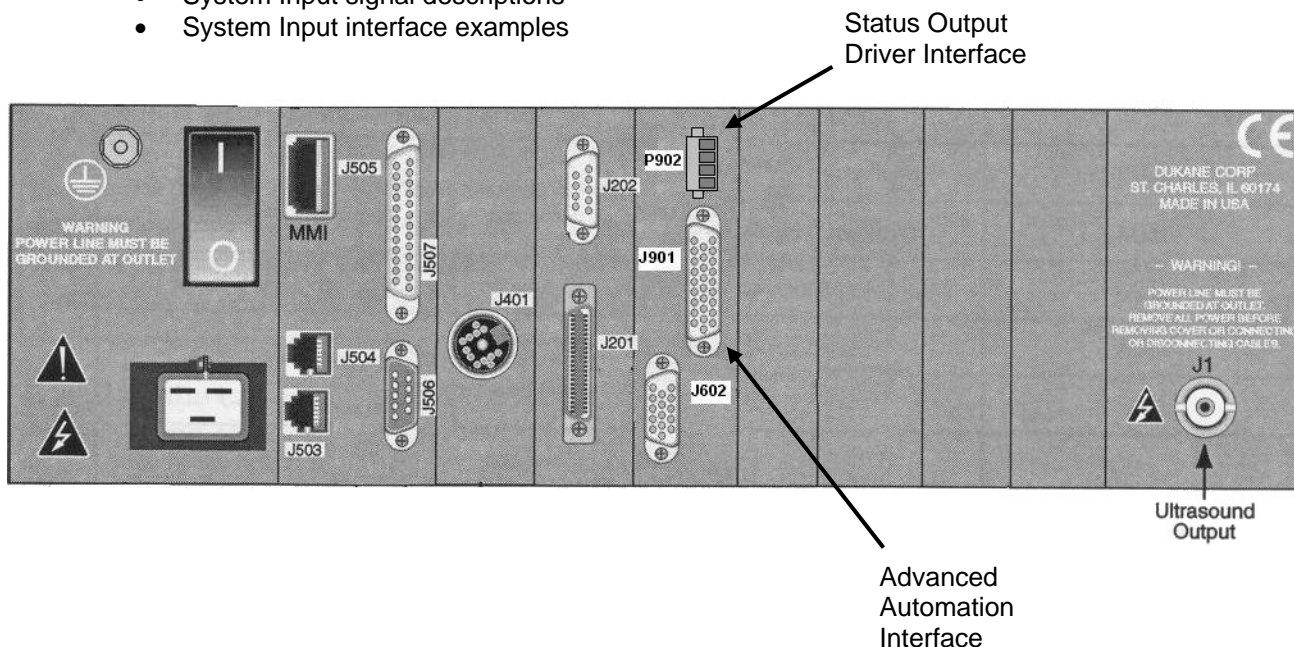


J901 AND P902 Advanced Automation Interface

The DPC IV+ welding system offers several optional features that are intended to communicate with automation. These features allow the automation to control and respond to events that occur during the welding process. This document will provide guidelines that will help you interface automation to a DPC IV+ welding system per Dukane Corporation's requirements. Information within this document is intended to supplement the information in the DPC 4+ manual (Dukane part # 403-577).

Application Note Topics:

- The J901 Pin assignments
- The 200-1314 Basic Interface cable
- The P902 Pin assignments
- Status Output signal descriptions
- Status Output interface examples
- System Input signal descriptions
- System Input interface examples

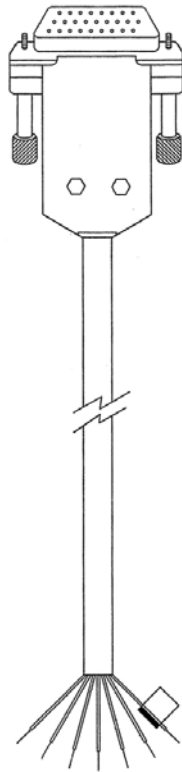


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J901 Advanced Automation Interface Connector

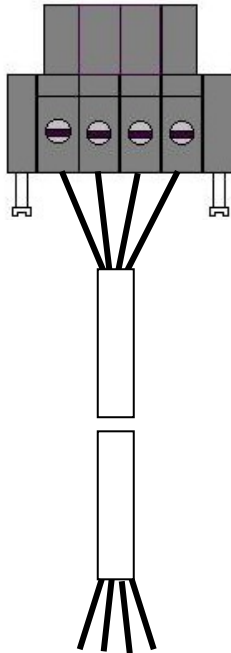
The J901 Advanced Automation Interface connector provides a communications link between the DPC IV+ and user automation equipment. This connector provides status signals that can be used to monitor the operation status of welding system hardware and welding cycle events. It also provides the automation with dedicated communication lines that allows the automation to control the beginning and the end of a welding sequence.

Pin Number	DPC Signal Name	DPC Signal Type
1	Front Panel Lockout	Input
2	Bad Part Status Reset	Input
3	Remote Setup Bit #1	Input
4	Remote Setup Bit #2	Input
5	Remote Setup Bit #3	Input
6	Remote Setup Bit #4	Input
7	Automation End of Weld	Input
8	Automation Cycle Stop	Input
9	Isolated Input Common	Common Pin for Input Signals on pin 1-8
10	Down Valve Status	Output
11	Trigger Status	Output
12	Weld Pressure 1 Status	Output
13	Weld Pressure 2 Status	Output
14	End of Weld Status	Output
15	Hold Status	Output
16	Top of Stroke Status	Output
17	Emergency Stop Switch	Output
18	Ground	Power Supply Return
19	Any Fault Status	Output
20	Ultrasound Active	Output
21	Overload Status	Output
22	Over Temperature Status	Output
23	Isolated Output Common	Common Pin for Output Signals on pin 19-22
24	Ground	Power Supply Return
25	Ground	Power Supply Return
26	Power Supply	+22 VDC (0.5 amp max)



Part Number	Length
200-1314	10 FT
200-1314-15	15 FT
200-1314-20	20 FT
200-1314-25	25 FT
200-1203-30	30 FT

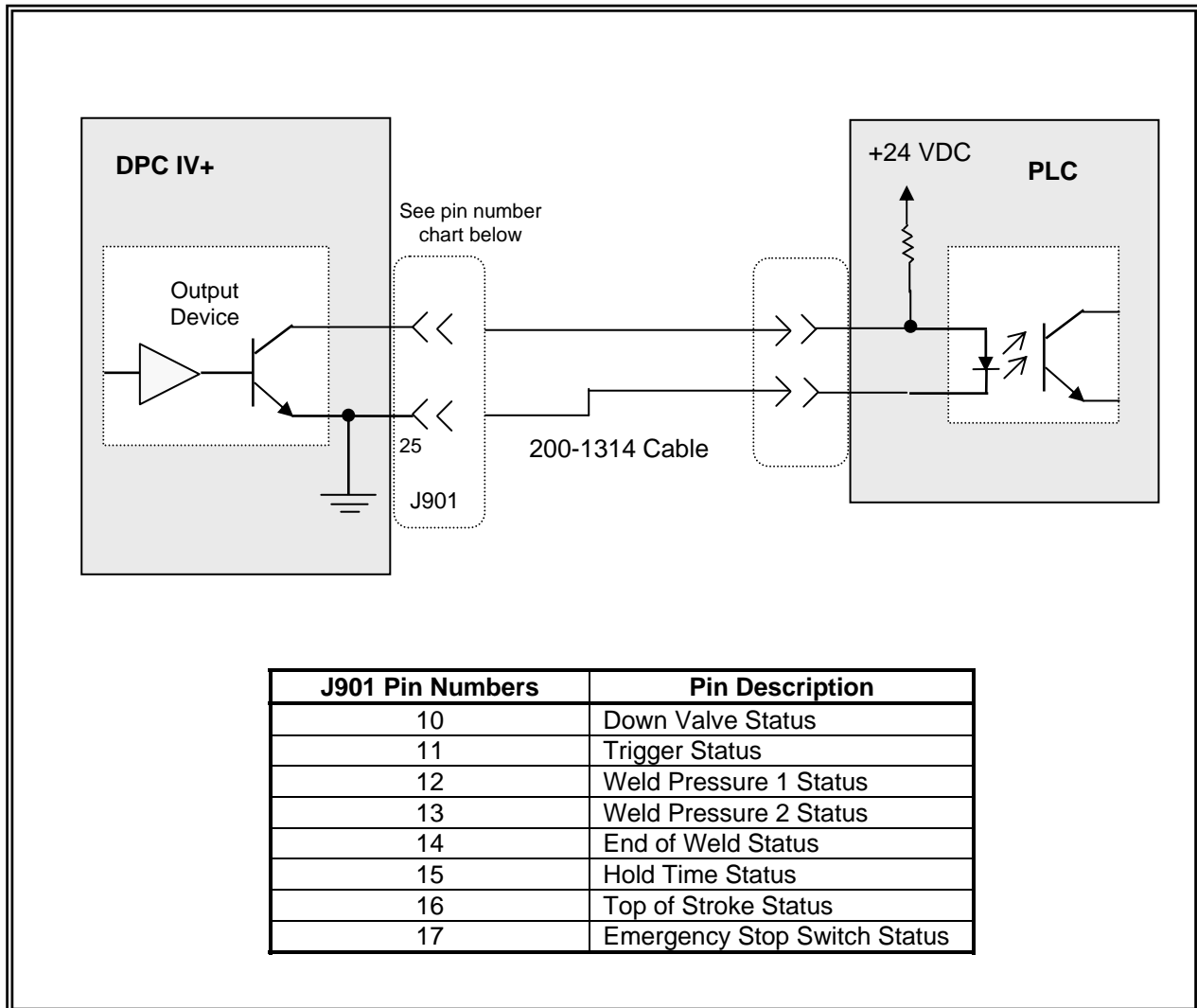
Pin #	Conductor Color
1	BLK
2	WHT
3	RED
4	GRN
5	ORN
6	BLU
7	WHT / BLK
8	RED / BLK
9	GRN / BLK
10	ORN / BLK
11	BLU / BLK
12	BLK / WHT
13	RED / WHT
14	GRN / WHT
15	BLU / WHT
16	BLK / RED
17	WHT / RED
18	ORN / RED
19	BLU / RED
20	RED / GRN
21	ORN / GRN
22	BLK / WHT / RED
23	WHT / BLK / RED
24	No Conductor Installed
25	GRN / BLK / WHT
26	RED / BLK / WHT



Pin Number	DPC Signal Name	DPC Signal Type
1	Programmable Output #1	Output
2	Programmable Output #2	Output
3	Ground	Power Supply Return
4	+22 VDC	Power Supply

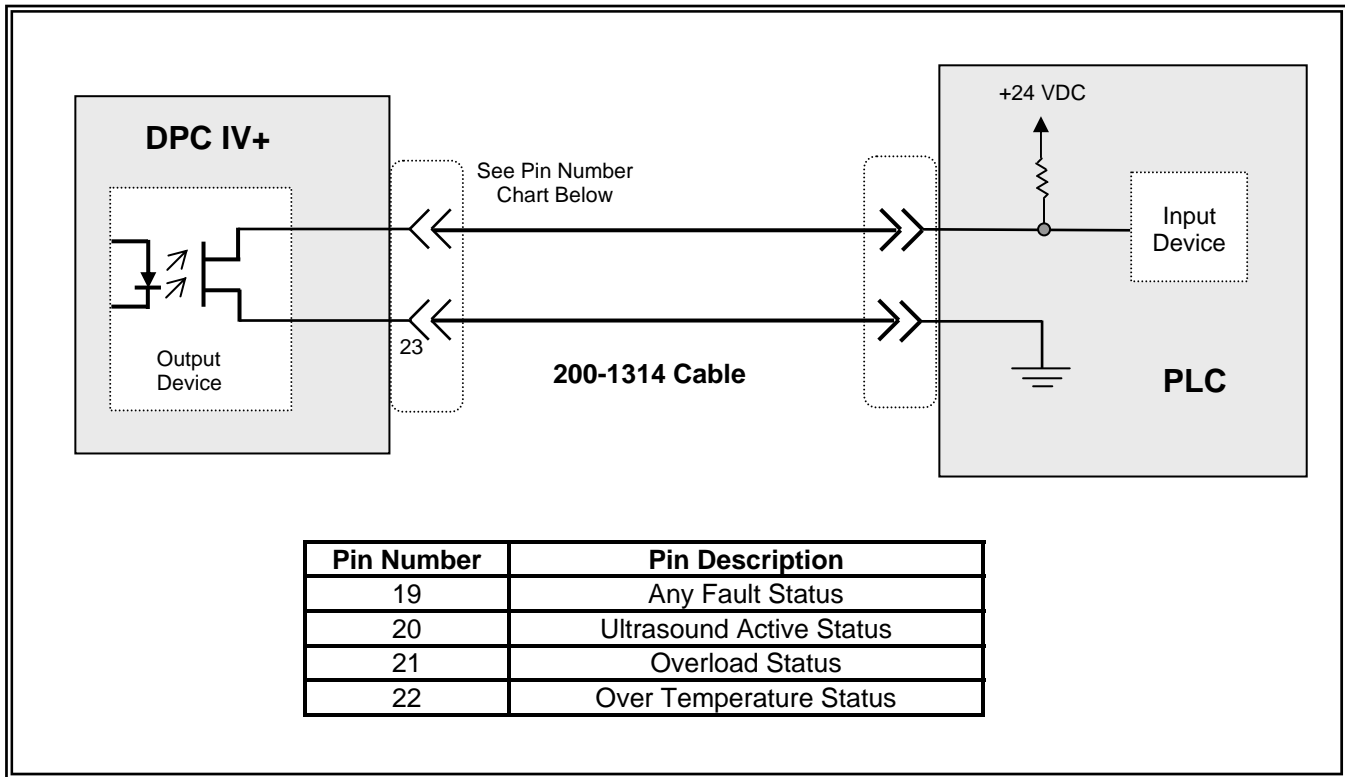
DPC IV+ welding systems that have been equipped with the optional 110-3963 Advanced Automation Interface will include the required plug to interface with the P902 connector on the rear panel of the DPC IV+ welding system. The cable for the P902 plug is not provided by Dukane due to the varying installation requirements of the automation that will interface to the P902 connector. Dukane does however recommend the use of an industrial automation grade cable with four 20 AWG conductors. Insulation and safety specifications for this cable must meet or exceed the safety regulations specified by safety compliance regulations which govern the geographic location where the Dukane welding equipment is operated.

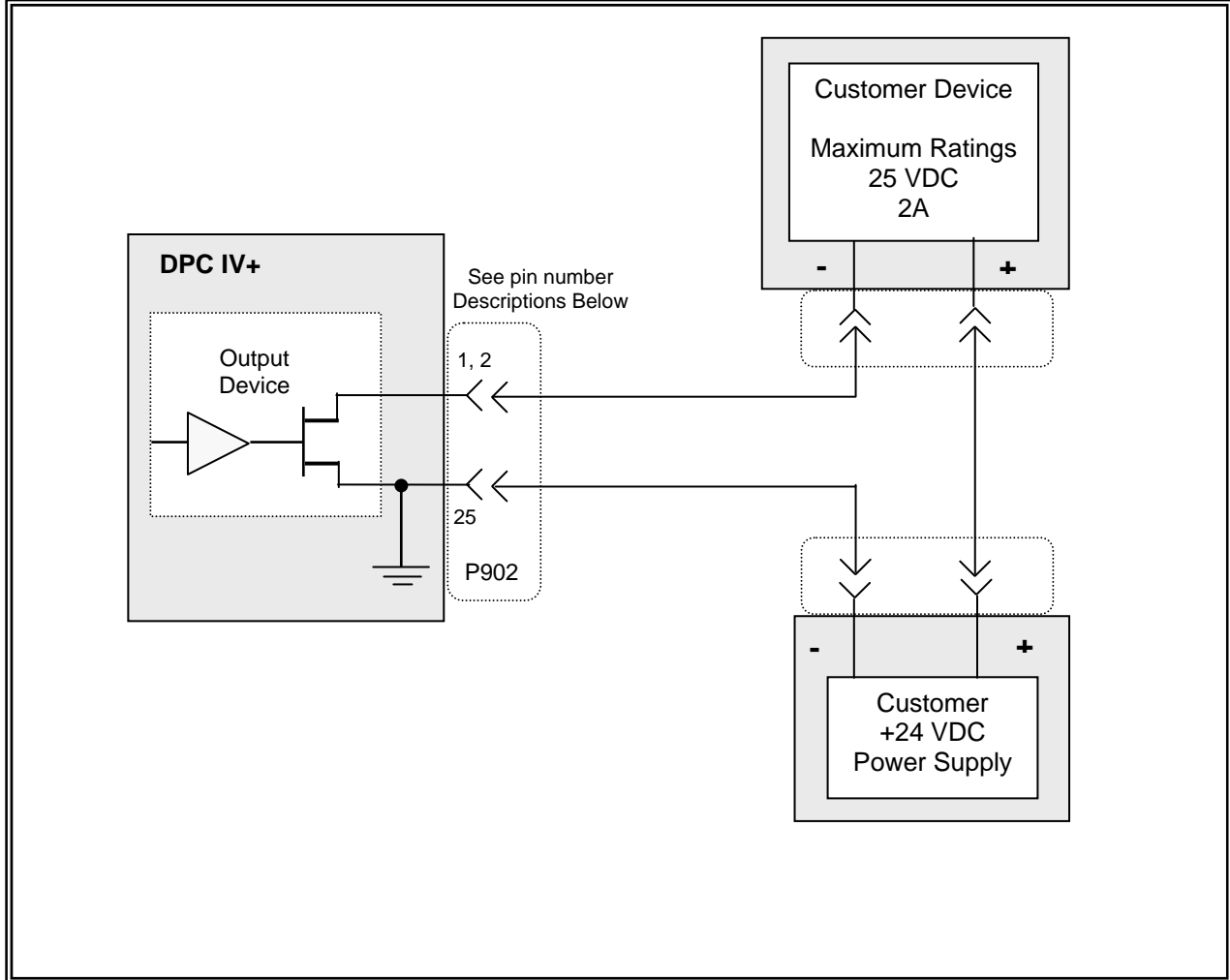
J901 Status Output Interface Examples:



DPC IV status output configuration for use with a PLC requiring sinking inputs.

J901 Status Output Interface Examples (Continued):





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System Input Signal Descriptions:

- Front Panel Lockout (J901 pin 1) Activation of this system input will disable the controller interface of the DPC IV+ welding system. The keypad for the DPC IV+ controller will remain disabled for the duration of the activation signal.
- Bad Part Reset (J901 pin 2) A momentary activation of this system input will reset the Bad Part status output signal on J602 pin 3 to its default status. The minimum duration for activation of this system input is 100mS. Please refer to the Process Limits section of the DPC IV+ manual for further details pertaining to the use of the Bad Part status feature.
- Remote Setup Bit 1-4 (J901 pin 3 through pin 6) These four inputs are activated in a binary combination that represents the DPCIV+ setup that will be used to process the next welding cycle. The binary code must remain active and stable for both a minimum of 100mS prior to initiating a welding cycle and until the Ready status signal of J602 pin 6 has deactivated. Please refer to the Utilities section of the of the DPC IV+ manual for details on activating and using the Remote Setup feature and the Appendix C for details on the use of the Ready status feature.
- Automation End of Weld (J901 pin 7) A momentary activation of this system input during a DPC IV+ welding cycle will terminate the remaining portion of the weld cycle. The DPC IV+ will continue with processing all other remaining welding cycle tasks that are processed after the weld portion of the cycle. The minimum duration for the activation of this system input is 100 mS. This System input must be deactivated before the DPC IV+ cycle can be activated.
- Automation Cycle Stop (J901 pin 8) A momentary activation of this system input during a DPC IV+ welding cycle will terminate all remaining portions of the welding cycle. The minimum duration for the activation of this system input is 100 mS. This System input must be deactivated before the DPC IV+ cycle can be activated.

System Input signals for the J901 Connector:

There are eight system input signals available on the J901 connector. All of the inputs can be configured as a non-isolated sinking, non-isolated sourcing, or isolated sourcing input by configuring the SH901 jumper on the 110-3962 PCB which is located inside of the DPC IV+ chassis.

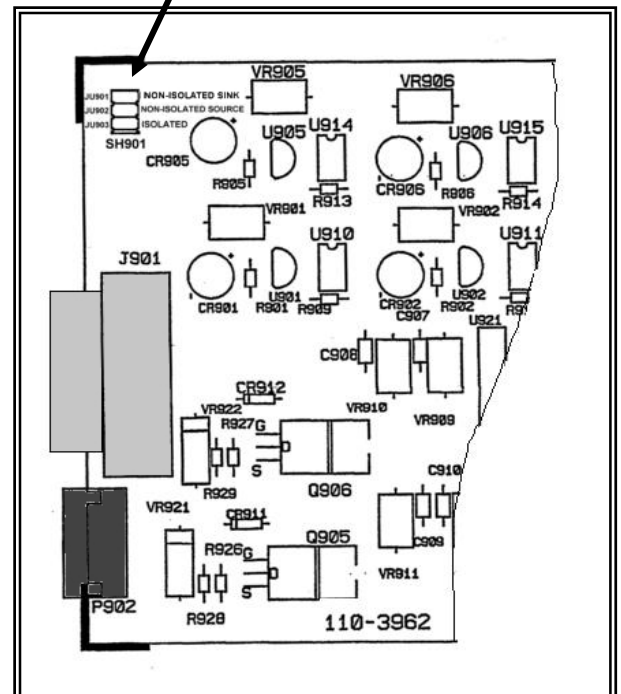
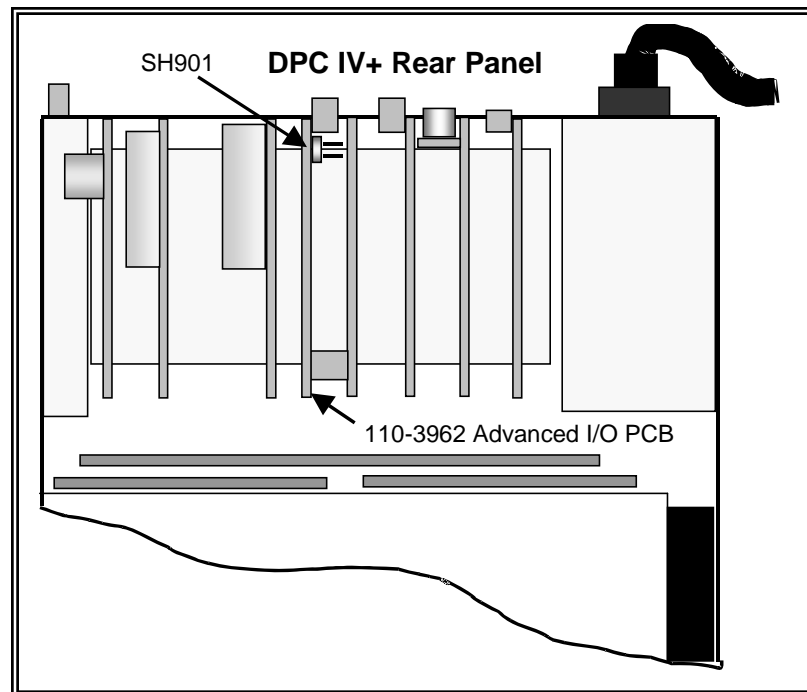
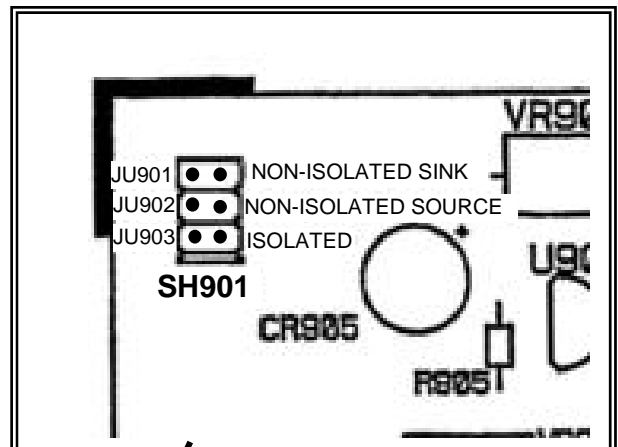
Warning: Electrical safety hazards exist within the DPC IV+ welding system chassis. Prepare the DPC IV+ as follows before removing the cover to the DPCIV+.

- Avoid contact with internal DPC IV+ components that are unrelated to the configuration of this feature.
- Turn off the DPC IV+ and allow five minutes for the DPC IV+ to discharge.
- Remove all AC voltage from the AC power cord of the DPC IV+.

SH901 Configuration Settings

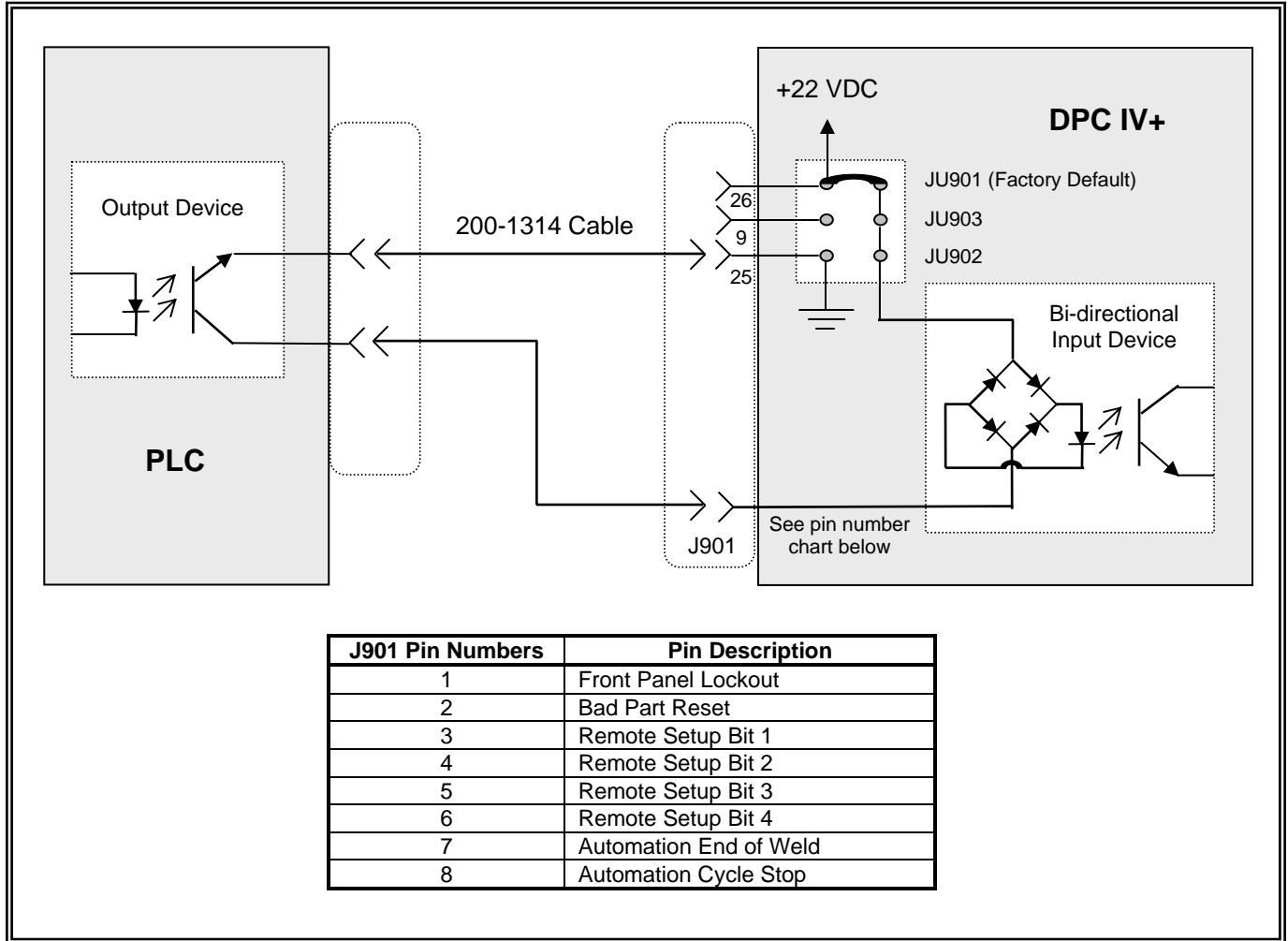
JU901 Non-Isolated Sinking Inputs (Factory Default)
 JU902 Non-Isolated Sourcing Inputs
 JU903 Isolated Sourcing Inputs

Please refer to installation diagrams within this document to determine the installation requirements for each of the SH901 settings.



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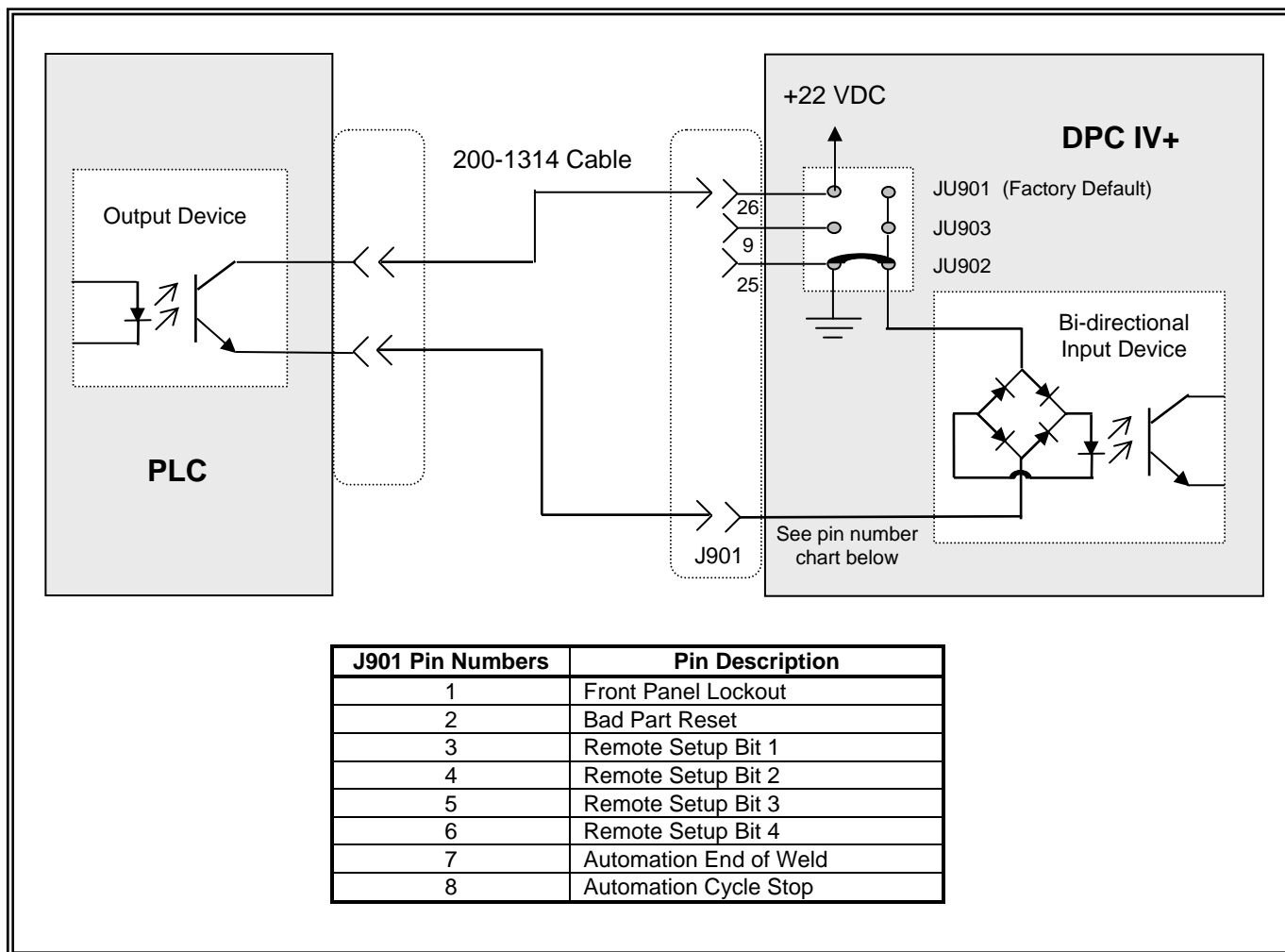
System Input Interface Examples:



Note: This diagram provides a simplified representation of the DPC IV+ input device for the purpose of demonstrating circuit functionality.

DPC IV+ system input configuration for use with devices that provide contact closure signals with not voltage to the DPC inputs.

System Input Interface Examples:

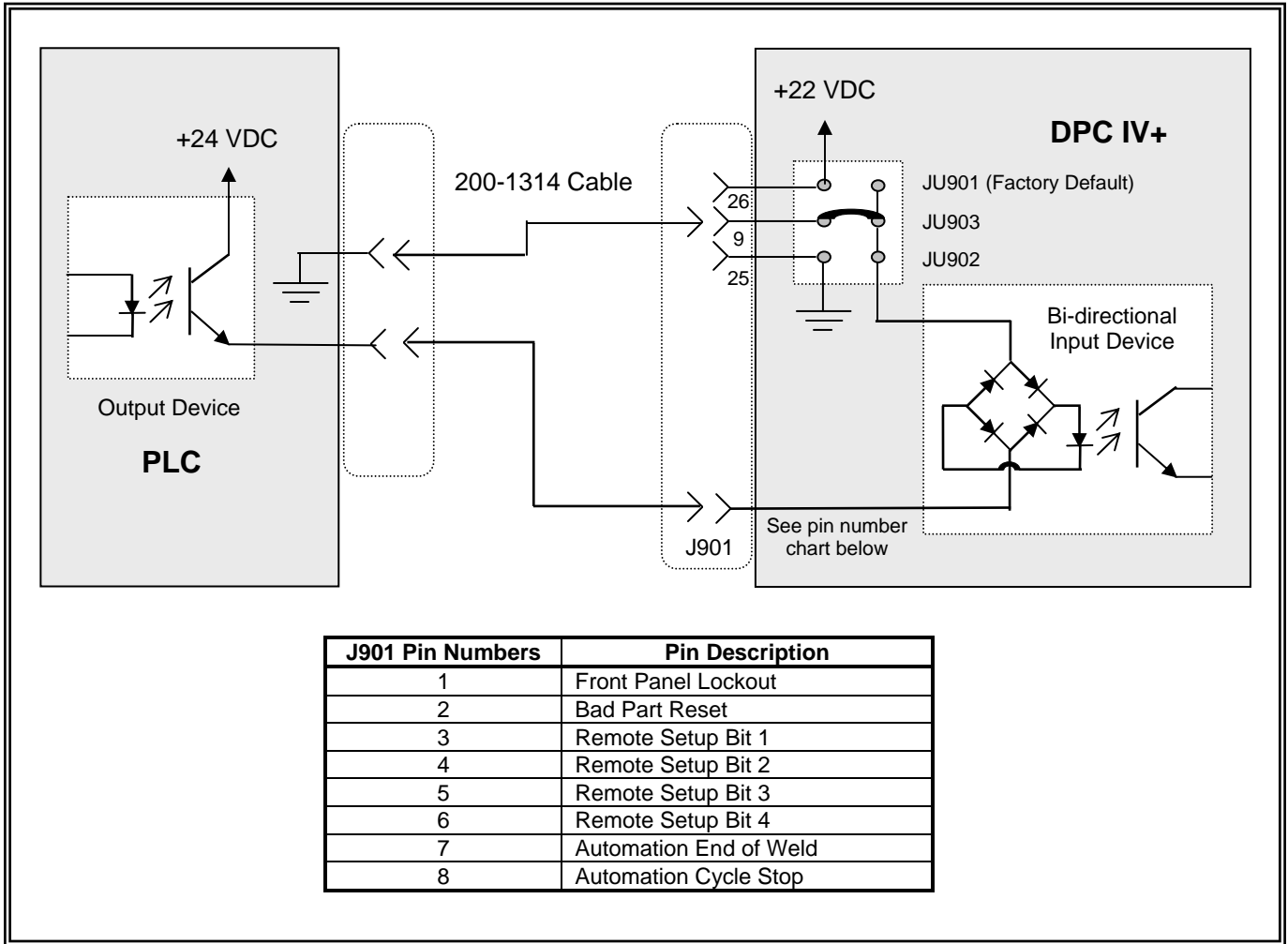


Note: This diagram provides a simplified representation of the DPC IV+ input device for the purpose of demonstrating circuit functionality.

DPC IV+ system input configuration for use with devices that utilize the DPC power supply to source voltage to the DPC inputs.

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System Input Interface Examples:



Note: This diagram provides a simplified representation of the DPC IV+ input device for the purpose of demonstrating circuit functionality.

DPC IV+ system input configuration for use with devices that source voltage to the DPC inputs.