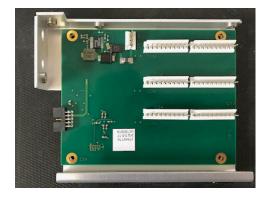


## DESCRIPTION

This application note describes hardware installation and software control settings for the Control Bits (Cbits) Pod in a Cassini pod fixture.

NOTE: Requires fixture equipped with RIFL Pod carrier PCB for installation and control.



# INSTALLATION

Before installing any hardware in a Cassini fixture, the fixture must be powered down, removed from the test system, and placed in a static-free work environment.

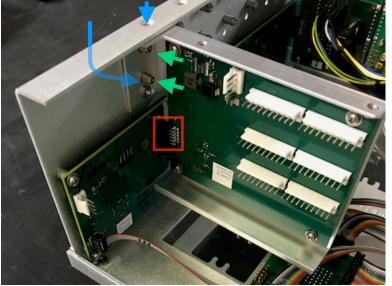


The RIK0290A must be installed on a module card as shown in Figure 1.



### APPLICATION NOTE: RIK0290A: CONTROL BITS POD

The module card is then connected to the pod carrier as shown in Figure 2. The card is inserted using the guide pins (green arrows) to align the card's power/RIFL connector with the carrier's mating RIFL slot (red). The module card is



secured with two #4-40 screws (blue arrows). Note the module card location on the pod carrier (see Reference section) for programming in the Software Control section.



# SOFTWARE CONTROL

Title: Ti	aining LNA							De
	Attribute Name		Attribut	e Value			A	
28VoltPower		o ff					-	Devic
classTitle		Cassini Mat	rix Fixture					D
device family		TrainingLN			•	Fixtu		
							2	
B Paths								
Fixtur	e Pin F	in Identifier	Pin Name	Cal Name	State Name	State Value	State Default	
								Þ
tture Paths	HeadPo Title	HeadBn Name	Resource2	1	FixturePin Name	Gal Name	State Name	
tture Paths Resource I			Resource2 Testhead	FixturePin Title	FixturePin Name SrelInput	Cal Name	State Name	
tture Paths Resource1 :12Output	HeadPin Title Main RF Output Source 2 output	HeadFin Name MainCutput Src2Output		1	FixturePin Name SrclInput SrcInput	Cal Name	State Name	
tture Paths Resource1 212Output 212Output	Main RF Output	MainOutput	Testhead	FixturePin Title	Src1Input SrcInput	Cal Name	State Name	
tture Paths Resource 1 212Output 212Output 212Output sthead40	Main RF Output Source 2 output	MainOutput Src2Output	Testhead Testhead40	FixturePin Title Main RF Input	SrclInput SrcInput ExtMixer1	Cal Name	State Name	
tture Paths Resource1 :12Output :12Output sthead40 sthead402	Main RF Output Source 2 output Receiver Output	MainOutput Src2Output RecOutput RecOutput	Testhead Testhead40 Receiver	FixturePin Title Main RF Input External Mixer1 IF inp	SrclInput SrcInput ExtMixer1	Cal Name	State Name	
ture Paths Resource1 :12Output :12Output :12Output sthead40 sthead402 sthead	Main RF Output Source 2 output Receiver Output Receiver Output	MainOutput Src2Output RecOutput RecOutput	Testhead Testhead40 Receiver Receiver	FixtureFin Title Main RF Input External Mixer1 IF inp External Mixer2 IF inp	SrclInput SrcInput ExtMixer1 ExtMixer2	Cal Name	State Name	
tture Paths Resource1 12Output 12Output sthead40 sthead402 sthead sthead	Main RF Output Source 2 output Receiver Output Receiver Output Hi Band Receiver Out	MainOutput Src2Output RecOutput RecOutput RecHiOut	Testhead Testhead40 Receiver Receiver Receiver	FixtureFin Title Main RF Input External Mixer1 IF inp External Mixer2 IF inp	SrelInput SreInput ExtMixer1 ExtMixer2 HighBandInput			Devi
ture Paths Resourcel 12Coutput sthead402 sthead sthead sthead sthead	Main RF Output Source 2 output Receiver Output Receiver Output Hi Band Receiver Out RF3 test port	MainOutput Src2Output RecOutput RecOutput RecHiOut Rf3	Testhead Testhead40 Receiver Receiver Receiver Dut Interface	FixtureFin Title Main RF Input External Mixer1 IF inp External Mixer2 IF inp	SrelInput SreInput ExtMixer1 ExtMixer2 HighBandInput DutRf2	LNA IN Dev2	LNA	Devi

The software controls for the Cbits module are designated in Fixture Path in the Device Connection Editor as shown in Figure 3.

#### Figure 3

stem Dev Con	n		RI Device Conn	ection Editor GFH3AR2	A = 76 = 5			Ø	
								Ъъ.	
Title: Tr	aining LNA							Des	
	Attribute Name		Attribut	e Value	<u> </u>				
28VoltPower		o ff						Devic	
classTitle		Cassini Mat						D	
device family		TrainingLN				Fixtur			
IB Paths									
Fixture	e Pin F	in Identifier	Pin Name	Cal Name	State Name	State Value	State Default	[	
(									
۵	I							Þ	
ixture Paths								E	
	HeadPin Title	HeadFin Name	Resource2	 FixturePin Title	FixturePin Name	Cal Name	State Name		
xture Paths	HeadPin Title Main RF Output	HeadFin Name MainOutput	Resource2 Testhead	1	FixturePin Name Src1Input	Cal Name	State Name		
xture Paths Resource1				FixturePin Title	Src1Input SrcInput	Cal Name	State Name		
xture Paths Resource1 rc12Output	Main RF Output	MainOutput	Testhead	FixturePin Title	SrclInput	Cal Name	State Name		
xture Paths Resource1 rc12Output rc12Output	Main RF Output Source 2 output	MainOutput Src2Output	Testhead Testhead40	FixturePin Title Main RF Input	SrelInput Srelput Edit Add Copy Row	Cal Name	State Name		
xture Paths Resource 1 rc12Output rc12Output esthead40 esthead402	Main RF Output Source 2 output Receiver Output	MainOutput Src2Output RecOutput RecOutput	Testhead Testhead40 Receiver	FixturePin Title Main RF Input External Mixer1 IF in	Src1Input SrcInput Edit Add Copy Row Delete	Cal Name	State Name		
xture Paths Resource1 rc12Output rc12Output esthead40	Main RF Output Source 2 output Receiver Output Receiver Output	MainOutput Src2Output RecOutput RecOutput	Testhead Testhead40 Receiver Receiver	FixturePin Title Msin RF Input External Mixer1 IF in External Mixer2 IF in	Src1Input SrcInput Edit Add Copy Row Delete Edit Default Cal		State Name		
xture Paths Resource I rc12Output rc12Output esthead40 esthead402 esthead	Main RF Output Source 2 output Receiver Output Receiver Output Hi Band Receiver Out	MainOutput Src2Output RecOutput RecOutput RecHiOut	Testhead Testhead40 Receiver Receiver Receiver	FixturePin Title Msin RF Input External Mixer1 IF in External Mixer2 IF in	Src1Input SrcInput Edit Add Copy Row Delete	Header			
xture Paths Resource1 rc12Output esthead40 esthead402 esthead esthead	Main RF Cutput Source 2 output Receiver Output Receiver Output Hi Band Receiver Out RF3 test port	MainOutput Src2Output RecOutput RecOutput RecHiOut Rf3	Testhead Testhead40 Receiver Receiver Receiver Dut Interface	FixturePin Title Msin RF Input External Mixer1 IF in External Mixer2 IF in	Src1Input Src1nput Edit Add Copy Row Delete Edit Default Cal Export To CSV With Export To CSV With Export To CSV With	Header th Header	LNA	Devi	
xture Paths Resource1 rc12Output esthead40 esthead402 esthead esthead esthead esthead	Main RF Output Source 2 output Receiver Output Receiver Output Hi Band Receiver Out RF3 test port RF3 test port	MainOutput Src2Output RecOutput RecOutput RecHiOut Rf3 Rf3	Testhead Testhead40 Receiver Receiver Dut Interface Dut Interface	FixturePin Title Msin RF Input External Mixer1 IF in External Mixer2 IF in	Srelinput Sreinput Edit Add Eopy Row Delete Edit Default Cal Export To CSV With Import From CSV With	Header th Header	LNA	Devi	

Figure 4

To add or modify a switch control in an RF path, right click in the Fixture Path table at the bottom of the window and select:

'Edit' to modify the currently selected path.

'Add' to create a new path.

'Copy Row' to create a new path from an existing path/port.

See Figure 4.



Title: Training_: Attribu	te Name	Attr	ibute Value			Device
N		Edit	ing Fixture Path Defi	nition		
Resource 1 Resource Modell: Resource Location Resource Location Physical Pin Pin Title: Pin Name	Terthead Rid 545B T12 C8 RF6 tert port Rf6	v Ref	Resource 2 surce Name2: surce Model2: surce Location: B/Resource Pin2 wincel Pin Biore Pin2 Create Default Default Or Exter Name Create Default Default Name Biock Number Fin Number Fin Number Fin Number	Put Interface	Enter/Select Name Pin Name PUT Ri	7 Ini
Value: Path	Rday I (NC) es (@ No		Switch: Calibration Name: Description:	A7C611001010 Pix_RF6_Path		Edit.



### Fixture

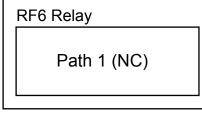


Figure 6

The upper fields: Resource1, and DIB/Resource 2 define the resource endpoints of the RF path. In this example, the test head RF7 port is being routed to a pin in the device interface designated: 'DutRf7.'

- The Switch field contains the command string for the control bit settings.

The 'State' fields define the parameters of the software button used in graphical test plans and instrument control windows that represents the control bit states.

From the example shown in Figure 5, a button is created from the path definition (Figure 6), with Owner: 'RF7 Relay' (*State Name*) and Value: 'Path 1' (*State Value*), representing the command string 'A7C611001010' for setting the control bit states.



#### **Pod Carriers**

Pod Fixture Carriers require software patch 'GF10RC2A.288 Pod Style Fixture Support' [version 65 or later].

0			RI De	vice C	onnection E	ditor GFH3AR2A	- 76 - 5				
Sys	tem	<u>D</u> ev Conn									
		<u>H</u> ew Fixt	ture	_					<b>b</b> .		
222	Title:	Load Fix Unload F		-	1	6 Harris	te Value		Device		
200		Unl <u>o</u> ad /	All	-							
200	28Vo class	Edit Des	cription	-	off Cassini Pod	Einsteinen			DIB		
60000000000000000	devio	Edit <u>P</u> ara Edi <u>t</u> Para	agraph agraph Attributes		Training DU				Fixture		
F	Change Tester Edit Resource Mappings Edit Resource Connections Update Paths Resources Update Connections Resources										
-		Edit Instruments Edit Modules			ifier	Pin Name	Cal Name	State Nar	ne		
		Edit <u>D</u> efa Edit <u>C</u> al Edit Cal	ault Cal List Symbol								
		<u>S</u> ave Fix	tani <u>f</u> est ture ture <u>A</u> s						*		
		Jave All									
Fi	xture l	Paths									
	Res	source1	HeadPin Title	Hea	dPin Name	Resource2	FixturePin Title	FixturePi	in Name 🔺		
Re	eceive	r	High Band Input	HighB	andInput	Testhead	Hi Band Receiver Out	t RecHiOut			
	eceive	r		LoInpu	ıt	RecLo	RF output	Output	-		
							*				
1											

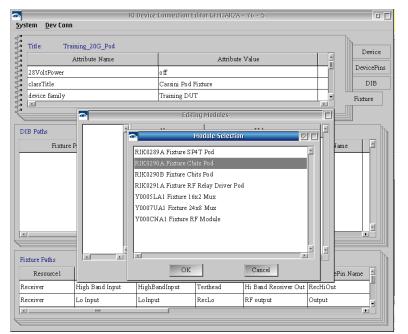
Pod module card locations must be added to the fixture definition using the Device Connection Editor. With the desired fixture definition loaded, select **Dev Conn > Edit Modules...** from the menu options as shown in Figure 7.

#### Figure 7

ystem <u>D</u> ev Con		Device Connection I	Editor GFH3AR2A	- 76 - 5		Ē
Title: Th 28VoltPower classTitle device family <	aining_20G_Pod				))	Device
0	Attribute Name		Attribute			
28VoltPower		off		B	DevicePins	
classTitle		Cassini Pod	Fixture			DIB
device family		Training DU	т			Fixture
	<u>a</u>	Edirir	ig Modules			
		Name	-	Value		
DIB Paths						
≺∫ Fixture Paths	Delete				¥.	
Resource1	1	ОК		Cancel	ePin Na	me 🔺
Receiver	High Band Input	HighBandInput	Testhead	Hi Band Receiver Out	RecHiOut	
Receiver	Lo Input	LoInput	RecLo	RF output	Output	-
*				+		•

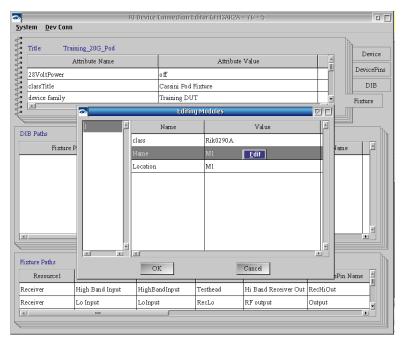
Right click in the left pane of the Editing Modules window and select **Add** from the pop-up menu options as shown in Figure 8.





In the Module Selection window, left click on the 'RIK0290A Fixture Cbits Pod' module from the list to highlight it and click **OK** as shown in Figure 9.

#### Figure 9



The module is added to the Editing Module list with a default location of M1. To specify a different location on the carrier board, left click on the *Name* or *Location* field to highlight it and then right click and select **Edit** from the pop-up menu options as shown in Figure 10.



RI Device Connection Editor GFH3AR2A - 76 - 5 🗾 🗖												
System Dev Conn												
Title Training_20G_Pod Attribute Name 28VoltPower classTitle device family					Device							
Attribute Name		Attribute	*									
28VoltPower	o ff			-	DevicePins							
classTitle	Cassini Pod F	ixture			DIB							
device family	Training DU	Г		-	Fixture							
	Editi	ng Modules										
	Name		Value		<u> </u>							
DIB Paths c	lass	Rik0290.A										
Fixture P	Jame	M1	- Jan	ne 🖄								
	ocation	M1										
Tixture Paths Resource	Name: Value:	Ediling Mod Name M7 M4 M5 M6 M7 M8	utes 🛛	×	n Name a							
Receiver High Band Input	HighBandInput	and Input Testhead Hi Band Receiver Out Ru										
Receiver Lo Input	LoInput	RecLo	RF output	Output								
	p			- separ	<u> </u>							

From the Editing Modules pop-up window select a location from the drop-down list and click **OK** to update the location value as shown in Figure 11.

Figure	11
--------	----

0		RI	l Device C	onnection Ec	litor GFH3AR2A	- 76 - 5		1	
Sys	item <u>D</u> ev Conn								
88888888888888888888888888888888888888	Title: Trai	ning_20G_Pod						Devic	ce
2	1	Attribute Name				DeviceF			
20	28VoltPower		a	ff			Devicer	ms	
2	classTitle		C	Cassini Pod F	ixture			DIB	
20	device family		۲	Fraining DUT	•			Fixture	
20	<u> </u>			Editing	Modules				-
	IB Paths	1	]	Name		Value	1		<u> </u>
			class		Rik0290A			. 111	
	Fixture I		Name		M7			Jame 🗅	
			Location		M7				
	J	I I I	<u>«</u>				×	¥	
	Resource1		OK			Cancel		ePin Name 🛔	
Re	eceiver	High Band Input	HighBan	ndInput	Testhead	Hi Band Receiver Out	RecHiO		
Re	eceiver	Lo Input	LoInput		RecLo	RF output	Output		
( e	·					+			
1									

The *Name* and *Location* fields are locked to each other and should now reflect the updated location selected as shown in Figure 12. Click **OK** to finalize the module information.



<u>.</u>		RI D	evice C	ionnection Ec	itor GFH3AR2A	- 76 - 5				
System	<u>D</u> ev Conn									
4	<u>N</u> ew Fixt	ure						ኩ.		
a Title a 28Vc class devic	Load Fix Unload F			1	A theiles	ite Value		Device		
÷ —	Unload A	ai			Autor	ac value		DevicePins		
28Ve	Edit Des	ription	-	off	DIB					
	Edit <u>P</u> ara			Cassini Pod				DIB		
devia	Edi <u>t</u> Para	ıgraph Attributes		Training DU	T		<u> </u>	Fixture		
DIB Pat	Edit Reso Update F	Fester Durce Mappings Durce Connections Pat <u>h</u> s Resources Connections Resources						<u> </u>		
		-	Ident	tifier	Pin Name	Cal Name	State Nam	ne 🔺		
	Edit Insti Edit <u>M</u> od	ru <u>m</u> ents ules								
	Edit <u>D</u> efa Edit <u>C</u> al I Edit Cal S	_ist								
	<u>Save Fix</u> Save Fix	-						v		
	Sa <u>v</u> e All									
Fixture I	Paths									
Res	source1	HeadPin Title	Hea	dPin Name	Resource2	FixturePin Title	FixturePir	n Name 🔺		
Receive	r	High Band Input	HighB	andInput	Testhead	Hi Band Receiver C	ut RecHiOut			
Receive	r	Lo Input	Lo Input RecLo RF output			Output	-			

Save the fixture definition with the updated module information by selecting **Dev Conn > Save Fixture** from the menu options as shown in Figure 13.

Note: If a fixture definition is already loaded into the System Configuration, it must be removed and rechecked into the System Configuration for the updated fixture definition to take effect.



For Pod fixtures, the control bit commands are as follows:

#### RI Device Connection Editor GFHSAR2A System Dev Conn Title Training\_20G\_Pod Device Attribute Name Attribute Value Resource 1 DIB/Resource 2-Resource Name Resource Name2 Festhead ut Interface Resource Model 1 Ri8545B Resource Model2: Resource Locati T12 Resource Location Resource Pin 1 DIB/Resource Pin2 Physical Pin: Pin Title: RF6 test port Pin Name Pin Name Default Or Enter N Enter/Select Nam 🔿 Create Default Pin Name: DUT RF In1 -Fixture Site State Edit Nam RF6 Relay Calibration Fix\_RF6\_Path Path1 (NC) Value Descrip ○ Yes ● No Default OK Cancel

# A7C6 = 11001010

Control Bit Command — set by indicating the common port, an equal sign, and the connecting port for the associated SP4T switch on the module card. In the example above, J3 (common) is connected to the J1 port on switch 2. See the pod module card reference for switch1 and switch 2 positions.
Start Location — value defines the first control bit that is being referenced in the Control Bit Command. A value of C6 indicates the following Control Bit Command starts at Cbit 6.

**Module Address** — defines the target module card in the pod fixture carrier for which the following command string applies. In the above example, the number '7' denotes module slot M7.

Action Command — denotes a module command string follows. NOTE: Only a single action command is required for compound command strings.

NOTE: Cbit commands for multiple bits or across multiple pods can be expressed by using semicolons between command strings to create compound commands, i.e. - the above example could also be expressed as the command: A7C6=1; 7C7=1; 7C8=0; 7C9=0; 7C10=1; 7C11=0; 7C12=1; 7C13=0



# REFERENCES



0	0	M1	0	M2	0	M3 0 0 0 0 0 0 0 0	0	M4	0	M5	0	M6 0 0 0 0 0 0 0 0 0 0	0	M7	0	M8 00 00 00	0
0																	0