

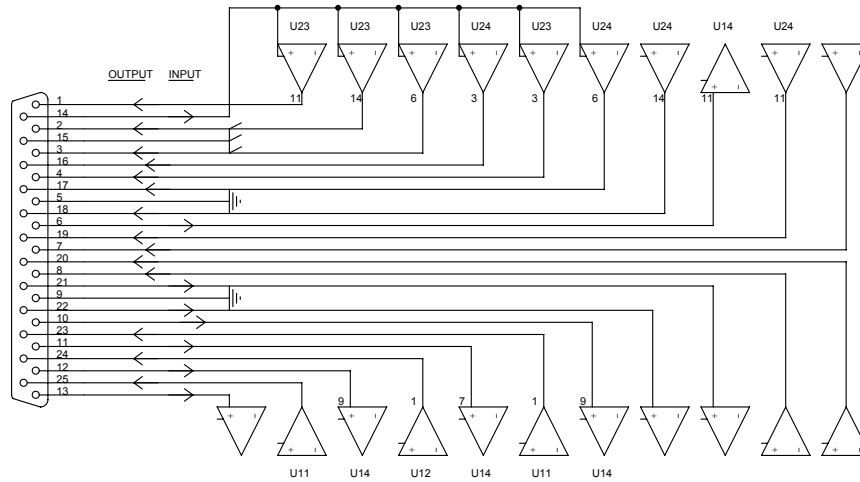
User Interface Connections

The User Interface cable to the Helius should have a DB25 Female connector

1) RF power limit reached	Digital output to User's system - HI = limit condition	1
14) External voltage input +24V	Input from external control power supply	14
2) Hard Fault	Digital output to User's system - HI = fault condition	2
15) Ground	Use for Digital control signal return	15
3) Soft Fault	Digital output to User's system - HI = fault condition	3
16) Series Capacitor LOW limit	Digital output to User's system - HI = limit condition	16
4) RF state ON/OFF	Digital output to User's system - HI = RF ON	4
17) Series Capacitor HI limit	Digital output to User's system	17
5) Signal Ground	Use for Analog control signal return	5
18) Shunt Capacitor LOW limit	Digital output to User's system - HI = limit condition	18
6) Matching state Manual/Auto	Digital input to Helius - HI = Auto	6
19) Shunt Capacitor HI limit	Digital output to User's system - HI = limit condition	19
7) Series Capacitor Position	Analog output 0<+10V to User's system	7
20) Plasma sense	Analog output 0<+10V to User's system	20
8) Shunt Capacitor Position	Analog output 0<+10V to User's system	8
21) Series Capacitor Position Setpoint	Analog input 0<+10V to Helius	21
9) Chassis Ground	Use for cable shield/drain	9
22) Shunt Capacitor Position Setpoint	Analog input 0<+10V to Helius	22
10) Blanking (pulse)	Digital input to Helius - HI = RF blanked	10
23) DC Bias metering	Analog output 0<+10V to User's system	23
11) RF Output ON/OFF	Digital input to Helius - HI = RF ON	11
24) Reflected power metering	Analog output 0<+10V to User's system	24
12) Remote Activate	Digital input to Helius - HI = Remote ON	12
25) Forward power metering	Analog output 0<+10V to User's system	25
13) RF Output Level Set	Analog input 0<+10V to Helius for 0<100%	13

Circuits inside Helius

The Helius Analog Interface port has a DB25 Male connector



Notes:

- 1) All Digital Outputs will become HI when active with the same voltage as input to pin 14.
- 2) All variable signals are 0<+10V referencing the Signal Ground on pin 5.
- 3) All digital signals should reference Ground on pin 15.

Notes:

- 1) The +24V "Remote Activate" signal (to Helius) will appear once the "System" is set to Remote RF generator operation.
- 2) Jumpering pins 4&6 on the Helius DB25 enables the match to go from Manual/preset with RF OFF to Auto with the RF ON.

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Helius Analog Control Interface Connections		
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This page describes the method to connect all remote analog controls and sensors to the Helius.

All Digital Outputs can be used to drive LED indicators or A/D converters used in PLC control systems. The active output voltage is the same as the External Voltage input to pin 14.

The following list of outputs can be used in this manner:

- * RF Power Limit Pin 1
- * Hard Fault Pin 2
- * Soft Fault Pin 3
- * RF State Pin 4
- * Series Cap Low & Hi limits Pins 16 & 17
- * Shunt Cap Low & Hi limits Pins 18 & 19

Switch, contact closure or opto-isolator used to turn RF Output ON. This circuit can be used for the following Inputs:

- * Matching Manual/Auto Pin 6
- * Blanking/Pulse Pin 10
- * RF Output ON/OFF Pin 11
- * Remote Activate Pin 12

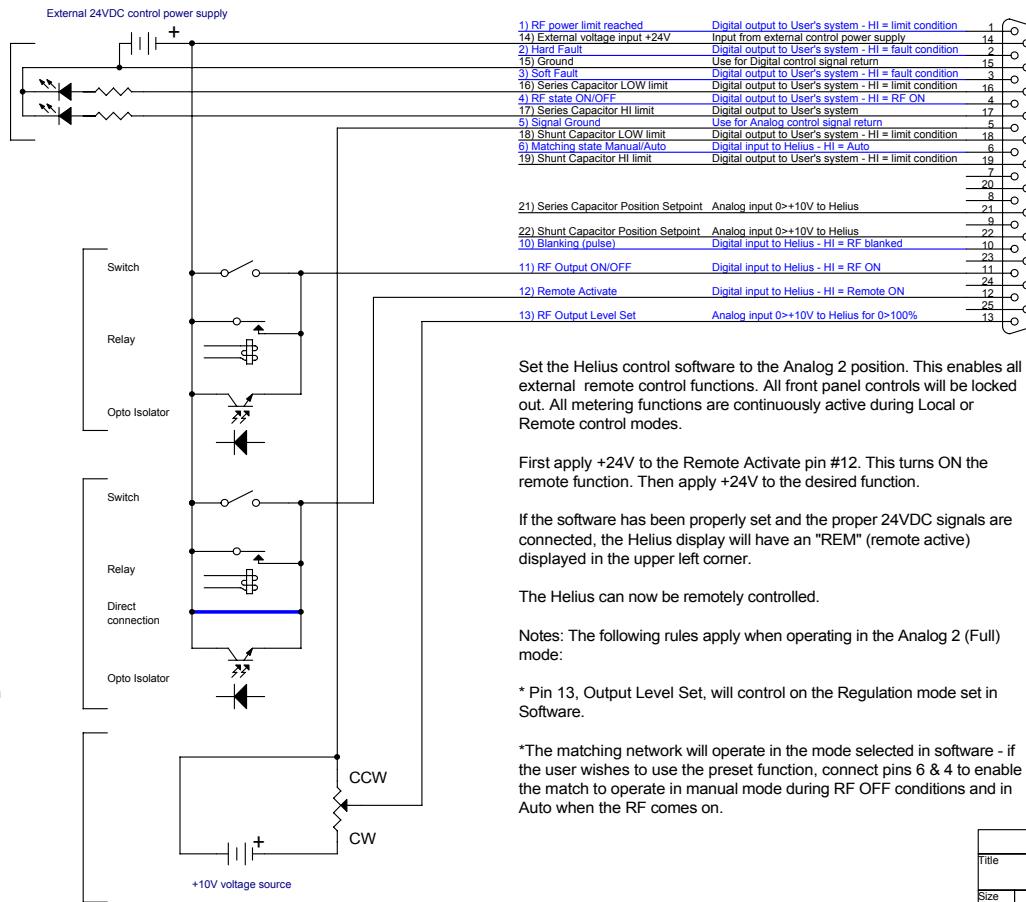
Switch, contact closure, opto-isolator or direct connection used to turn Remote Activate ON

Note: +24V needs to be applied to this circuit to activate the remote control functions.

All variable Analog Inputs can be driven with 0>10V A/D converters, external potentiometers or variable power supplies. The control range is 0>100% (of ratings) for 0>10V.

The following list of inputs can be used in this manner:

- * RF Power Level Set Pin 13
- * Series Cap position set Pin 21
- * Shunt Cap position set Pin 22



This Analog User Interface cable should have a DB25 Female connector.

Set the Helius control software to the Analog 2 position. This enables all external remote control functions. All front panel controls will be locked out. All metering functions are continuously active during Local or Remote control modes.

First apply +24V to the Remote Activate pin #12. This turns ON the remote function. Then apply +24V to the desired function.

If the software has been properly set and the proper 24VDC signals are connected, the Helius display will have an "REM" (remote active) displayed in the upper left corner.

The Helius can now be remotely controlled.

Notes: The following rules apply when operating in the Analog 2 (Full) mode:

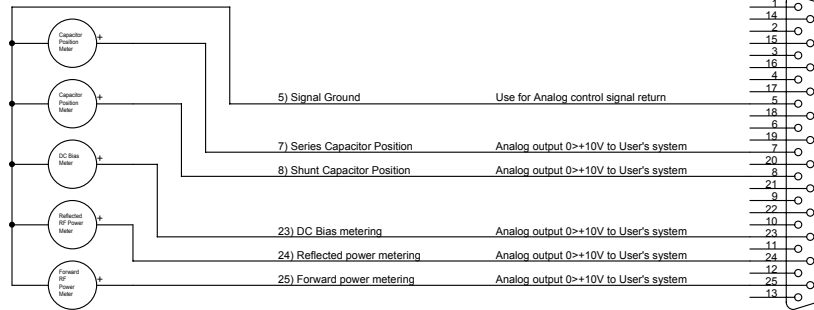
* Pin 13, Output Level Set, will control on the Regulation mode set in Software.

*The matching network will operate in the mode selected in software - if the user wishes to use the preset function, connect pins 6 & 4 to enable the match to operate in manual mode during RF OFF conditions and in Auto when the RF comes on.

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Helius Remote Analog Control (Full)		
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This page describes the method to connect remote analog metering circuits.

These metering outputs can drive high impedance digital meters and A/D converters.

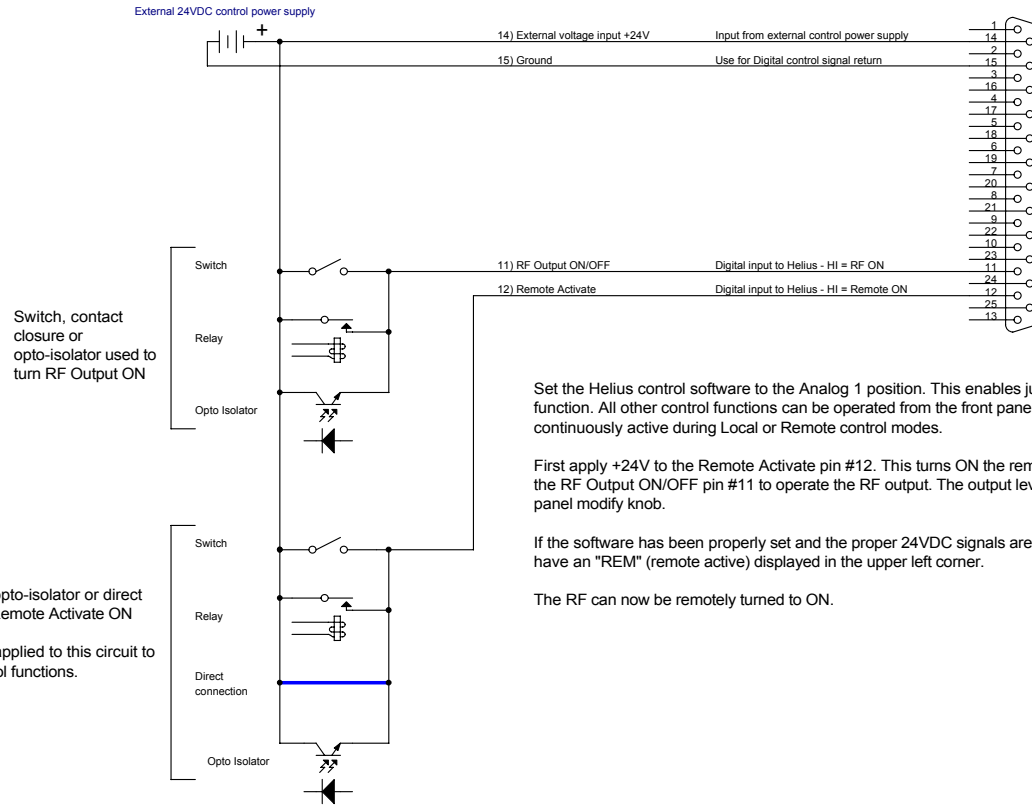


This Analog User Interface cable should have a DB25 Female connector.

All metering functions (outputs) are continuously active during Local or Remote control modes. The 0>+10V output voltage is generated inside the Helius and is NOT dependent upon an external voltage input.

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Helius Remote Analog Metering		
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This page describes the method to control the RF Output ON/OFF (only).



This Analog User Interface cable should have a DB25 Female connector.

Set the Helius control software to the Analog 1 position. This enables just the external RF output ON/OFF function. All other control functions can be operated from the front panel. All metering functions are continuously active during Local or Remote control modes.

First apply +24V to the Remote Activate pin #12. This turns ON the remote function. Then apply +24V to the RF Output ON/OFF pin #11 to operate the RF output. The output level can be controlled from the front panel modify knob.

If the software has been properly set and the proper 24VDC signals are connected, the Helius display will have an "REM" (remote active) displayed in the upper left corner.

The RF can now be remotely turned to ON.

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Remote Analog RF ON/OFF Only		
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