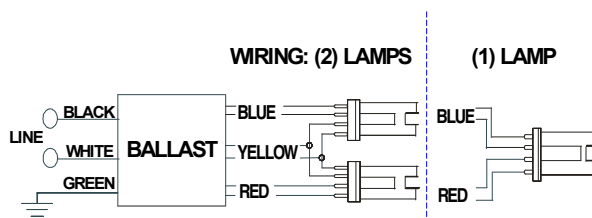


### Electrical Specifications at 120V

| Lamp Type      | Num. of Lamps | Rated Lamp Watts | Min. Start Temp (°F/C) | Input Current (Amps) | Input Power (ANSI Watts) | Ballast Factor | MAX THD % | Power Factor | MAX Lamp Current Crest Factor | B.E.F. |
|----------------|---------------|------------------|------------------------|----------------------|--------------------------|----------------|-----------|--------------|-------------------------------|--------|
| CFM18W/GX24Q   | 1             | 18               | 0/-18                  | 0.17                 | 20                       | 1.05           | 10        | 0.97         | 1.5                           | 5.25   |
| * CFM18W/GX24q | 2             | 18               | 0/-18                  | 0.33                 | 39                       | 1.05           | 10        | 0.99         | 1.5                           | 2.69   |
| CFQ18W/G24Q    | 1             | 18               | 0/-18                  | 0.16                 | 19                       | 1.00           | 10        | 0.97         | 1.5                           | 5.26   |
| CFQ18W/G24q    | 2             | 18               | 0/-18                  | 0.30                 | 35                       | 0.95           | 10        | 0.99         | 1.5                           | 2.71   |
| CFS16W/GR10Q   | 2             | 16               | 0/-18                  | 0.31                 | 37                       | 1.00           | 09        | 0.99         | 1.5                           | 2.70   |
| CFS21W/GR10Q   | 1             | 21               | 0/-18                  | 0.16                 | 20                       | 0.90           | 15        | 0.97         | 1.5                           | 4.50   |
| CFS21W/GR10Q   | 2             | 21               | 0/-18                  | 0.33                 | 40                       | 0.91           | 10        | 0.99         | 1.5                           | 2.28   |

### Wiring Diagram



Green Terminal must be Grounded

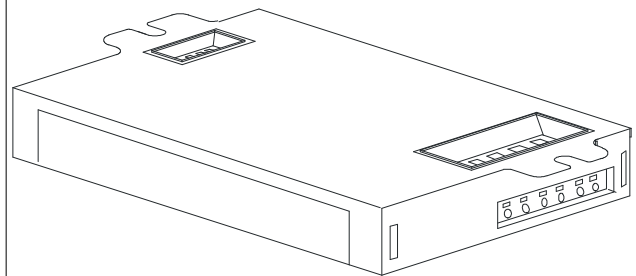
The wiring diagram that appears above is for the lamp type denoted by the asterisk (\*)

### Standard Lead Length (inches)

|        | in. | cm. |
|--------|-----|-----|
| Black  | 0.0 |     |
| White  | 0.0 |     |
| Blue   | 0.0 |     |
| Red    | 0.0 |     |
| Yellow | 0   |     |
| Gray   |     |     |
| Violet |     |     |

|              | in. | cm. |
|--------------|-----|-----|
| Yellow/Blue  |     |     |
| Blue/White   |     |     |
| Brown        |     |     |
| Orange       |     |     |
| Orange/Black |     |     |
| Black/White  |     |     |
| Red/White    |     |     |

### Enclosure



### Enclosure Dimensions

| OverAll (L) | Width (W) | Height (H) | Mounting (M) |
|-------------|-----------|------------|--------------|
| 4.98 "      | 2.4 "     | 1.0 "      | 4.6 "        |
| 4 49/50     | 2 2/5     | 1          | 4 3/5        |
| 12.6 cm     | 6.1 cm    | 2.5 cm     | 11.7 cm      |



Revised 08/15/06

| ICF-2S18-H1-LD@120 |                         |
|--------------------|-------------------------|
| Brand Name         | <b>SMARTMATE</b>        |
| Ballast Type       | <b>Electronic</b>       |
| Starting Method    | <b>Programmed Start</b> |
| Lamp Connection    | <b>Series</b>           |
| Input Voltage      | <b>120-277</b>          |
| Input Frequency    | <b>50/60 HZ</b>         |
| Status             | <b>Active</b>           |

## Electrical Specifications at 120V

### Notes:

#### Section I - Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be available in a plastic/metal can or all metal can construction to meet plenum requirements.
- 1.3 Ballast shall be provided with poke-in wire trap connectors color coded per ANSI C82.11.

#### Section II - Performance

- 2.1 Ballast shall be Programmed Start except for ballasts with -QS suffix, which shall be Rapid Start.
- 2.2 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.3 Ballast shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency).
- 2.4 Ballast shall be high frequency electronic type and operate lamps at a frequency above 42 kHz to avoid interference with infrared devices and eliminate visible flicker.
- 2.5 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
- 2.6 Ballast shall have a minimum ballast factor of 1.0 for primary lamp application.
- 2.7 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less.
- 2.8 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10% when operated at nominal line voltage with primary lamp.
- 2.9 Ballast shall have a Class A sound rating.
- 2.10 Ballast shall have a minimum starting temperature of -18C (0F) for primary lamp. Ballasts for PL-H lamps shall have a minimum starting temperature of -30C (-20F) for primary lamp.
- 2.11 Ballast shall provide Lamp EOL Protection Circuit.
- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions.

#### Section III - Regulatory

- 3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
- 3.3 Ballast shall be rated for use in air-handling spaces.
- 3.4 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
- 3.5 Ballast shall comply with ANSI C82.11 where applicable.
- 3.6 Ballast shall comply with applicable requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, for Non-Consumer equipment.
- 3.7 Ballast shall comply with NEMA 410 for in-rush current limits.
- 3.8 Ballast shall meet RoHS Compliance Standards

#### Section IV - Other

- 4.1 Ballast shall be manufactured in a factory certified to ISO 9001 Quality System Standards.
- 4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 75C and three-years for a maximum case temperature of 85C (90C three-year warranty for ICF-1H120-M4-XX, ICF-2S42-90C-M2-XX and ICF-2S70-M4-XX models).
- 4.3 Manufacturer shall have a twenty-year history of producing electronic ballasts for the North American market.



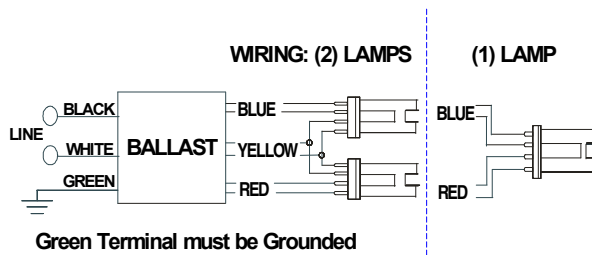
Revised 08/15/06

# Smartmate ICF2S18H1LD

## Electrical Specifications at 277V

| Lamp Type     | Num. of Lamps | Rated Lamp Watts | Min. Start Temp (°F/°C) | Input Current (Amps) | Input Power (ANSI Watts) | Ballast Factor | MAX THD % | Power Factor | MAX Lamp Current Crest Factor | B.E.F. |
|---------------|---------------|------------------|-------------------------|----------------------|--------------------------|----------------|-----------|--------------|-------------------------------|--------|
| CFM18W/GX24Q  | 1             | 18               | 0/-18                   | 0.08                 | 20                       | 1.05           | 10        | 0.97         | 1.5                           | 5.25   |
| *CFM18W/GX24q | 2             | 18               | 0/-18                   | 0.14                 | 39                       | 1.05           | 10        | 0.99         | 1.5                           | 2.69   |
| CFQ18W/G24q   | 1             | 18               | 0/-18                   | 0.07                 | 19                       | 1.00           | 10        | 0.97         | 1.5                           | 5.26   |
| CFQ18W/G24q   | 2             | 18               | 0/-18                   | 0.13                 | 35                       | 0.95           | 10        | 0.99         | 1.5                           | 2.71   |
| CFS16W/GR10q  | 2             | 16               | 0/-18                   | 0.13                 | 37                       | 1.00           | 09        | 0.99         | 1.5                           | 2.70   |
| CFS21W/GR10Q  | 1             | 21               | 0/-18                   | 0.07                 | 20                       | 0.90           | 15        | 0.97         | 1.5                           | 4.50   |
| CFS21W/GR10Q  | 2             | 21               | 0/-18                   | 0.14                 | 40                       | 0.91           | 10        | 0.99         | 1.5                           | 2.28   |

### Wiring Diagram



The wiring diagram that appears above is for the lamp type denoted by the asterisk (\*)

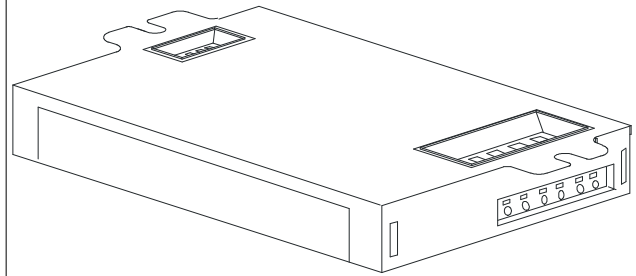
### Standard Lead Length (inches)

|        | in. | cm. |
|--------|-----|-----|
| Black  | 0.0 |     |
| White  | 0.0 |     |
| Blue   | 0.0 |     |
| Red    | 0.0 |     |
| Yellow | 0   |     |
| Gray   |     |     |
| Violet |     |     |

|              | in. | cm. |
|--------------|-----|-----|
| Yellow/Blue  |     |     |
| Blue/White   |     |     |
| Brown        |     |     |
| Orange       |     |     |
| Orange/Black |     |     |
| Black/White  |     |     |
| Red/White    |     |     |

### Enclosure



### Enclosure Dimensions

| OverAll (L) | Width (W) | Height (H) | Mounting (M) |
|-------------|-----------|------------|--------------|
| 4.98 "      | 2.4 "     | 1.0 "      | 4.6 "        |
| 4 49/50     | 2 2/5     | 1          | 4 3/5        |
| 12.6 cm     | 6.1 cm    | 2.5 cm     | 11.7 cm      |



Revised 08/15/06

| ICF-2S18-H1-LD@277 |                  |
|--------------------|------------------|
| Brand Name         | SMARTMATE        |
| Ballast Type       | Electronic       |
| Starting Method    | Programmed Start |
| Lamp Connection    | Series           |
| Input Voltage      | 120-277          |
| Input Frequency    | 50/60 HZ         |
| Status             | Active           |

## Electrical Specifications at 277V

### Notes:

#### Section I - Physical Characteristics

- 1.1 Ballast shall be physically interchangeable with standard electromagnetic or standard electronic ballasts, where applicable.
- 1.2 Ballast shall be available in a plastic/metal can or all metal can construction to meet plenum requirements.
- 1.3 Ballast shall be provided with poke-in wire trap connectors color coded per ANSI C82.11.

#### Section II - Performance

- 2.1 Ballast shall be Programmed Start except for ballasts with -QS suffix, which shall be Rapid Start.
- 2.2 Ballast shall contain auto restart circuitry in order to restart lamps without resetting power.
- 2.3 Ballast shall operate from 50/60 Hz input source of 120V through 277V with sustained variations of +/- 10% (voltage and frequency).
- 2.4 Ballast shall be high frequency electronic type and operate lamps at a frequency above 42 kHz to avoid interference with infrared devices and eliminate visible flicker.
- 2.5 Ballast shall have a Power Factor greater than 0.98 for primary lamp.
- 2.6 Ballast shall have a minimum ballast factor of 1.0 for primary lamp application.
- 2.7 Ballast shall provide for a Lamp Current Crest Factor of 1.7 or less.
- 2.8 Ballast input current shall have Total Harmonic Distortion (THD) of less than 10% when operated at nominal line voltage with primary lamp.
- 2.9 Ballast shall have a Class A sound rating.
- 2.10 Ballast shall have a minimum starting temperature of -18C (0F) for primary lamp. Ballasts for PL-H lamps shall have a minimum starting temperature of -30C (-20F) for primary lamp.
- 2.11 Ballast shall provide Lamp EOL Protection Circuit.
- 2.12 Ballast shall tolerate sustained open circuit and short circuit output conditions.

#### Section III - Regulatory

- 3.1 Ballast shall not contain any Polychlorinated Biphenyl (PCB).
- 3.2 Ballast shall be Underwriters Laboratories (UL) listed, Class P and Type 1 Outdoor; and Canadian Standards Association (CSA) certified where applicable.
- 3.3 Ballast shall be rated for use in air-handling spaces.
- 3.4 Ballast shall comply with ANSI C62.41 Category A for Transient protection.
- 3.5 Ballast shall comply with ANSI C82.11 where applicable.
- 3.6 Ballast shall comply with applicable requirements of the Federal Communications Commission (FCC) rules and regulations, Title 47 CFR part 18, for Non-Consumer equipment.
- 3.7 Ballast shall comply with NEMA 410 for in-rush current limits.
- 3.8 Ballast shall meet RoHS Compliance Standards

#### Section IV - Other

- 4.1 Ballast shall be manufactured in a factory certified to ISO 9001 Quality System Standards.
- 4.2 Ballast shall carry a five-year warranty from date of manufacture against defects in material or workmanship, including replacement, for operation at a maximum case temperature of 75C and three-years for a maximum case temperature of 85C (90C three-year warranty for ICF-1H120-M4-XX, ICF-2S42-90C-M2-XX and ICF-2S70-M4-XX models).
- 4.3 Manufacturer shall have a twenty-year history of producing electronic ballasts for the North American market.



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