

1.01 PORTABLE DIMMER PACK

A. General

1. The portable dimmer pack shall be the Sensor3 Portable Pack as manufactured by Electronic Theatre Controls, Inc., or equal. The portable dimmer pack shall consist of six (~~SP3-12xx~~) or twelve (~~SP3-24xx~~) dimmer module spaces. The packs shall be UL Listed and CSA Approved, and shall be so labeled when delivered.

B. Electrical

1. The dimmer pack may operate on either 3-phase, 4-wire + ground, 120/208V, 50/60Hz AC or 1-phase, 3-wire + ground, 120/240V, 50 or 60Hz, AC at an amperage sufficient to power the pack.
2. Pack and module power ratings shall be:
 - 1) SP6 – 6-Module Pack (Model - Dimmers – Power)

a)	SP3-1215	12x15A	60A 3Ø /90A 1Ø
b)	SP3-1220	12x20A	80A 3Ø /120A 1Ø
c)	SP3-650	6x50A	100A 3Ø /150A 1Ø
d)	SP3-3100	3x100A	100A 3Ø / N/A
 - 2) SP12 – 12-Module Pack (Model - Dimmers – Power)

e)	SP3-2415	24x15A	120A 3Ø /180A 1Ø
f)	SP3-2420	24x20A	160A 3Ø /240A 1Ø
g)	SP3-1250	12x50A	200A 3Ø /300A 1Ø
h)	SP3-6100	6x100A	200A 3Ø /300A 1Ø
3. The pack shall be designed for easy conversion from three-phase to single-phase power. Electronics shall automatically select proper phasing for the power supplied to the pack.
4. Standard plug-in dimmer modules include a dual 1.8kw, dual 2.4kw, single 6.0kw and single 12.0kw double-height dimmer. The pack shall come with standard Sensor dimmers and the Control Electronics Module (CEM3).
5. The front data connector panel shall contain two sets of DMX512A In and Thru connectors as well as an RJ45 Ethernet connector. Termination switches shall be two-position toggle switches. The rear power connection panel shall be recessed into the pack for component protection. Cam-Lok power input connectors shall be standard.

6. Output connectors shall be available in the following standard configurations. (Numbers listed under connector types are the number of outlets per dimmer with that connector, the ordering suffix for that connector type is in parenthesis.)

SP3 6-Module	Blank	Pin	Edison	Twist	Multi-pin
SP3-1215	(X)	2 (B)	2 (A)	1 (C)	(V)
SP3-1220	(X)	2 (B)	2 (A)	1 (C)	(V)
SP3-650	(X)	1 (B)	N/A	N/A	N/A
SP3-3100	(X)	1 (B)	N/A	N/A	N/A

SP3 12-Module	Blank	Pin	Edison	Twist	Multi-pin
SP2415	N/A	1 (B)	1 (A)	1 (C)	(V)
SP2420	N/A	1 (B)	1 (A)	1 (C)	(V)
SP1250	N/A	1 (B)	N/A	N/A	N/A
SP6100	N/A	1 (B)	N/A	N/A	N/A

7. Custom configuration output panels shall also be available.

C. Electronics

1. Power control electronics (CEM3) shall be contained in a single module that can be plug-in capable without use of tools. Dimming systems that require tools for removal of control electronics shall not be acceptable.
2. All data and power input for CEM3 control electronics shall be located on a separately removable/pluggable termination connector on the backplane such that backplane can be replaced without removal and secondary termination of discrete conductors. Dimming systems that require discrete termination of DMX, Ethernet, power input, and dimmer control output directly on terminals on the control module or pluggable backplane shall not be permitted.
3. Dimming control signals shall be sent between control module and dimmer/power modules using flat ribbon cables. Systems using cat5 cable and rj45 connections or discrete hand wired conductors as sole physical communication media between control module and dimmer/power modules shall be considered long term unreliable and shall be not be acceptable.
4. System shall provide an optional low voltage connection to maintain power of control electronics through brown out, instantaneous, and sustained power outages. Systems that do not provide optional low voltage backup power connection to the power controller shall not be acceptable.
5. Control electronics shall be housed in a formed steel body with cast-aluminum face panel.

D. Advanced Features

1. Advanced Features (AF) shall be available as an option. An AF pack shall require AF dimmer modules.

2. Sensor's Advanced Features (AF) option shall add a monitoring system that provides complete system status information. The AF option shall monitor current and output voltage on a dimmer-by-dimmer basis and provide information on lamp burnouts, dimmer status and rack input voltages.
3. Dimmer-specific information, such as dimmer failure or SCR failure, shall be displayed as an error on the CEM3 and any monitoring device. Other dimmer errors to be detected shall include, but not be limited to, the presence of DC components and lack of output voltage.
4. The CEM3 shall allow the user to record the loads of all dimmers in the system. The CEM3 shall, during operation, test each dimmer, determine its load, and compare it to the recorded load. Any change from recorded loads greater than five percent shall display an error on the CEM3 and any monitoring device on the network.

E. Physical

1. The Sensor3 portable dimmer pack shall be free standing, either 17.5" W x 15.25" H x 12.5"D or 17.5"W x 24.25"H x 12.5"D. It shall be constructed of .100" aluminum and .060" steel. All pack components shall be properly treated, primed and finished with fine-texture, scratch-resistant, gray and black powder coat.
2. Construction shall allow the insertion and removal of dimmer modules and control electronics without the use of tools. Supports shall be provided for precise alignment of dimmer modules into power and signal connector blocks. It shall not be necessary to disassemble the pack frame for component replacement.
3. Each pack shall provide a door containing an integral electrostatic air filter that shall be removable for easy cleaning. Low-noise fans shall be located on the rear of each pack (one fan on SP6, two on SP12). The fan shall draw all intake air through the integral electrostatic air filter, over the surfaces of the module housing and out the back of the pack. The fan shall maintain the temperature of all components at proper operating levels with dimmers under full load, provided the ambient temperature of the dimmer room does not exceed 40 C/104 F. Dimmer racks that do not employ both door and electrostatic air filters shall not be acceptable. In the event of an over-temperature condition, only the affected dimmer module(s) shall shut down. The fans shall remain on during thermal shutdown of individual dimmer modules.
4. An LED status indicator (beacon) shall be mounted on the pack. In normal operation conditions, this LED is illuminated. If the pack's control module senses an error condition, the beacon shall flash until the error is corrected.
5. The dimmer pack shall be factory tested and control modules shall be burned in at elevated temperatures for a minimum of 24 hours. Sensor packs shall be UL Listed for 120V applications with an interrupt rating of 10,000 amps.