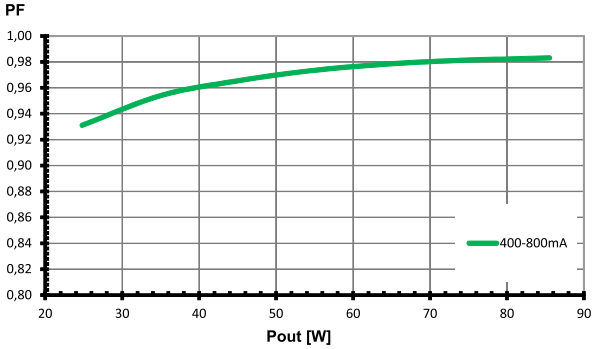
Working area



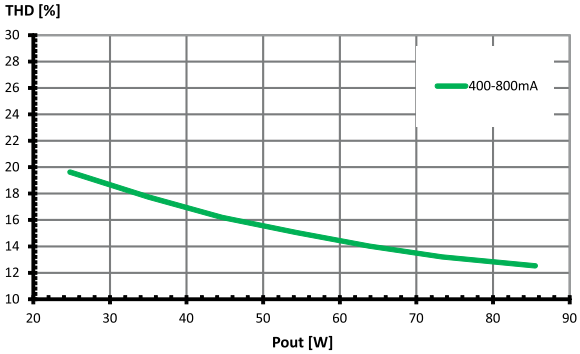
Efficiency



Power factor



Total harmonic factor (THD)



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Safety functions

- Transient mains peaks protection:
  Values are in compliance with EN 61547 (interference immunity).
  Surges between L–N: up to 1 kV
  Surges between L/N–PE: up to 2 kV
- Short-circuit protection: The control gear is protected against permanent short-circuit with automatic restart function.
- Overload protection: The control gear only works in range of rated output power and voltage problemfree. Please check before switch-on mains power supply that the selected LED load is suitable (see Electrical Characteristics on data sheet).
- Overheating: The control gear has overheating protection acc. to IEC 61347-1 C 5e. In case of overheating the control gear will shut down. For restart switch of the mains for 1 min. and start again.
- No load operation: The control gear is protected against no load operation (open load).
- If any of the above mentioned safety functions will be triggered, disconnect the control gear from the power supply then find and eliminate the cause of the problem.

DC and emergency lighting operation

The control gears are suitable for direct voltage operation (DC). Reliable DC operation is guaranteed if the specified working area of LED driver is maintained.

- Light level at DC operation (EOFx): 100% (not adjustable)
- DC range: 198–276 V
- Reducing to 176 V: With reduced service life time possible
- DC operation: 3 hrs. (acc. to EN 50172)

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Assembly and Safety Information

Installation must be carried out under observation of the relevant regulations and standards. Installation must be carried out in a voltage-free state (i.e. disconnection from the mains). The following advices must be observed; non-observance can result in the destruction of the LED drivers, fire and/or other hazards.

Mandatory regulations

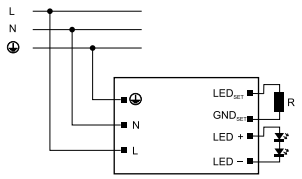
- DIN VDE 0100
- EN 60598-1

Mechanical mounting

- Mounting position: Built-in: Any position inside a luminaire is allowed
  Independent application: Drivers are not allowed to use for independent applications
- Mounting location: LED drivers are designed for integration into luminaires or comparable devices.
  Installation in outdoor luminaires: degree of protection for luminaire with water protection rate ≥ 4 (e.g. IP54 required).
- Degree of protection: IP20
- Clearance: Min. 0.10 m from walls. ceilings and insulation
- Surface: Solid and plane surface for optimum heat dissipation required.
- Heat transfer: If the driver is destined for installation in a luminaire. sufficient heat transfer must be ensured between the driver and the luminaire casing.
  LED drivers should be mounted with the greatest possible clearance to heat sources.
  During operation. the temperature measure at the driver's t_c point must not exceed the specified maximum value.
- Fastening: Using M4 screws in the designated holes
- Tightening torque: 0.2 Nm

Electrical installation

- Connection terminals: Push-in terminals for rigid or flexible conductors with a section of 0.2–1.5 mm²
- Stripped length: 8.5–10 mm
- Wiring: The mains conductor within the luminaire must be kept short (to reduce the induction of interference).
  Mains and lamp conductors must be kept separate and if possible should not be laid in parallel to one another.
- Polarity: Please ensure the correct polarity of the leads prior to commissioning. Reversed polarity can destroy the modules.
- Through-wiring: Is not allowed.
- Secondary load: The sum of forward voltages of LED loads has to be within the tolerances which are mentioned in the table "Electrical Characteristics" in this data sheet.
- Wiring diagram:



Selection of automatic cut-outs for VS LED drivers

- Dimensioning automatic cut-outs
  High transient currents occur when an LED driver is switched on because the capacitors have to load. Ignition of LED modules occurs almost simultaneously. This also causes a simultaneous high demand for power. These high currents when the system is switched on put a strain on the automatic conductor cut-outs. which must be selected and dimensioned to suit.
- Release reaction
  The release reaction of the automatic conductor cut-outs comply with VDE 0641. part 11. for B. C characteristics. The values shown in the following tables are for guidance purposes only and are subject to system-dependent change.
- No. of LED drivers
  The maximum number of VS LED drivers applies to cases where the devices are switched on simultaneously. Specifications apply to single-pole fuses. The number of permissible drivers must be reduced by 20% for multi-pole fuses. The considered circuit impedance equals 400 mΩ (approx. 20 m [2.5 mm²] of conductor from the power supply to the distributor and a further 15 m to the luminaire).

Type	**Ref. No.**	Automatic cut-out type and possible no. of VS drivers pcs.		
Automatic cut-out type B		B 10 A	B 13 A	B 16 A
ECXe 400.223	**186585**	28	37	45
ECXe 800.224	**186586**	8	11	14
ECXe 400.225	**186587**	12	16	20
ECXe 800.226	**186588**	8	11	14
Automatic cut-out type C		C 10 A	C 13 A	C 16 A
ECXe 400.223	**186585**	40	52	64
ECXe 800.224	**186586**	14	19	23
ECXe 400.225	**186587**	20	26	32
ECXe 800.226	**186588**	14	19	23

– To limit capacitive inrush currents the current carrying capacity of each circuit breaker (fuse) can be increased by a factor of 2.5 with the help of our ESB (Ref. No.: 149820, 149821, 149822) inrush current limiters.

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Choice of LEDSet Resistor

Output current selection:

- The output current can be adapted within the rated output current range
  - between 100 and 400 mA for ECXe 400.223 and ECXe 400.225 and
  - between 400 and 800 mA for ECXe 800.224 and ECXe 800.226.
- To change the output current it is necessary to use the correct LEDSet resistor. Values for different currents are figured out in the table below.
- The LEDSet resistor should have a maximum tolerance of 1%.
- Please refer to the electrical values and the operating window to see which combinations are possible.
- Output current / needed LEDSet resistor can be calculated as follows:

  $\mathbf{I_{OUT}} = 5V/Rset \times 1000$

  $\mathbf{R_{set}} = 5V/I_{OUT} \times 1000$
- If no LEDSet resistor is mounted (delivery condition) output current is less than nominal $I_{min.}$
- If LEDSet interface is short circuit output current is limitied to $I_{max.}$

Resistors		**ECXe 400.223**				**ECXe 400.225**			
Nominal current	Resistor	LED output voltage		LED nominal output		LED output voltage		LED nominal output	
I_{rated}	R	U_{LED}		P_{rated}		U_{LED}		P_{rated}	
mA	kΩ	V min.	V max.	W min.	W max.	V min.	V max.	W min.	W max.
100	50	30	120	3	12	100	225	10	22.5
125	40	30	120	3.75	15	100	225	12.5	28.1
150	33.33	30	120	4.5	18	100	225	15	33.75
175	28.57	30	120	5.25	21	100	225	17.5	39.4
200	25	30	120	6	24	100	225	20	45
225	22.22	30	120	6.75	27	100	225	22.5	50.6
250	20	30	120	7.5	30	100	225	25	56.25
275	18.18	30	120	8.25	33	100	225	27.5	61.9
300	16.67	30	120	9	36	100	225	30	67.5
325	15.39	30	120	9.75	39	100	225	32.5	73.1
350	14.29	30	114	10.5	40	100	225	35	78.75
375	13.33	30	107	11.25	40	100	223	37.5	83
400	12.5	30	100	12	40	100	212	40	85
Resistors		**ECXe 800.224**				**ECXe 800.226**			
400	12.5	30	70	12	28	30	130	12	52
425	11.76	30	70	12.75	29.75	30	130	12.75	55.25
450	11.11	30	70	13.5	31.5	30	130	13.5	58.5
475	10.53	30	70	14.25	33.25	30	130	14.25	61.75
500	10	30	70	15	35	30	130	15	65
525	9.52	30	70	15.75	36.75	30	130	15.75	68.25
550	9.09	30	70	16.5	38.5	30	130	16.5	71.5
575	8.7	30	69.6	17.25	40	30	130	17.25	74.75
600	8.33	30	66.7	18	40	30	130	18	78
625	8	30	64	18.75	40	30	130	18.75	81.25
650	7.69	30	61.5	19.5	40	30	130	19.5	84.5
675	7.41	30	59.3	20.25	40	30	126	20.25	85
700	7.14	30	57.1	21	40	30	121	21	85
725	6.9	30	55.2	21.75	40	30	117	21.75	85
750	6.67	30	53.3	22.5	40	30	113	22.5	85
775	6.45	30	51.6	23.25	40	30	109	23.25	85
800	6.25	30	50	24	40	30	106	24	85

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