



# Why Modules?

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## Resource Customization, Extension, and Enhancement

- RF, AC, DC Switching
- Signal Attenuation
- Filtering
- Differential I/Q Signals and Offsets
- Frequency Division
- Voltage Buffering
- Etc....

***Standard Modules Available From Roos Instruments***

<http://roos.com/docs/JLUT-64A253?Open>



# Module Types

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## Module Types Based on Levels of Complexity and Control

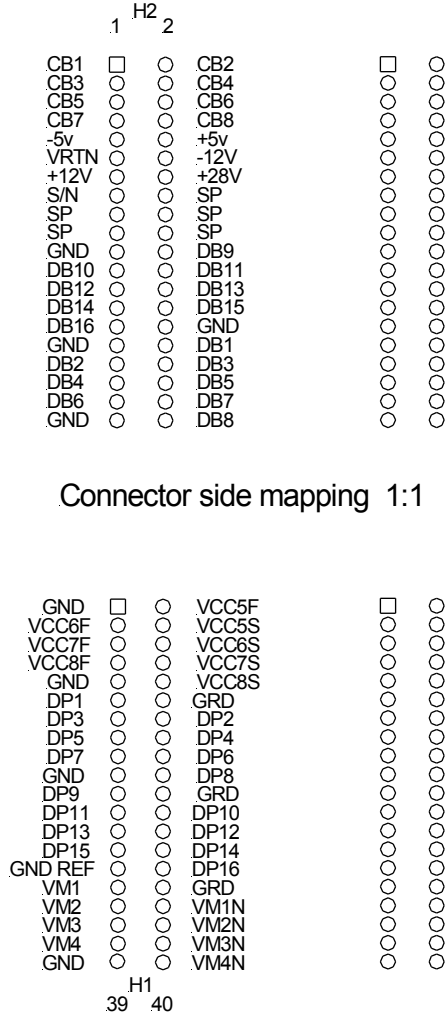
- **Level 1** - Require simple static digital control lines.
  - OTC attenuators, switches, etc... requiring 1 - 8 Cbits
  - RI developed modules requiring 1 - 4 static control lines
- **Level 2** - Require more than simple static digital control but do not require fixture instrument buttons.
  - RI developed modules requiring more than 4 static control lines
  - Only one state or variable to control
- **Level 3** - Require fixture instrument buttons for control.
  - More than one variable to be controlled – ie. state and level commands together



# Level 1 Cbit Control Carrier 65A

Cbits

## Board Interface Pin Designations



EDGE OF BOARD

ators, switches, relays, and configured for module

e” is typed into the switch  
 File Editor (7100) or the  
 (Cassini).

Cbit2 high type C21 into  
 switch field.

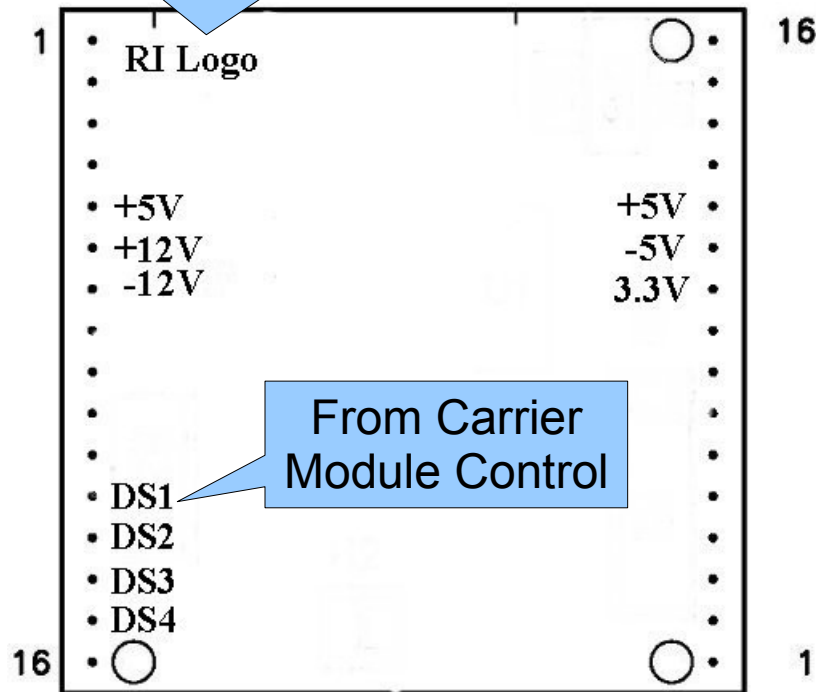
- Pin Designation Key:
- CB = Control Bits
  - SP = Customer Specific/Undefined
  - GND = Ground
  - VRTN = Voltage Return
  - DB = Static Digital
  - VCC = Power Supply
  - DP = Device Power
  - GRD = Guard
  - GNDREF = Ground Reference
  - VMx = Voltage Measure x
  - VM1N = Differential Voltage Measure x



# Level 1 Module Control

## Carrier Module

Carrier "M" location denotes position  
 $M = S\#$



**Note:**

1. DS1-4 are not available on Passive carrier boards

## Module Control String

1. Control provided through DS1 - DS4.
2. Format: "S# - state-state-state-state".  
# = module position

Example: To drive the lines DS1 and DS3 high at module location M2 type **S21X1X** into the fixture file switch field.



# Level 1 Module Control Exercise

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Write the code string required to place Cbit 3 high and Cbit 5 low. In the same string drive DS1,2, and 4 of the module at M3 high.

Where would the code string be typed?



# Answer to Level 1 Control Exercise

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1. C31C50S311X1 or  
C50C31S311X1 or  
S311X1C31C50

2. In the fixture file switch field.

Note that strings are not delineated and can be mixed.



# Module Types

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## Module Types Based on Levels of Complexity and Control

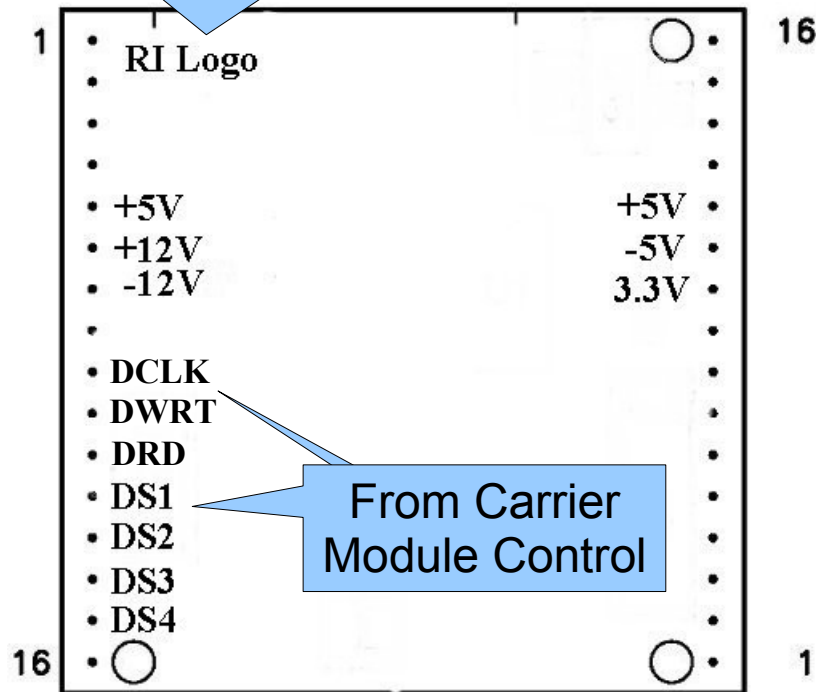
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  - RI developed modules requiring more than 4 static control lines
  - Only one state or variable to control
- **Level 3** - Require fixture instrument buttons for control.
  - More than one variable to be controlled – ie. state and level commands together



# Level 2 Module Control

## Carrier Module

Carrier “M” location denotes position  
M = A#



**Note:**

1. DS1-4 are not available on Passive carrier boards

## Module Control String

1. Control provided through DS1 - DS4, DWRT, DRD, and DCLK.
2. Carrier configuration step “Add Module” required in 7100. “Edit Modules” is used in the Fixture Definition on the Cassini.
3. No fixture control buttons required in test plan.
4. Format: “A#SW=XX” or “A#CX=Y”.  
A# = module position  
SW=XX or CX=Y is module specific but still loaded into fixture switch field.





# Module Types

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## Module Types Based on Levels of Complexity and Control

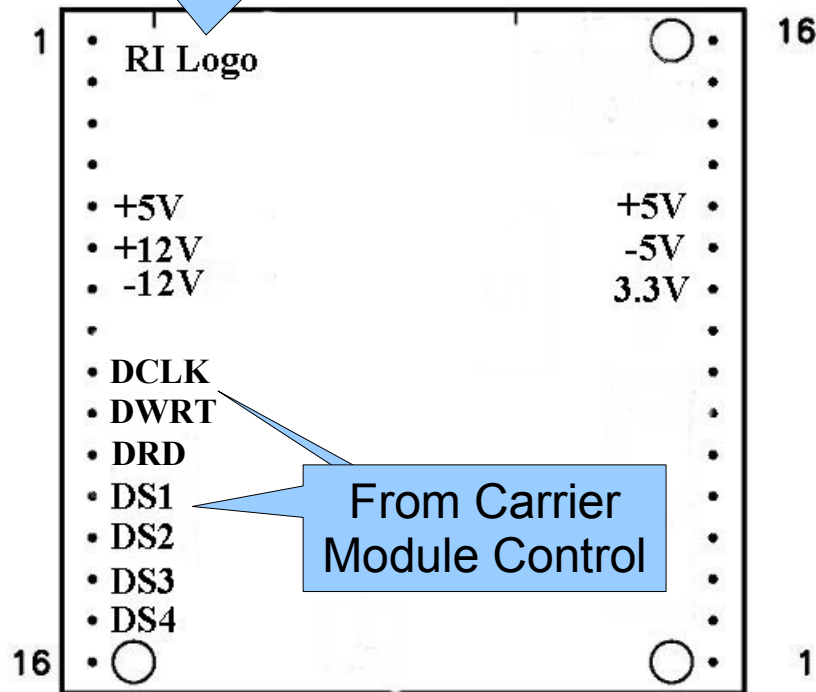
- **Level 1** - Require simple static digital control lines.
  - OTC attenuators, switches, etc... requiring 1 - 8 Cbits
  - RI developed modules requiring 1 - 4 static control lines
- **Level 2** - Require more than simple static digital control but do not require fixture instrument buttons.
  - RI developed modules requiring more than 4 static control lines
  - Only one state or variable to control
- **Level 3** - Require fixture instrument buttons for control.
  - More than one variable to be controlled – ie. state and level commands together



# Level 3 Module Control

## Carrier Module

Carrier "M" location denotes position



**Note:**

1. DS1-4 are not available on Passive carrier boards

## Module Control

1. Control provided through DS1 - DS4, DWRT, DRD, and DCLK.
2. Carrier configuration steps "Add Module" and "Add Instrument" required. This is done in the [Fixture File Editor](#) on the 7100 and in the [Fixture Definition](#) on the Cassini.
3. Fixture control buttons are required in test plan.

EX.

