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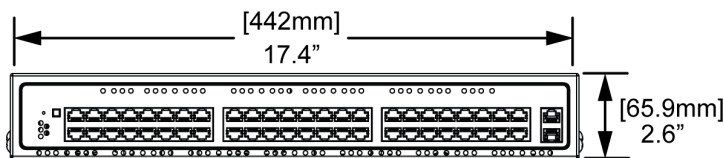
SMARTENGINE INSTALLATION

GENERAL

The smartengine 3 Model 4834 powers and communicates with smart-gateways, smartsensors, and wall smartswitches to provide intelligent lighting control and building intelligence. The smartengine provides a sophisticated level of control which significantly reduces energy consumption. Multiple smartengines can be linked together to power and control hundreds or thousands of fixtures.

The smartengine provides communications and control for all types of lighting including LED, fluorescent, CFL and HID.
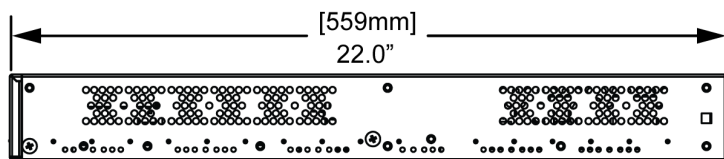
In the case of LED lighting, the smartengine also provides centralized AC to DC power conversion. It takes high voltage 200–250 VAC or 277 VAC input power, converts it to low-voltage DC, and distributes the power to all fixtures via LED smartsensors and smartgateways using Class 2, low-voltage cabling. The smartengine can be located on a rack or wall mounted in an electrical or telecom closet.

ORDERING INFORMATION IS LISTED BELOW

Part No.	Description
SENG-3-4834-250	Engine, 200–250 VAC
SENG-3-4834-277	Engine, 277 VAC
RackMount Brackets	Engine rack mount kit

SMARTENGINE MODEL 4834

[442mm] 17.4"

[65.9mm] 2.6"

Front View

[559mm] 22.0"

Side View

Rear View 200-250 VAC

Rear View 277 VAC

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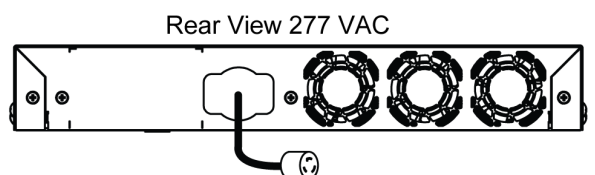
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! IMPORTANT NOTES AND RECOMMENDATIONS

· For installations in Canada, no un-insulated live parts in the output from the smartengine shall be readily accessible, as defined by the Canadian Electrical Code (CES). Accessibility shall be determined using the risk of shock accessibility criteria such as use of the finger probe from the CSA standard(s) cited for the category associated with the c-UL Mark.

· Access to such parts should also be considered when removing panels that do not require the use of tools when removed. Insulated parts, such as wire or cabling with outer insulation or jacket that are certified and carry a sufficient voltage rating (>60V) are permitted to be accessible to contact.

· If a fixture requires more than one channel for power, use additional wiring (see each fixture's specification for requirements). Note that all additional channels for a 2- or 3-channel fixture must be connected to the same smartengine. Wiring for an individual fixture cannot be spread across multiple smartengines.

· It is recommended that the fixtures in a single space be interleaved across smartengine. This provides another level of redundancy — in the event of an electrical failure affecting an smartengine, only a portion of the lights in a room would turn off.

· 18 AWG (1mm) cable installations will be wired as with category cable, except that each 18AWG cable pair will be terminated with a RJ45-18AWG smartterminator. These smartterminators will allow the 18AWG pair to be connected to the RJ45 jack with no other modifications required. Multi-pair 18AWG can be used with multiple RJ45-18AWG smartterminators attached.

· The smartengine, smartdirector, smartsensors, smartgateways and wall smartswitches are designed for commercial use only and are not for residential use.

PREPARATION

1. Determine location for all fixtures and smartdimmers.

2. Determine location for all smartengines. The smartengine is a 1.5U rack mountable system and can be installed in a standard server rack using supplied rack-mounting L brackets, or to the wall with a wall mount smartkit.

3. Run low-voltage cable from smartengine location to each fixture location.

4. Run low-voltage cable from the smartengine location to each smart-dimmer location.

5. Options for connector preparation:
   · If using the RJ45 connector, it can be wired as T568A (straight through) or T568B (crossover).

   · If using 18 AWG (1mm) wiring to connect to the smartengine, use a RJ45 smartterminator on the 18 AWG wire.

6. Install third-party light fixtures according to vendor's installation instructions.

INSTALLATION

RACK MOUNT INSTRUCTIONS

1. Attach the two rack mount brackets to each side of the smartengine using 3 screws provided on each side as shown.

2. With power disconnected, install smartengine in a standard server rack, using mounting brackets (included). Ensure that air vents are not blocked and that the conditions support the ambient operation temperature of 32°F to 122°F (0°C to 50°C).

3. Connect the cables.

#10-32 flat head screws (6 places)

Rack mount brackets (2 places)
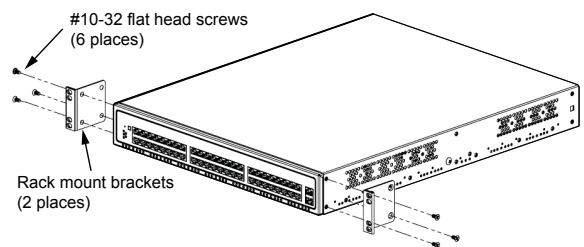
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SMARTENGINE INSTALLATION

CABLING

NOTE
The category cable should be punched down at the patch panels according to T568A or T568B standards, which are straight through or crossover arrangements.

1. Using a conventional method, connect the category cable wiring from the smartgateway to the punch down side of patch panel.

2. Use an RJ45 jumper cable (or patch cable) to connect the corresponding ports from patch panel.

3. Connect each smartengine to AC power and turn on AC power using the circuit breaker. Confirm that the smartengine power light comes on.

4. Connect all smartengines to the local network via Ethernet ports marked LAN.
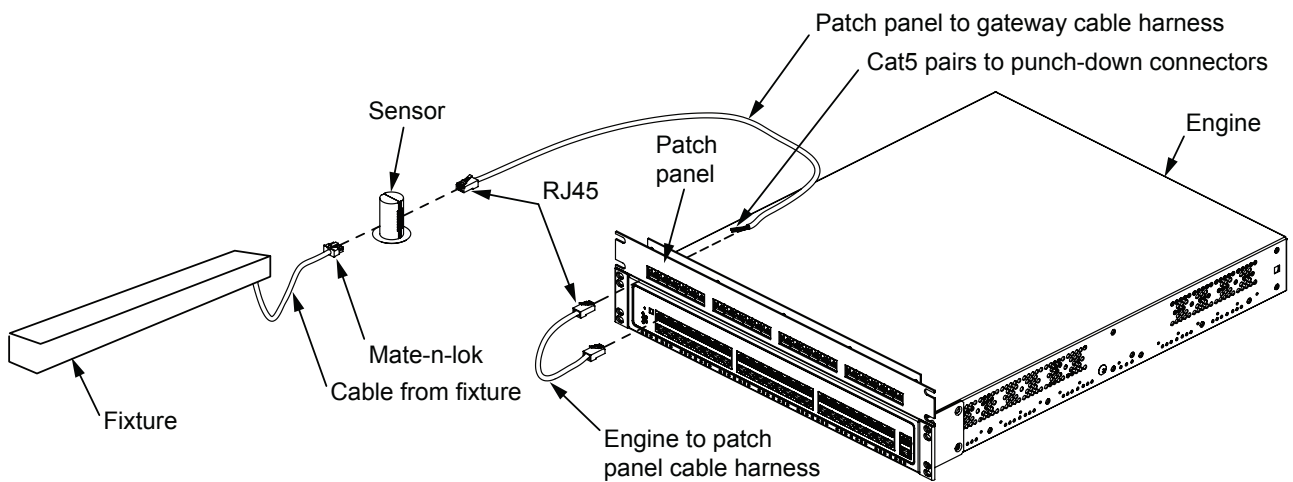
SMARTENGINE POWER REQUIREMENTS
1. To ensure the smartengines operate continuously as designed, a dedicated branch circuit for the smartengines is recommended, preventing other loads on the same circuit from drawing too much current from the branch circuit. Provide the smartengine with a suitable disconnect in the input power distribution so that AC power is safely removed during servicing. The wiring must meet all NEC, state, and local electrical codes and needs to be installed by a qualified electrician.

2. smartengines are available as 200–250 VAC and 277 VAC power input versions.
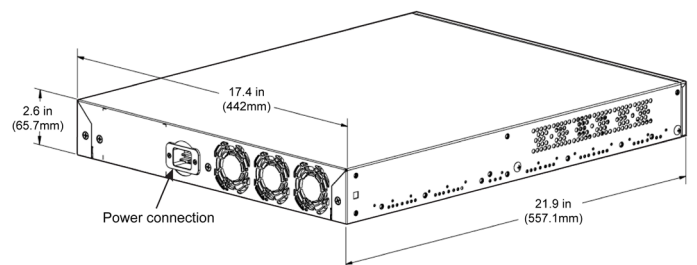
200 VAC–250 VAC VERSION
For the 200 VAC–250 VAC version, the smartengine requires a maximum 12A of current from the branch circuit to which it is connected when operating at full power. At minimum, a 15A branch circuit is required for a single smartengine, given the standard 80% de-rating.

· AC input: 200–220 VAC/12A, 50–60Hz
· 230 VAC-250 VAC/10A, 50–60Hz
· Max power consumption: 2,200W

NOTE
smartengine does not furnish any pigtails, plugs, receptacles, conduit, or flex cable.

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277 VAC VERSION

For the 277 VAC version, the smartengine requires a maximum of 8A of current from the branch circuit to which it is connected when operating at full power. At a minimum, a 10A branch circuit is required for a single smartengine, given the standard 80% de-rating. The socket-outlet shall be installed near the equipment and shall be easily accessible.
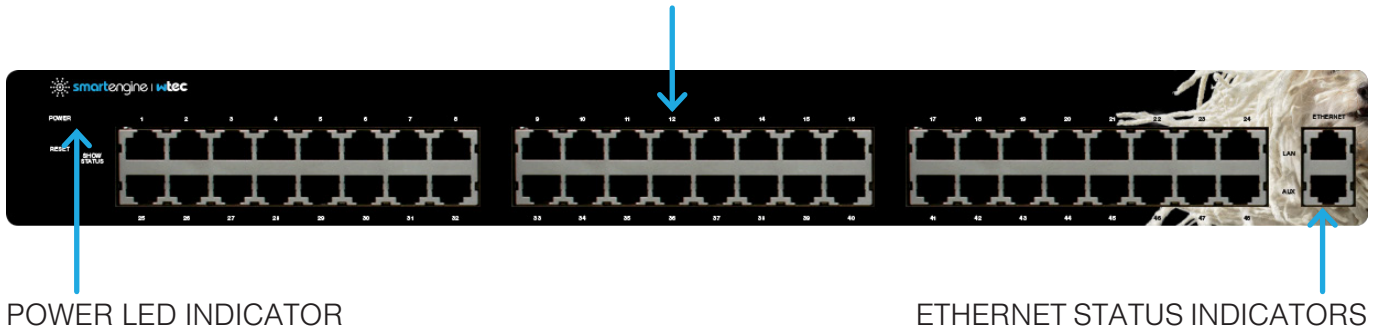
· AC input: 277 VAC/8A, 50–60Hz
· Max power consumption: 2,200W
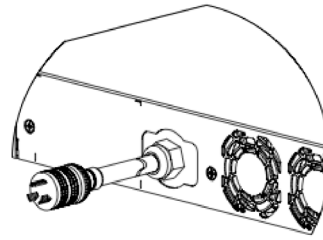
SMARTENGINE LED INDICATORS

The smartengine has a series of LEDs on the front panel to communicate the system's status.
These LEDs provide information on the smartengine's operation and the status of port communication.

SMARTENGINE PORT LED INDICATORS

POWER LED INDICATOR

ETHERNET STATUS INDICATORS

POWER INDICATOR STATUS

Power LED Indicator	Engine Status
Off	No power is delivered to the smartengine.
Blinking green	The engine is booting. Manager software is not yet running.
Solid green	The engine is on and functioning normally.
Solid amber	The engine is experiencing a problem. Call smartengine support.

PORT INDICATOR STATUS

Each port on the smartengine has a multi-color LED to communicate status for that port. After a period of inactivity, the LEDs are turned off to save energy. To activate the lights, press the **SHOW STATUS** button on the smartengine faceplate.

Engine Port LED Indicator Status	Port Status
Off	No device connection is detected on the port.
Solid green	The engine recognizes the device connection.
Blinking green	The engine is upgrading the firmware of a gateway.
Solid amber	The engine is in the process of discovering a fixture. Alternately, an error has occurred after discovery.

ETHERNET INDICATOR STATUS

Ethernet Status Indicator	Ethernet Status
Off	An Ethernet connection is not detected on this port.
Blinking green	The engine recognized the Ethernet connection.

HOW TO CONTACT US

To find out more about wtec products, visit us on the web at www.wtec.ag

FOR TECHNICAL ASSISTANCE:

· EMEA, contact your local account representative
· An email can also be sent to smartenginesupport@wtec.ag for technical support.