



### MULTI-FUNCTION MODULE SERIES

Applied Instruments has been manufacturing RF test and measurement equipment since 1986. Since then, the need for performing certain RF functions has surfaced again and again within our product designs. Not long ago, we began to address those needs by designing several basic modules for internal use. Having found them so useful, we've decided to make these robust and flexible modules available to our customers. We believe they may fill a niche for your RF testing requirements as well.

The module detailed in this datasheet can be used alone or connected to additional ones. This includes fully compatible modules in this family that perform various other RF functions. Several are available to choose from.

*NOTE: An interface module is also available that provides the DC power and I<sup>2</sup>C signals required to operate and control a group of RF Cog modules. I<sup>2</sup>C signals are generated by the Interface Module in response to commands received from a USB or RS-232 device. The software supplied with the Interface Module allows a PC to easily communicate with other RF Cog modules, all of which are individually addressable.*

## RFC-AT60 4-Stage I<sup>2</sup>C-Controlled Attenuator



The **RFC-AT60** is a programmable attenuator module for use with high frequency RF signals. The attenuator consists of four cascaded 15 dB attenuator sections which can be electronically switched in or out. The attenuation is set via signals sent to the module over an I<sup>2</sup>C bus. Each module is individually addressable and can be used alone or with additional attenuator modules. It can also be used with other modules in this family which provide different functions like switching or amplification.

Because this device employs electronic switching, there are no mechanical parts to wear out or contacts that can become tarnished.

The I<sup>2</sup>C signals and DC power connections are made through a multi-pin connector. There is a second connector port wired in parallel with the first which allows all of the modules to be “daisy-chained” together – from one module to the next.

The RF connectors used on the **RFC-AT60** switch module are F-type connectors, widely used in CATV and video applications.

The modules in this series can be mounted flat to a base plate or vertically into an optional 3U sub-rack (standard 19” rack) along with the controller and other modules.

## FEATURES

- Four cascaded 15 dB attenuators, each electronically switched in or out
- Good high frequency performance to over 1 GHz
- 75 Ohm characteristic impedance
- Good input and output VSWR
- Easily controlled by I<sup>2</sup>C
- User-settable I<sup>2</sup>C addresses via readily accessed DIP switches
- Latching relays minimize power requirements
- Rugged construction
- Versatile mounting options
- Readily compatible with other modules in this series enabling a test system to be put together
- I<sup>2</sup>C controller is available from Applied Instruments that is controllable via USB or RS-232 from a PC

## APPLICATIONS

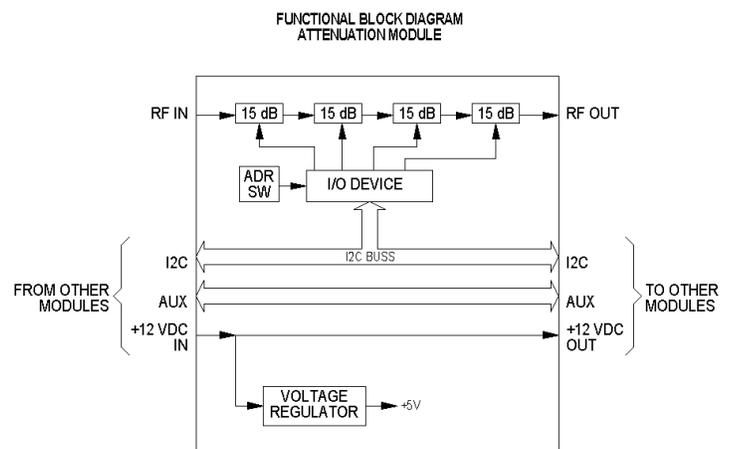
- Video and cable systems
- Test equipment

## INCLUDED IN THE RFC-AT60 PACKAGE

- User/Data Sheet
- RFC-AT60 Module
- Mounting hardware
- Cable assembly for control and DC power connections

## OPTIONAL ACCESSORIES

- Interface Module (model RFC-INTF)
- Additional cable assemblies (models RFC-CBLxx)
- Additional RF Cogs™ modules
- Sub-rack for mounting into a 19" rack (3U height) (model RFC-RM)



## ELECTRICAL SPECIFICATIONS

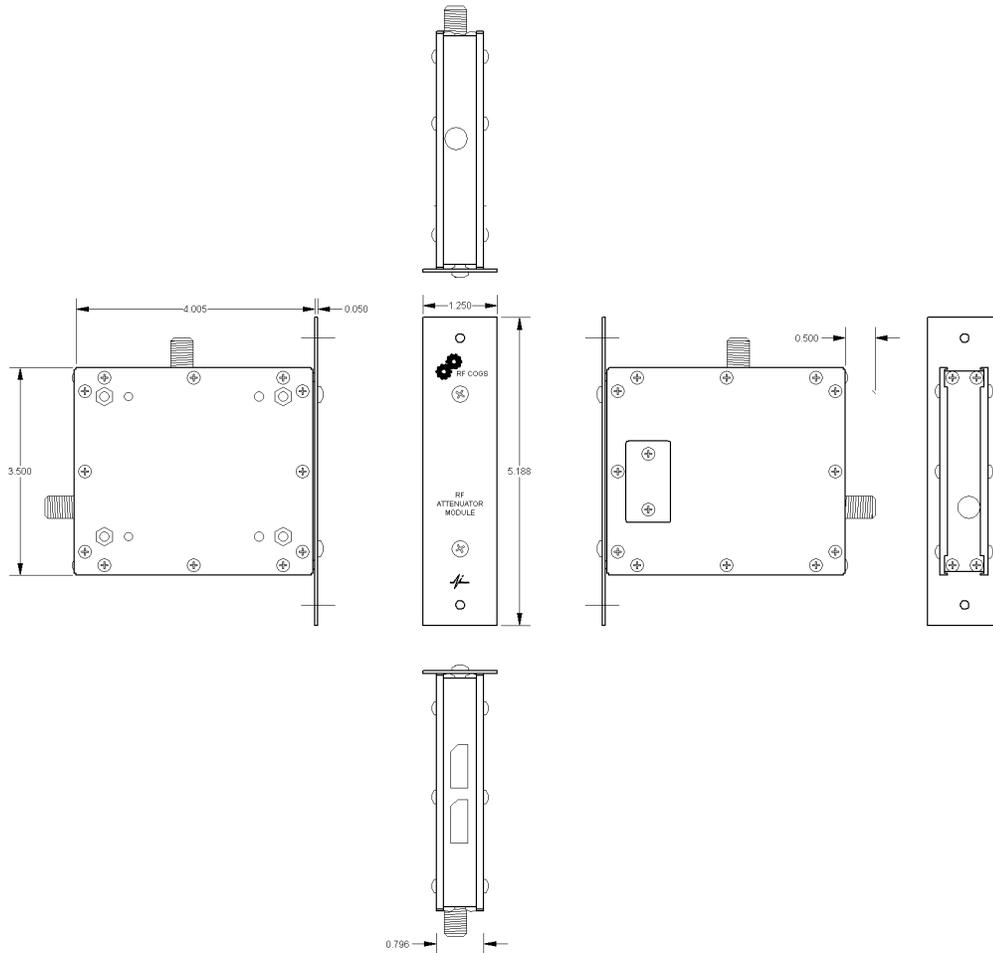
ABSOLUTE MAX RATINGS	15 VDC
RECOMMENDED OPERATING CONDITION	12 VDC
LOAD CURRENT	10 mA typical
ATTENUATION	0, 15, 30, 45, or 60 dB Nominal
OFFSET	1.5 to 2 dB typ.
FLATNESS	5 to 50 MHz      ±1 dB typ. for 0, 15, 30, or 45 dB setting
	50 to 1000 MHz    ± 3.5 dB typ. for 60 dB setting
	± 0.5 dB typ. for 0, 15, 30, or 45 dB setting
	± 1 dB typ. for 60 dB setting

## MECHANICAL SPECIFICATIONS

SIZE	Approximately 4 x 3.5 x 0.8 inches or 102 x 89 x 20 mm (See drawing)
WEIGHT	0.6 lbs. (270g)
FINISH	Black powder coating, nickel plating
MOUNTING	Sub-rack, end, or bottom using #6-32 screws End or bottom mounting requires removal of front panel

## ENVIRONMENTAL SPECIFICATIONS

OPERATING TEMP	-20 °C to +60 °C (-4 °F to +140°F)
STORAGE TEMP	-40 °C to +70 °C (-40°F to +158°F)



**Warranty**

Warranted for a period of one year against defects in material and workmanship

**Other products offered by Applied Instruments**

- |                           |                             |
|---------------------------|-----------------------------|
| Satellite Meters          | CATV/Off-Air Meters         |
| CW Test Signal Generators | Noise Power Ratio Test Sets |
| RF Noise Generators       | RF Signal Monitors/Switches |

**APPLIED INSTRUMENTS, INC.**

*Focused on providing the best valued test equipment that meets or exceeds customer expectations.*

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*Applied Instruments takes pride in providing information and technical support to customers when they need it.*