

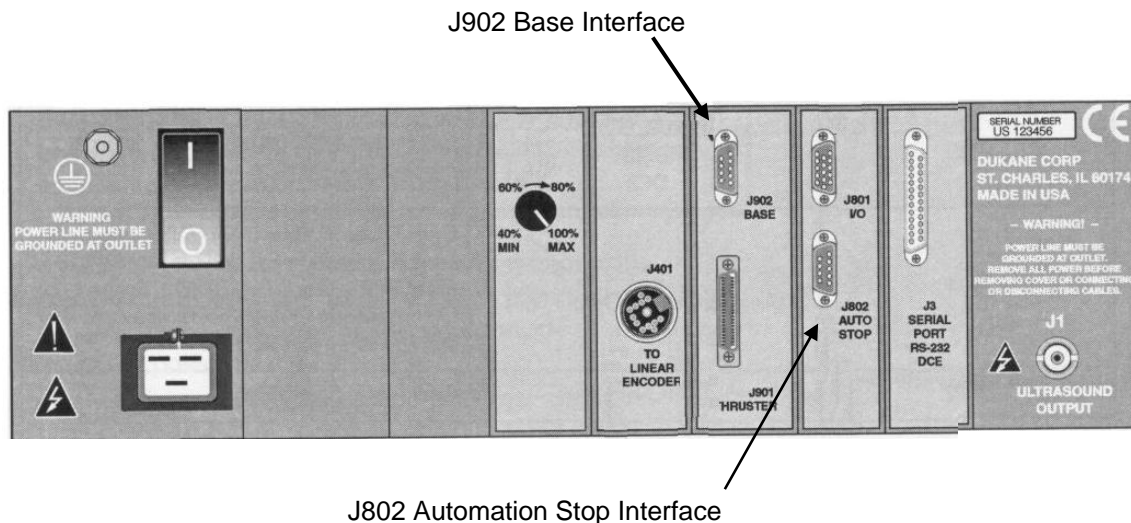
Emergency Stop and Cycle Activation Interface For J902 and J802 of a DPC III Welding System

The DPC III welding system offers two interface connectors that allow automation to control cycle activation and cycle termination during and emergency stop condition. J802 is available on all DPC III welding systems and the J902 will only be available on DPC III welding systems that are equipped to work with a Dukane pneumatic actuator. This document will provide guidelines that will help you interface automation to a DPC welding system per Dukane Corporation's requirements. Information within this document is intended to supplement the information in the DPC III manual (Dukane part # 403-541).

Warning: Compliance with all related safety requirements of the safety regulatory agencies governing the geographic location where the Dukane equipment will be operated is required before the Dukane equipment is operated.

Application Note Topics:

- Connector Selection Summary
- The J902 Pin assignments
- The J802 Pin assignment
- The 200-1124 Interface Cable
- The 200-1293 Emergency Stop Bypass Plug
- System Input Signal Descriptions
- System Input Interface Examples



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J802 Automation Stop Interface Connector

The J802 Automation Stop Interface connector is standard on all DPC III welding systems. It provides automation with an interface to terminate the DPC III welding system cycle during an emergency stop condition. All DPC III welding systems that are not equipped with the J902 Base Interface connector must utilize the Emergency stop feature of the J802 connector for proper operation of the DPC III welding system.

Note: The Emergency Stop feature on J802 is not functional on DPC III systems equipped with the J902 Base Interface connector.

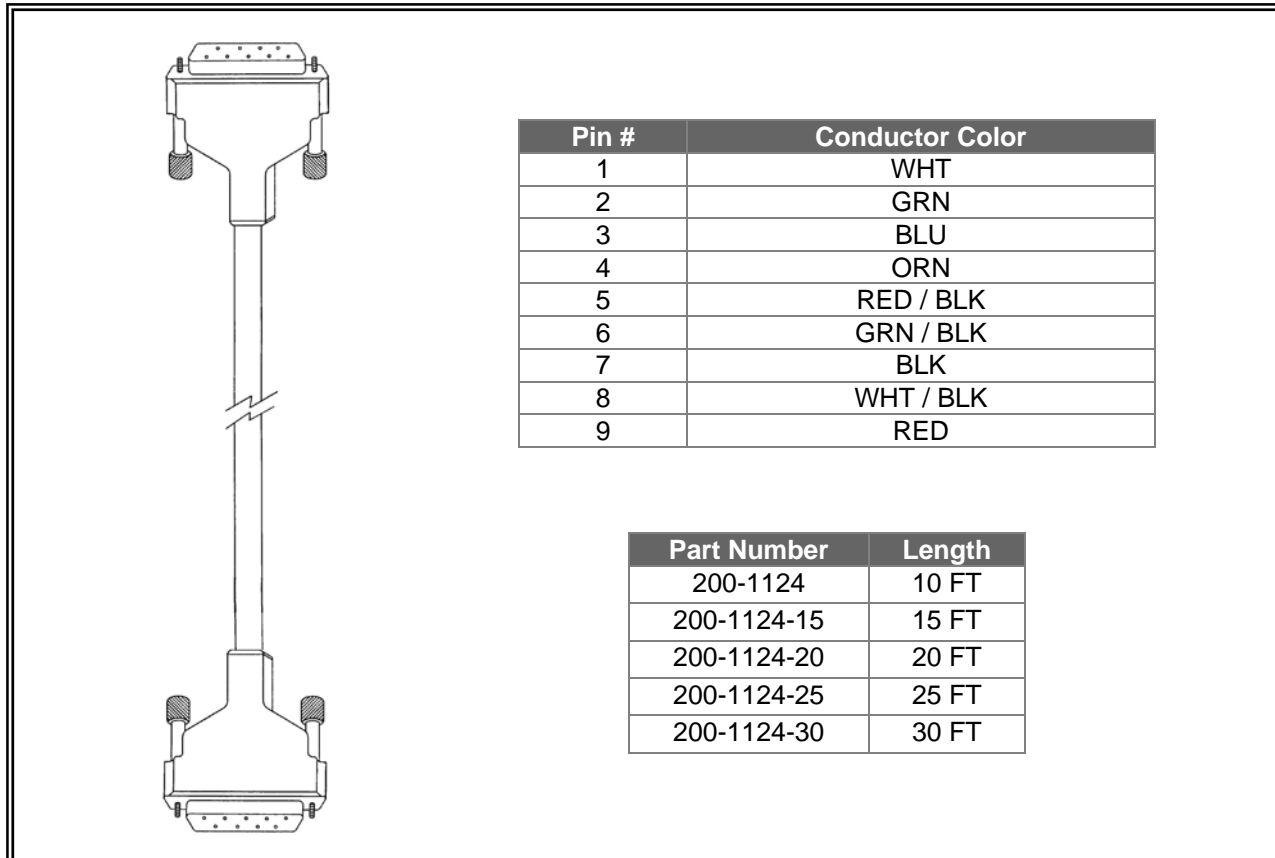
Pin Number	DPC Signal Name	DPC Signal Type
1	No Connections	N/C
2	No Connections	N/C
3	Emergency Stop	Input
4	Emergency Stop Sense	Input
5	No Connections	N/C
6	Ground	DPC Supply Ground
7	Ground	Ground Pin for Input Signals
8	No Connections	N/C
9	+22 VDC	Power Supply

J902 Base Interface Connector

The J902 Base Interface connector is an optional feature on all DPC III welding systems that are equipped to control a Dukane pneumatic press. It provides automation with an interface to initiate and terminate the DPC III welding system cycle. All DPC III welding systems equipped with J902 must utilize the Emergency Stop feature of the J902 connector for proper operation of the DPC III welding system.

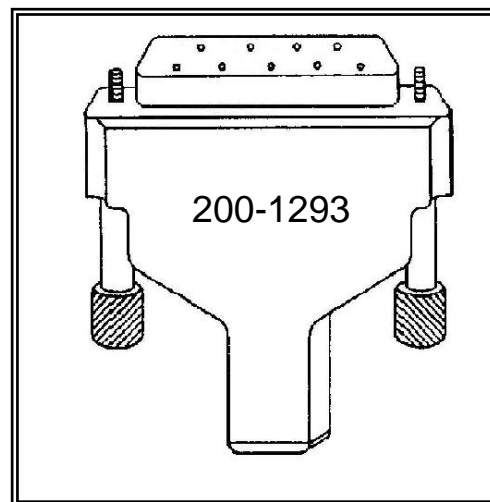
Note: The Emergency Stop feature on J802 is not functional on DPC III systems equipped with the J902 Base Interface connector.

Pin Number	DPC Signal Name	DPC Signal Type
1	Manual Activation Switch 1	Input
2	Manual Activation Switch 2	Input
3	Emergency Stop	Input
4	Emergency Stop Sense	Input
5	Ground	DPC Supply Ground
6	No Connections	N/C
7	Ground	Ground Pin for Input Signals
8	Automation Start	Input
9	+22 VDC	Power Supply



The 200-1293 Emergency Stop bypass plug is designed to bypass the emergency stop feature of the J902 or J802 connectors. Use of the 200-1293 shorting plug is restricted to DPC III systems that do not require the use of the DPC III Emergency Stop feature to comply with all applicable safety requirements as directed by compliance agencies which include but are not limited to CE, OSHA, CSA, and UL.

Warning: The 200-1293 Emergency Stop bypass plug should not be used on systems that either do not comply with applicable safety regulations when the plug is in use or on systems that can expose the operator to a safety hazards related to the operation of Dukane equipment.



J802 System Input Signal Descriptions:

- +22 VDC - (J802 pin 9) This system power supply provides the voltage required for the Dukane pneumatic press and other safety related features of the DPC III welding system. It is connected to a set of normally closed contacts within the emergency stop switch.
- Emergency Stop - (J802 pin 3) This system input receives the DPC III +22VDC power supply signal that is returning from a set of normally closed contacts of the emergency stop switch. This signal functions as a power supply for the Dukane pneumatic press as well as other features related to safety of the DPC III welding system. Activation of the emergency stop switch will open the switch contacts and remove the +22VDC power supply from this pin. This switch should be activated simultaneously with the E-Stop Sense system input.
- E-Stop Sense - (J802 pin 4) This system input is activated by a set of normally open contacts within the emergency stop switch that closes during an emergency stop switch activation. This input functions as an emergency stop status signal for the DPC III welding system. This switch should be activated simultaneously with the Emergency Stop system input.
- Ground - (J802 pin 6 and pin 7) This DPC III power supply ground connects to a normally open set of contacts within the emergency stop switch and it is used for the activation of the E-Stop Sense system input.

J902 System Input Signal Descriptions:

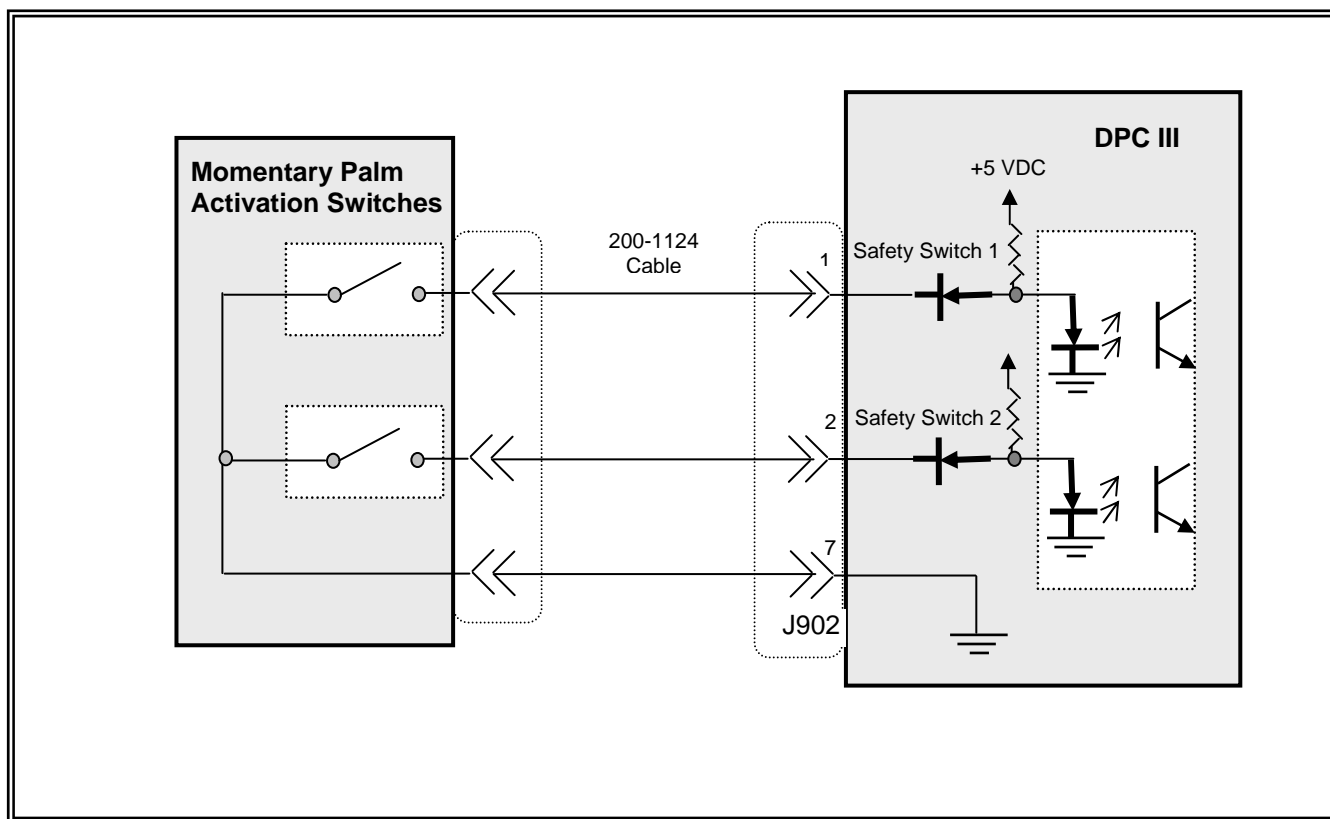
- +22 VDC - (J902 pin 3) This system power supply provides the voltage required for the Dukane pneumatic press and other safety related features of the DPC III welding system. It is connected to a set of normally closed contacts within the emergency stop switch.
- Emergency Stop - (J902 pin 9) This system input receives the DPC III +22VDC power supply signal that is returning from a set of normally closed contacts of the emergency stop switch. This signal functions as a power supply for the Dukane pneumatic press as well as other features related to safety of the DPC III welding system. Activation of the emergency stop switch will open the switch contacts and remove the +22VDC power supply from this pin. This switch should be activated simultaneously with the E-Stop Sense system input.
- E-Stop Sense - (J902 pin 4) This system input is activated by a set of normally open contacts within the emergency stop switch that closes during an emergency stop switch activation. This input functions as an emergency stop status signal for the DPC III welding system. This switch should be activated simultaneously with the Emergency Stop system input.
- Ground - (J902 pin 5 and pin 7) This DPC III power supply ground connects to a normally open set of contacts within the emergency stop switch. It is used for the activation of the E-Stop Sense, Safety Switch, and Automation system inputs.

J902 System Input Signal Descriptions (continued):

- Safety Switch #1 - (J902 pin 1) This system input is one of two system inputs that interface with palm activation switches. It is activated by a dry contact switch closure from the palm switch when utilizing the "Manual" initiate feature of the DPC III welding system. Activation of this input must occur within 100mS of the activation of Safety Switch #2 and must be maintained until the trigger switch of the pneumatic press is activated. Please refer to the Initiate Mode section of the DPC III manual for details on the activation and use of the "Manual" initiate mode.
- Safety Switch #2 - (J902 pin 2) This system input is one of two system inputs that interface with palm activation switches. It is activated by a dry contact switch closure from the palm switch when utilizing the manual activation feature of the DPC III welding system. Activation of this input must occur within 100mS of the activation of Safety Switch #1 and must be maintained until the trigger switch of the pneumatic press is activated. Please refer to the Initiate Mode section of the DPC III manual for details on the activation and use of the "Manual" initiate mode.
- Automation Input - (J801 pin 8) This system input signal activates a DPC III welding cycle when an automated device is being used to initiate the welding cycle. It is activated by an external dry contact closure to the DPC III ground on J801 pin 2. This system input can only be used when the "Auto" initiate mode of the DPC III welding system is utilized. The minimum duration for the activation of this input is 100 mS. The maximum duration of this input is determined by the duration of the weld cycle. This input should be deactivated before the end of the weld cycle to avoid an error condition (Associated Error: # E06 Auto Active at Cycle Start). Please refer to the Initiate Mode section of the DPC III manual for details on the activation and use of the "Auto" initiate mode.

DPC III System Activation Examples:

Warning: The diagram below is a simplified example that demonstrates the basic requirements to interface with a DPC III welding system. Compliance with all related safety requirements of the safety regulatory agencies governing the geographic location where the Dukane equipment will be operated is required before the Dukane equipment is operated.

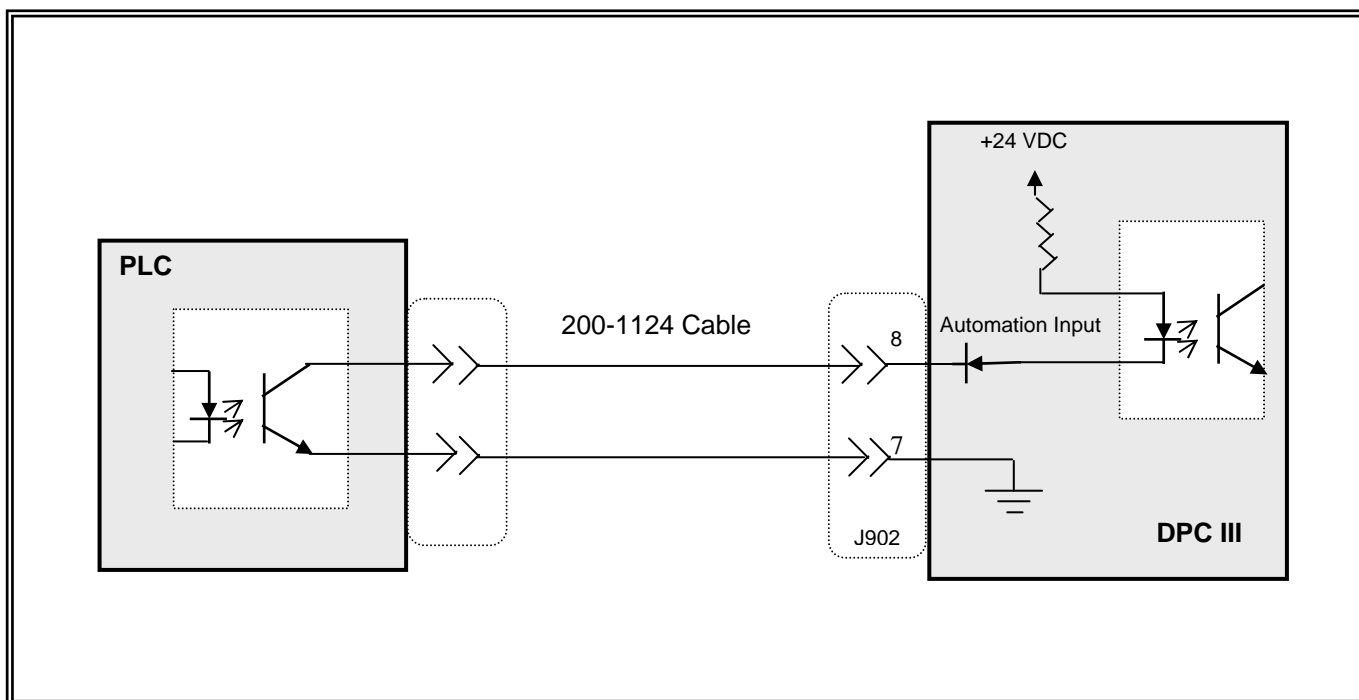


J902 Palm Activation Switch Interface Example

DPC III System Activation Examples (Continued):

Warning: The diagram below is a simplified example that demonstrates the basic requirements to interface with a DPC III welding system. Compliance with all related safety requirements of the safety regulatory agencies governing the geographic location where the Dukane equipment will be operated is required before the Dukane equipment is operated.

Note: The J801 User I/O connector of the DPC welding system is also equipped with an automation activation interface. Please refer to Application Note AN300 or the DPC III manual for further details on the use of the J801 User I/O interface connector.

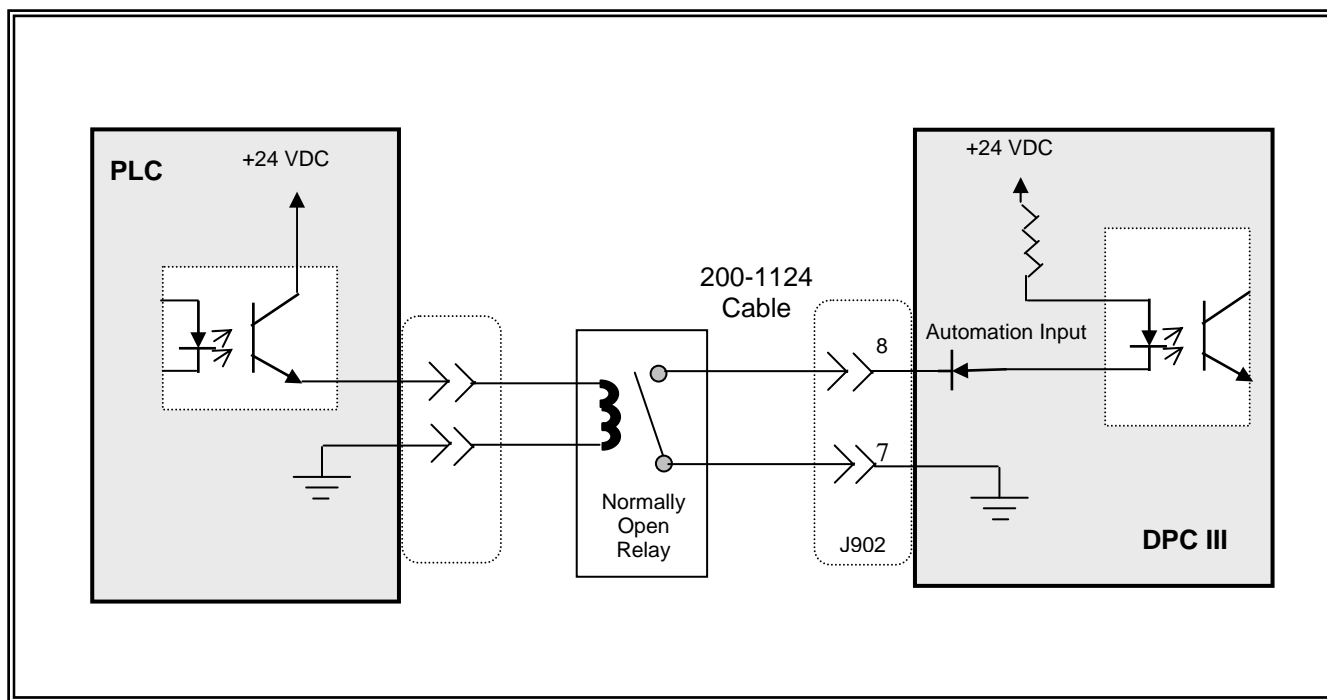


J902 Automation Activation Interface Example

DPC III System Activation Examples (Continued):

Warning: The diagram below is a simplified example that demonstrates the basic requirements to interface with a DPC III welding system. Compliance with all related safety requirements of the safety regulatory agencies governing the geographic location where the Dukane equipment will be operated is required before the Dukane equipment is operated.

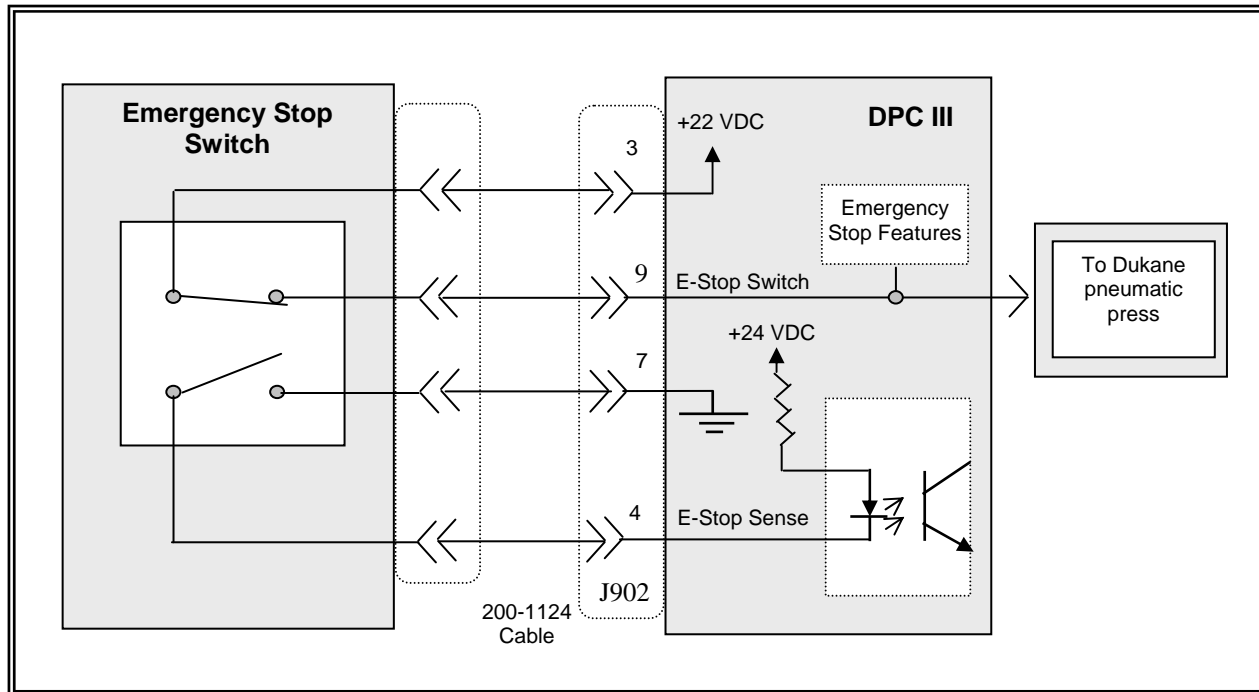
Note: The J801 User I/O connector of the DPC welding system is also equipped with an automation activation interface. Please refer to Application Note AN300 or the DPC III manual for further details on the use of the J801 User I/O interface connector.



J902 Automation Activation Interface Example

DPC III Emergency Stop Examples:

Warning: The diagram below is a simplified example that demonstrates the basic requirements to interface with a DPC III welding system. Compliance with all related safety requirements of the safety regulatory agencies governing the geographic location where the Dukane equipment will be operated is required before the Dukane equipment is operated.

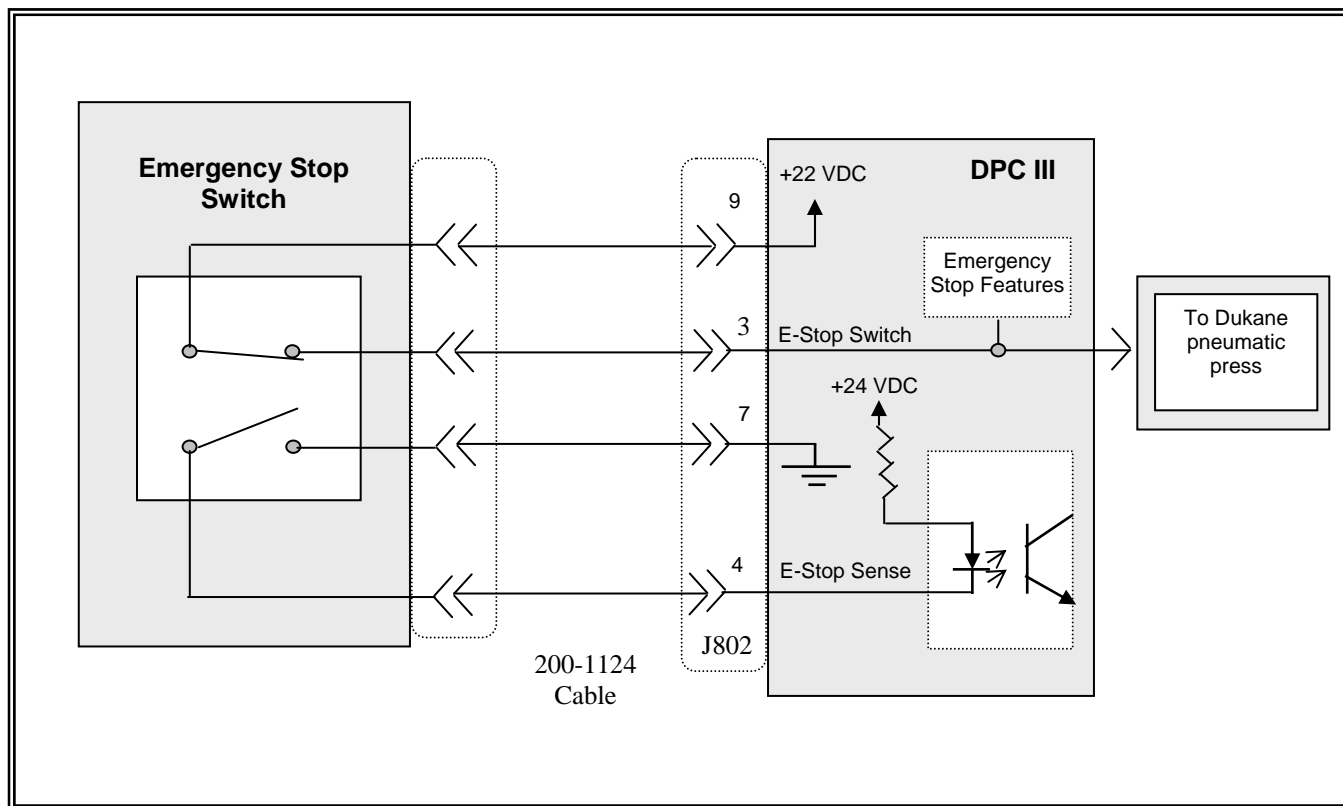


J902 Emergency Stop Interface Example

DPC III Emergency Stop Examples (Continued):

Warning: The diagram below is a simplified example that demonstrates the basic requirements to interface with a DPC III welding system. Compliance with all related safety requirements of the safety regulatory agencies governing the geographic location where the Dukane equipment will be operated is required before the Dukane equipment is operated.

Note: The Emergency Stop feature on J802 is not functional on DPC III systems equipped with the J902 Base Interface connector.



J802 Emergency Stop Interface Example