

SERVICE BULLETIN

Issued: 6/25/24

SUBJECT: DE-4000 FLEX PANEL PCB ASSEMBLY AND OVERVIEW

DE-4000 Flex panels are any DE-4000 panel with a beginning number of 5900-FLX

The PCB is designed to house the majority of custom wiring between the relays, fuse blocks, diode blocks and resistors. It also provides two harness connections for the majority of the wiring that connects to the DE-4000 and remote mounted accessories in the main panel. Testing shows that production and overall panel reliability are improved.

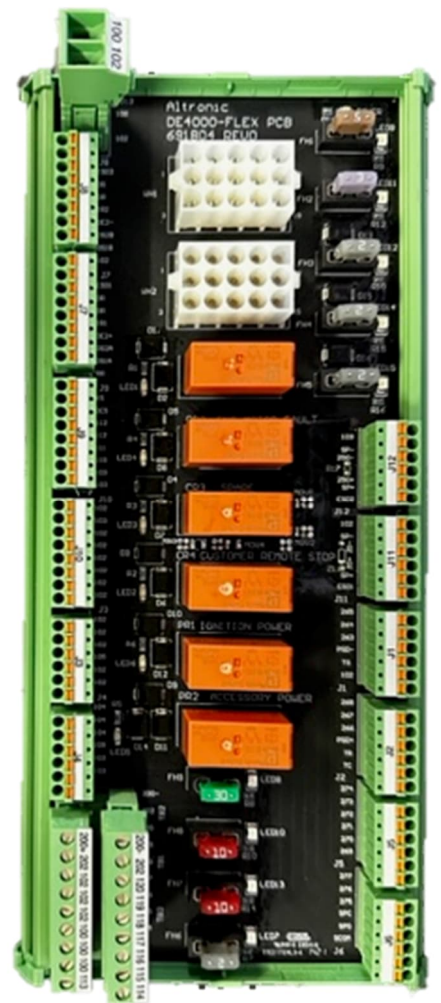
The PCB is equipped with spring-loaded terminal blocks, DPDT relay sockets, automotive style fuses and two harness connections.

Relay sockets include all standard relays and one spare. Each relay socket has a blue LED that illuminates when the coil is energized. Each fuse base has a red LED indicating when the fuse is missing or blown; as long as a circuit load is applied downstream of the fuse socket.

All customer interface connections are on the PCB. The drawing of the panel will include chevrons on the wires that connect to the PCB through one of the two wire harness connections or double line terminal blocks. Wires that are grouped in one of two harnesses have the color ID set to WH1 or WH2. The WH1 connector is at the top of the PCB and the WH2 connector is located directly under WH1.

The spare relay can be turned on by grounding the SP- (A2) terminal and energizing the SP+ (A1) terminal with 24VDC. The relays are the same relays that Altronic has been using for several years. Altronic now stocks these relays as Cartridge replacements. These will work on this PCB as well as existing relays in older generation panels.

The relay cartridge is Altronic part number 1002-4181-00. It is a 6-AMP DPDT. This relay can be used on the PCB and all traditional green relay bases, DPDT. Relays CR1 – CR4 are configured on the board as DPDT. Relay PR1 and PR2 are the same cartridge, but configuration inside the PCB connects both poles together in parallel. This configuration allows the AMP rating to be 10 AMP, but does limit the relays to SPDT.





For convenience, Altronic has labeled all 6-AMP relays with the Contact relay number and main function description. The function is not locked down and can be used for other functions should the design require such. Please contact your Altronic representative for assistance. The relay cartridges use friction-type connectors to hold them in place, but each socket has a channel under it to allow the use of a wire tie to hold the relay in place should the unit be installed in a higher than normal vibrating environment.

Everything on the board, including all terminals, is labeled with white silk screen ink from the Altronic factory. The wire terminals for customer connections are spring loaded. This prevents wire connections from coming loose. 16- and 18-gauge wires are recommended, with a 10-millimeter exposed wire core and no wire end ferrule. To insert or remove a wire, push in.

Key Part numbers:

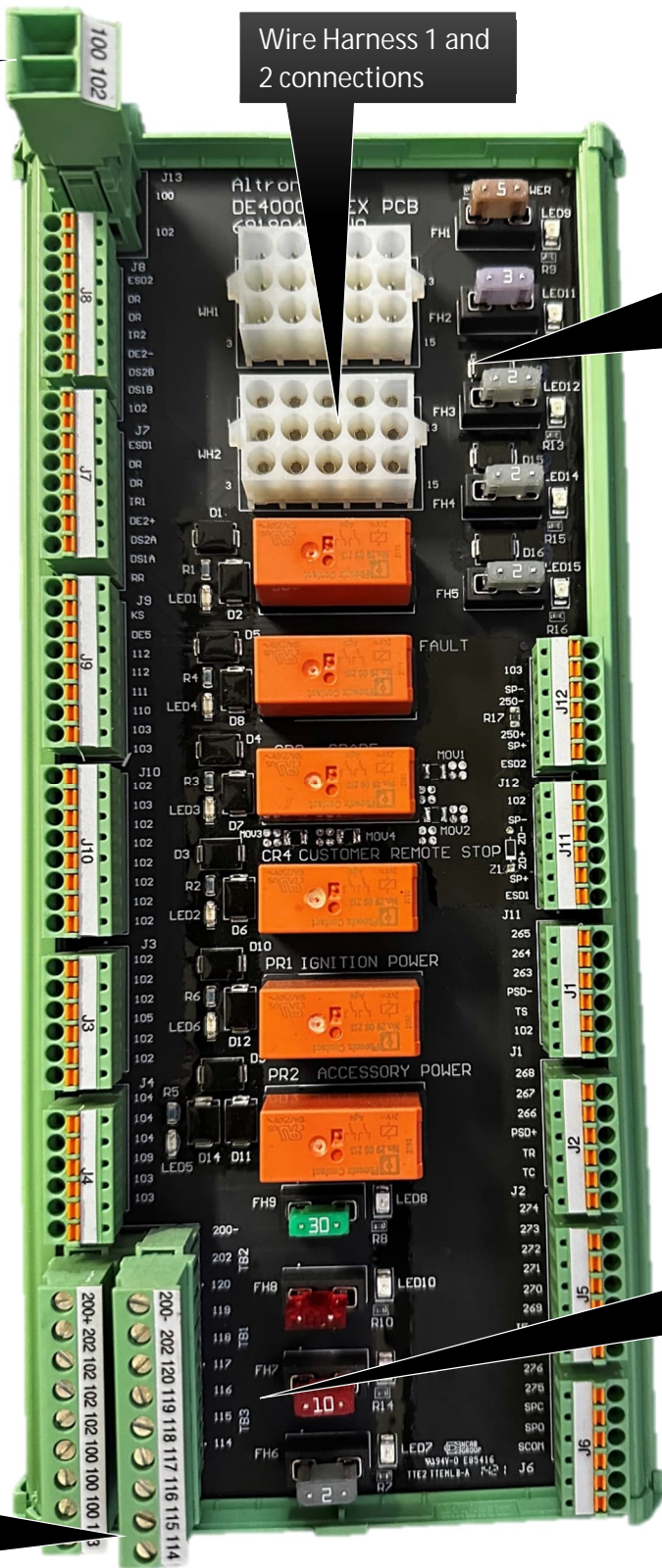
691804-1	DE-4000 Flex Panel PCB
662064-1	WH1 Harness
662063-1	WH2 Harness
1002-4181-00	6 AMP Relay Cartridge DPDT or 10 AMP SPDT in PR1 and PR2 slot
1002-5716-00	2 AMP Fuse
1002-5717-00	3 AMP Fuse
1002-5718-00	7.5 AMP Fuse



Main 24VDC power input

Wire Harness 1 and 2 connections

Fuse FH1 through FH5
Fuse FH1 = Master
Fuse FH2 = Accessory power
Fuse FH3 = Pre-lube

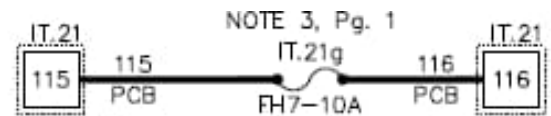
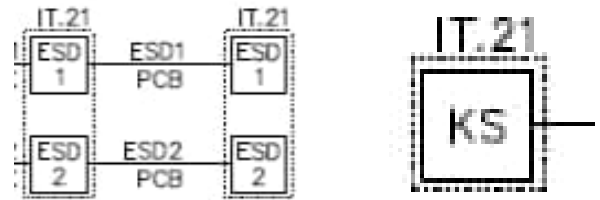
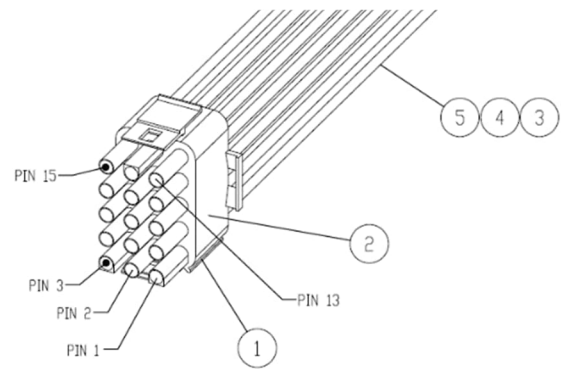
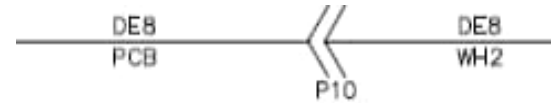


Screw terminal for PR1 and PR2 terminals
Higher amperage, up to 14-Gauge wire

Fuse FH6 through FH9
Fuse FH6 = Configurable / spare
Fuse FH7 = Ignition / spare

The schematic for the FLEX PCB is in all panel drawings that use this. There are several details that aid in diagnosis and trouble shooting.

1. Wire Circuit labels are identified as a number and description.
2. The numbers are also printed on the PCB at each terminal they may come in contact with.
3. The description is one of the three.
 - a. Color (Red, Black, Blue, ex....)
 - i. Color in the description, indicates that this wire is an added wire to the panel design and not part of the PCB or harness.
 - b. Wiring harness number (WH1 or WH2)
 - i. Transitions between the PCB and the wiring harnesses are identified by a double chevron.
 - ii. Each chevron has a pin number to help identify the pin number in the connector.
 - iii. The chevron will always point to the PCB.
 - iv. All drawings will include the pin out legend for each of the two wire harnesses.
 - c. PCB indicates that the wire (circuit) is located on the PCB.
4. Spring terminal blocks on the PCB are identified in the drawing with a ghost outline and an IT (Item Number) of 21 on them. This can be one terminal block or multiple terminal blocks inside one ghosted outline.
5. The screw terminal blocks for larger wires (14-Gauge) are identified the same way. In most cases the wires leading to them will be larger in the drawing.



The PCB was designed for a base FLEX panel with many flexible applications in mind. There are several spare contact / outputs that are not always used. This provides flexibility over a wide range of applications, both pre-conceived and those discovered later.

For more information or additional support, please contact your Altronic representative .