



Instruction Sheet Variable RF Sampler

Series 4273/75

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Bird Electronic Corporation

General

Models 4273 and 4275 are wide range adjustable ThruLine® RF Couplers for signal observation on a scope or frequency counter input. The output signal produced at the BNC output connector is an attenuated, unrectified signal. They offer very low insertion VSWR across their frequency range and insertion loss is less than 0.2 dB.

The Model 4273 is a low frequency coupler for the 1.5 to 35 MHz band and offers a sample that ranges from 40 to 70 dB below the main power level. The Model 4275 covers a frequency band of 20 to 1000 MHz with an attenuation range of 35 to 80 dB down from the main power. Both couplers have locking devices on their attenuation control. Additional details on their performance characteristics are given under specifications.

Installation requires only that the coaxial cables have the mating connectors for the sampler. To obtain the minimum insertion VSWR and loss, the N type connectors are preferred. Use an RF coaxial cable with a Male BNC plug on one end to connect between the Female BNC port on the sampler and the scope or counter, All versions on the models 4273 and 4275 are installed in an RF coaxial line through quick change "QC" connectors except for the -100 models. These models are designed for direct mounting on any Bird device equipped with a "QC" connector. Remove the "QC" connector from the device by unscrewing counterclockwise the four 8-32 x 5/16 inch mounting screws. The -100 having no connectors of its own, is sandwiched between the "QC" connector and the device. Place the "QC" connector on the female side of the sampler. Remount the "QC" connector and sampler on the device by using the four 8-32 x 1-1/2 inch screws furnished with this sampler.

The operation of the variable samplers consists only of adjustment of the knurled coupling knob to obtain the desired RF signal level at the BNC output port. The maximum output is obtained by screwing the knob clockwise all the way in. The control shank threads have a special nonstrip provision when the knob is screwed counterclockwise all the way out. To re-engage the threads, push the knob in gently and turn clockwise. A locking lever is provided to prevent the chosen setting from being inadvertently disturbed.

Since the signal sampler is a passive device, it requires no external source of power or utility service. Therefore, the unit cannot be turned off. The source of RF energy must be shut off instead.

CAUTION

Never attempt to disconnect the sampler from the transmission line while RF power is being applied. Leaking RF energy is a potential health hazard.

These signal samplers are essentially very rugged and mechanically simple by design. They require very little maintenance other than keeping them clean. Wipe the housing off occasionally with a clean dry cloth. In the same way, wipe off the two "QC" connectors and the BNC port. Use a self-drying and nonresidue forming aerosol contact cleaner on their inaccessible internal surfaces. Check the "QC" connectors from time to time to be sure they are tightly and firmly mounted.

Other than replacing the "QC" connectors, there are no field repairs possible with the Models 4273 and 4275 Signal Samplers. Any other malfunction will require returning the sample to Bird Electronic Corp. for service.

To ship one of these samplers, screw the adjustment knob all the way in and lock it in place with the locking lever. Wrap it carefully in padding and place it in a suitably sized corrugated paper box. Storage involves only covering the device to keep off the dust and maintaining the ambient temperature between -40° and +45°C (-40°F and +113°F).

There are no replacement parts for Models 4273 or 4275 except for the "QC" connectors. Listed below are models equipped with suggested "QC" connectors.

Model/Part Number		“QC” Connector
4273	4275	None
4273-020	4275-020	N Male/Female
	4275-025	N Female/Female
	4275-045	BNC Male/Female
	4275-100	None

Series 4273/75 Variable RF Signal Sampler Specifications

Frequency Range Model 4273 Model 4275	1.5 - 35 MHz 20 - 1000 MHz
Maximum Power Model 4273 Model 4275	5000 W 1000 W
Insertion VSWR Model 4273 Model 4275	1.07 max. 1.1 max. 2 - 512 MHz ¹ 1.25 max. 512 - 1000 MHz ¹
Insertion Loss Model 4273 Model 4275	0.1 dB max 0.1 dB max. 2 - 512 MHz ¹ 0.2 dB max. 512 - 1000 MHz ¹
Coupling	Adjustable as shown
Coupling Tolerance Maximum Coupling Minimum Coupling	+10dB/-3dB -10dB/+3dB
Connectors	“QC” type as specified
Weight	10 oz (284 g) ¹

1. with N connectors

Figure 1 Model 4275, Minimum Coupling Value

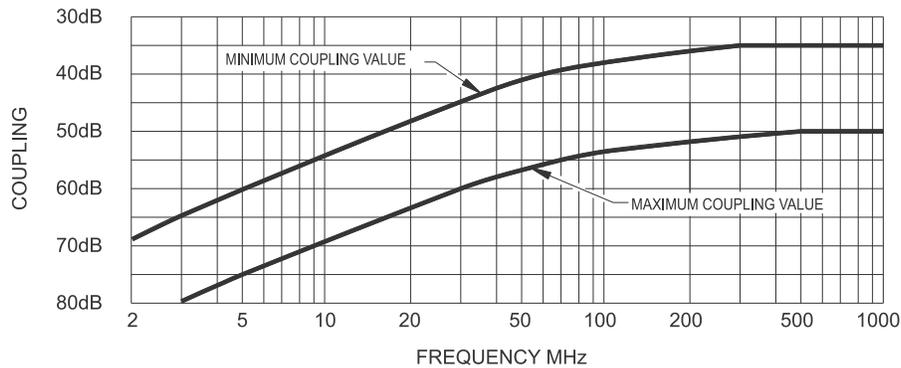


Figure 2 Model 4273, Minimum Coupling Value

