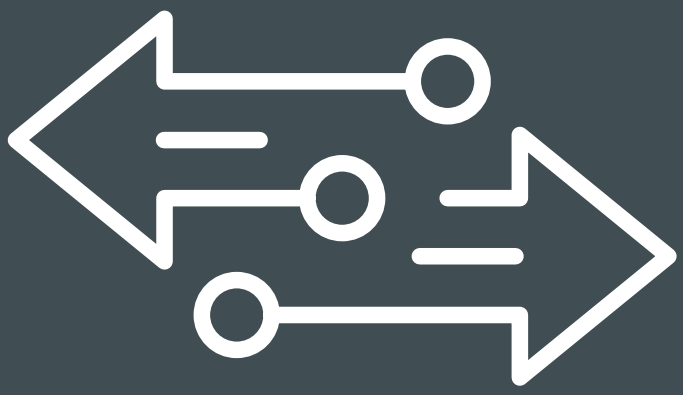
Ansell LIGHTING®



Typical Electrical Data

These figures are intended for guidence only

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1. Introduction

These figures are intended for guidence only, Ansell reserves the right to change the specification of the control gear used without prior notice.

Start-up current values for switch start circuits are approximatley 1.8 times the running current.

Start-up current values for HID lighting circuits are approximately double the running current.

High Frequency electronic control gear has a start- up current equivalent to the running current.

Inrush currents for all circuits varies and can be as high as 50A for a maximum of 0.2 mikkisecinds.

Typical Electrical Data - FLUORESCENT Circuits

(Data is rounded for clarity)

No. Lamp Watts	Lamp Type	Total Circuit Watts	Gear Loss	Power Factor Lagging	Line Current (A)
1x18w	T8 linear	26	8	0.30	0.13
2x18w	T8 linear series pair	48	11	0.45	0.22
3x18w	T8 linear	73	19	0.40	0.34
4x18w	T8 linear	96	22	0.48	0.44
1x36w	T8 linear	47	11	0.46	0.22
2x36w	T8 linear	94	22	0.46	0.45
3x36w	T8 linear	141	33	0.46	0.67
4x36w	T8 linear	188	44	0.46	0.99
1x58w	T8 linear	70	12	0.47	0.32
2x58w	T8 linear	140	24	0.47	0.64
1x70w	T8 linear	84	14	0.52	0.37
2x70w	T8 linear	168	28	0.52	0.74
1x18w	Compact	24	6	0.49	0.11
2x18w	Compact	48	12	0.49	0.22
1x26w	Compact	32	6	0.43	0.14
2x26w	Compact	64	12	0.43	0.28
1x16w	TC-DD	21	5	0.45	0.10
1x28w	TC-DD	34	6	0.49	0.15
1x38w	TC-DD	49	11	0.49	0.23
2x36w	PL-L	96	22	0.44	0.44
3x36w	PL-L	144	33	0.45	0.67

SWITCHSTART Control Gear

This is the simplist circuit and therfore the most economical to purchase where the capital costs are to be kept to a miniumum.
The circuit consists of a magnetic copper/ironballast, capacitor and glow starter.

ELECTRONIC START Control Gear

This uses an electronic starting device instead of the glow starter. This gives flicker free tube starting as the electronic starter gently warms the lamp for fractions of a second before starting, extending the lamp life by up to 50% depending on switching frequency. Lumen maintenance is also improved as lamp end blackening is reduced. The electronic starter automatically switches off a failed lamp, thus preventing troublesome tube flicker and flashing - which if left can lead to ballast

Typical Electrical Data - FLUORESCENT Circuits
(Data is rounded for clarity) **HIGH FREQUENCY**

No. Lamp Watts	Lamp Type	Total Circuit Watts	Gear Loss	Power Factor Lagging	Line Current (A)
1x14w	T5 linear	16	2.0	0.96	0.07
2x14w	T5 linear	31	3.0	0.96	0.14
3x14w	T5 linear	49	9.6	0.97	0.21
4x14w	T5 linear	65	12.6	0.97	0.28
1x21w	T5 linear	22.5	1.9	0.96	0.10
2x21w	T5 linear	45.5	4.3	0.97	0.20
1x24w	T5 linear	26.0	3.5	0.96	0.12
2x24w	T5 linear	48.5	3.5	0.98	0.24
3x24w	T5 linear	76.0	8.5	0.97	0.33
4x24w	T5 linear	99.0	9.0	0.98	0.42
1x28w	T5 linear	30.5	2.6	0.96	0.13
2x28w	T5 linear	61.0	5.2	0.97	0.26
1x35w	T5 linear	38.5	3.0	0.96	0.17
2x35w	T5 linear	76.5	5.5	0.97	0.33
1x39w	T5 linear	41.0	3.0	0.97	0.18
2x39w	T5 linear	84.0	8.0	0.97	0.36
1x49w	T5 linear	52.5	3.3	0.97	0.23
2x49w	T5 linear	107.0	8.6	0.97	0.46
1x54w	T5 linear	57.5	3.4	0.97	0.25
2x54w	T5 linear	114.5	6.3	0.97	0.49
1x80w	T5 linear	86.0	6.0	0.96	0.37
2x80w	T5 linear	175.0	15.0	0.98	0.74
1x18w	T8 linear	18.0	2.0	0.98	0.08
2x18w	T8 linear	36.0	4.0	0.97	0.16
3x18w	T8 linear	54.5	6.5	0.97	0.24
4x18w	T8 linear	73.0	9.0	0.97	1.31
1x36w	T8 linear	35.0	3.0	0.98	0.15
2x36w	T8 linear	70.0	6.0	0.98	0.29
3x36w	T8 linear	110.0	14.0	0.98	0.47
4x36w	T8 linear	140.0	12.0	0.98	0.58
1x58w	T8 linear	54.0	4.0	0.98	0.24
2x58w	T8 linear	107.0	7.0	0.99	0.45
1x70w	T8 linear	68.0	8.0	0.97	0.29
2x70w	T8 linear	130.0	10.0	0.98	0.55
1x13w	PL-C	15.8	4.6	0.97	0.07
2x13w	PL-C	29.5	4.7	0.97	0.12
1x18w	PL-C	19.5	3.0	0.97	0.08
2x18w	PL-C	37.5	1.5	0.97	0.16
1x26w	PL-C	26.5	2.5	0.95	0.12
2x26w	PL-C	51.0	3.0	0.97	0.22
1x32w	PL-T	34.5	2.5	0.96	0.15
2x32w	PL-T	68.0	4.0	0.96	0.30
1x42w	PL-T	46.0	4.0	0.97	0.20
2x42w	PL-T	89.0	5.0	0.97	0.38
1x16w	TC-DD	18.0	2.0	0.63	0.121
1x28w	TC-DD	28.7	3.3	0.96	0.13
1x38w	TC-DD	39.7	5.1	0.96	0.18
1x55w	PL-L	61.0	6.0	0.95	0.26
2x55w	PL-L	120.0	10.0	0.97	0.51

HIGH FREQUENCY Control Gear
This circuit uses the latest technology to give substancial benefits to the user. It gives all the benefits of electronic start, flicker free soft starting, better lumen maintenance and automatic shutdown of failed lamps. In addition, the lamp is driven at high frequency, typical 30,000Hz or 30kHz, giving approximately 20% saving in energy the over other circuits listed. Also the circuit is entirely flicker free which gives benefits with turning machinery aswell as no headaches or eye strain in workplaces improving the quality of lighting. High Frequency circuits are also silent.

Typical ELECTRICAL DATA - DISCHARGE Circuits
(Data is rounded for clarity)

Lamp Type	Total Circuit Watts	Gear Loss (W)	Start Current	Mains Run Current	Line Current (A)
SON					
70w	86w	16w	1.00	0.39	10
150w	176w	26w	1.80	0.80	20
250w	286w	36w	3.00	1.32	30
400w	445w	45w	4.50	2.13	40
1000w	1105w	105w	10.30	5.00	2x50
HQI					
35w	48w	13w	0.54	0.24	6
70w	86w	16w	1.00	0.39	10
150w	176w	26w	1.80	0.80	20
250w	286w	36w	2.10	1.28	20
400w	445w	45w	3.25	2.01	25
1000w	1105w	105w	10.30	5.00	2x50
2000w	2100w	100w	12.36	6.00	60
MBF					
50w	63w	13w	0.62	0.29	6
80w	95w	15w	0.80	0.43	8
125w	144w	19w	1.15	0.65	10
250w	283w	33w	2.10	1.28	16
400w	430w	30w	3.25	2.01	25

Suitable FUSE RATING (A) for multi-lamp circuits.
No. of lamp ways installed.

Lamp Power and Type	1	2	3	4	5	6
35w HQI	5	5	5	5	5	5
50w MBF	5	5	5	5	5	5
70w SON/HQI	5	5	5	5	6	10
80w MBF	5	5	5	5	5	10
125w MBF	5	5	5	6	10	10
150w SON/HQ1	5	5	10	10	13	13
250w MBF/HQ1	5	6	10	10	13	16
250w SON	5	10	13	16	20	20
400w MBF/HQI	5	10	16	16	20	25
400w SON	6	13	16	20	25	
1000w SON/HQ1	13	25				
2000w HQ1	16	25				

Circuit Protection for High Frequency Luminaires.
As a number of ballasts can be operated from one breaker, the exact number can vary according to the breaker type and ballast type, the table indicates the number of ballasts that can be used on a protective device with a Type 3 or C type characteristic.
Residual Current Devices (RCD's) or Earth Leakage Circuit Breakers (ELCB's) of the close protective type - i.e. 30mA, may suffer from "nuisance tripping" when used as the protective device for the control of circuits incorporating High Frequency Ballasts, only is this instance, inrush current is not the cause. Here, because of their risk in radiating electromagnetic interference, suspression is incorporated into each ballast, which generally consists of capacitors placed between the phase and neutral connectors and the earth connector. On switch on, a high temporary charging current will build up in the capacitors and flow through to the earth conductor. This, rather than their continuous steady leakage current can be sufficient to trip the protective device. To overcome this, time-lag or surge-proof inert devices must be used. These do not de-sensitise the devices as tripping will occur if the purge persists for more than 0.02 seconds. High leakage currents will subside within this period.
It must be pointed out that as well as earth current leakage experienced at switch-on, an additional symptom may be experienced during the switch-off period.

Approximate Maximum number of High Frequency Ballasts controlable via Type 3 / Type C MCB's

Ballast Rating (Watts)	Lamp Type	10A M.C.B. 1.5mm²	13A M.C.B. 1.5mm²	16A M.C.B. 1.5mm²	20A M.C.B. 1.5mm²
1x14w	T5 linear	46	80	80	140
2x14w	T5 linear	46	80	80	140
3x14w	T5 linear	30	46	50	64
4x14w	T5 linear	30	46	50	64
1x21w	T5 linear	46	80	86	98
2x21w	T5 linear	46	78	80	100
1x24w	T5 linear	46	80	80	140
2x24w	T5 linear	30	50	50	64
3x24w	T5 linear				
4x24w	T5 linear				
1x28w	T5 linear	44	78	80	90
2x28w	T5 linear	18	28	30	36
1x35w	T5 linear	46	80	80	140
2x35w	T5 linear	20	30	30	44
1x39w	T5 linear	30	40	50	60
2x39w	T5 linear	18	28	30	36
1x49w	T5 linear	30	40	50	58
2x49w	T5 linear	18	28	30	36
1x54w	T5 linear	30	46	50	80
2x54w	T5 linear	14	20	24	30
1x80w	T5 linear	18	28	30	36
2x80w	T5 linear				
1x18w	T8 linear	44	62	74	104
2x18w	T8 linear	36	50	60	72
3x18w	T8 linear	40	60	80	92
4x18w	T8 linear	30	40	52	64
1x36w	T8 linear	38	52	60	72
2x36w	T8 linear	24	32	38	44
3x36w	T8 linear	18	24	32	40
1x58w	T8 linear	36	50	60	70
2x58w	T8 linear	16	22	26	30
1x70w	T8 linear	20	26	34	42
2x70w	T8 linear	10	14	16	20
1x9-13w	PL-S/C	48	72	80 (2.5mm²)	100 (4mm²)
2x9-13w	PL-S/C	32	44	54 (2.5mm²)	64 (4mm²)
1x18w	PL-C	48	72	80 (2.5mm²)	100 (4mm²)
2x18w	PL-C	48	72	80 (2.5mm²)	100 (4mm²)
1x26w	PL-C	34	46	74 (2.5mm²)	84 (4mm²)
2x26w	PL-C	22	32	38 (2.5mm²)	44 (4mm²)
1x32w	PL-T	34	46	74 (2.5mm²)	84 (4mm²)
2x32w	PL-T	22	32	38 (2.5mm²)	44 (4mm²)
1x42w	PL-T	34	46	74 (2.5mm²)	84 (4mm²)
2x42w	PL-T	14	18	22 (2.5mm²)	30 (4mm²)
1x16w	TC-DD				
1x28w	TC-DD	32	46	66	80
1x38w	TC-DD	20	30	40	44
1x55w	PL-L				
2x55w	PL-L				

This table is provided for guidance only. If specific advice is needed, the manufacturer should be contacted for specific advice on ballast characteristics. This information should be relayed to the breaker manufacturer for advice on suitable breaker types.

The radio supression capacitors and in paricular the one between the line conductor and neutral, strives to maintain its state during switch-off. This results in a high current spike being generated into the neutral conductor of the installation, which if left unarrested has the potential to trip RCD's and ELCB's protecting other circuits within the same distribution board. If the protective measures detailed below are followed the symptom will not be problematic.

Install (if possible) luminaires on a 3phase supply, using a 3phase ELCB. Use surge-proof inert ELCB's or RCD's Only, where necessary use ELCB's/RCD's with a 30mA rated breaking current. Where possible use 100mA. Where it is unavoidable to use 30mA ELCB's/RCD's then obtain advice on suitable action to be taken. DO NOT meggar test the installation with the luminaire connected unless the live and neutral are linked within the fitting. Meggar tests should not exceed 500Volts. nor a duration time of more than 2 seconds.

Information taken from manufacturers literature & therefore assumed correct, but Ansell Lighting cannot be held responsible for any incorrect detail.

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