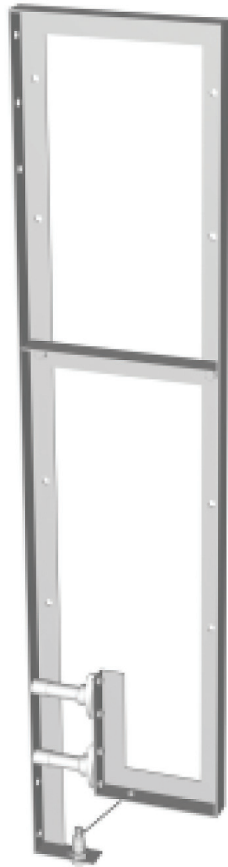


601 Series Phase Sampling Loop



Application

Sampling Loops are used to properly tune and maintain AM directional antenna arrays. The ERI sampling loop provides an accurate means to sample radio frequency energy in towers of a directional AM antenna array.

The 601 Series sampling loops provide individual tower current samples for an antenna phase monitor, in directional AM antenna arrays. Sampling loops are always used to provide the required samples in towers of 110-degrees and taller they may also be used in shorter towers and may provide a more accurate sample for the antenna monitor. Tower mounted sampling loops have an advantage over base current transformers in that the sample includes not only the tower current but also other currents flowing to ground from stray capacitances in the tower base region due to the installation of lighting chokes, ring transformers, and/or isolation transformers. Tower mounted loops provide a sample of the tower current only and are unaffected when changes or additions are made to components that cross the tower base insulator.

Features

- The ERI sampling loop is fabricated from stainless steel angle. The sensitivity is adjustable by varying the fixed position of the electrical contact and freedom from corrosion.
- The sampling loop is fed via a coaxial cable to an antenna (phase) monitor where the amplitude and phase are compared to a sample of current from a given reference tower. One sampling loop is required on each of the towers in the array.
- The vertical members of the loop are provided with a number of holes permitting a wide range of shorting bar adjustment. No dialed modifications should be necessary.
- Two sizes are available. Type 601-48 (SL0002) is a 48 inch loop and type 601-91 (SL0004) is a 91 inch loop.
- The sampling loop is fitted with a high quality, weatherproof, glazed ceramic type "N" female coaxial fitting.

The 601 sampling loop that monitors essentially the tower base current (up to 130-degrees in electrical height) is mounted 10-feet above the tower base and is insulated from the tower on optionally available insulated hangers (ERI Part Number 11662-2, minimum of two required for Model 601-48 Sampling Loop and minimum of four required for Model 601-91 Sampling Loop). In this configuration the sampling loop transmission line is also mounted to the tower with insulated hangers, also available from ERI. On towers taller than 130-degrees the sampling loops, and associated sampling lines, are mounted directly to the tower and an isolation coil passes the sample across the tower base insulator. When the tower is on the order of one-half wavelength or more a quarter wave length isolation loop may be employed, in lieu of an isolation coil, in this configuration the sampling line is attached to the tower with insulated hangers, to the quarter wave point, and then electrically bonded to the tower and non-insulated hangers are used from that point to the tower mounted sampling loop. ERI can supply isolation coils, phase stabilized transmission line, connectors, and all required mounting hardware for a directional antenna sampling systems.

601 Series

Phase Sampling Loop

Type Number	Description
SL0002	Type 601-48 phase sampling loop. Construction is of stainless steel. Energy pickup is adjustable by varying the position of the shorting bar which is firmly bolted to the loop. Loop terminates in a Type N female connector. Loop Size is 48 inches x 12 inches (121.92 cm x 30.48 cm).
SL0004	Type 601-91 phase sampling loop. Construction is of stainless steel. Energy pickup is adjustable by varying the position of the shorting bar which is firmly bolted to the loop. Loop terminates in a Type N female connector. Loop Size is 91 inches x 12 inches (231.14 cm x 30.48 cm).

Mechanical Specifications

Type Number	Condition	Normal Exposure				Transverse Exposure				Weight	
		Flat Plate Area		C _v A _s		Flat Plate Area		C _v A _s		lbm	kg
		ft ²	m ²	ft ²	m ²	ft ²	m ²	ft ²	m ²		
SL0002	No Ice	1.40	0.13	2.56	0.24	1.14	0.11	2.21	0.21	15.00	6.80
	0.5 inch Ice	2.06	0.19	3.68	0.34	1.67	0.16	3.18	0.30	34.00	15.42
	1.0 inch Ice	2.75	0.26	4.50	0.42	2.22	0.21	3.85	0.36	63.00	28.58
	2.0 inch Ice	4.17	0.39	6.20	0.58	3.39	0.31	5.27	0.49	149.00	67.59
	4.0 Inch Ice	7.24	0.67	9.92	0.92	5.93	0.55	8.39	0.78	437.00	198.22
SL0004	No Ice	2.29	0.21	4.37	0.41	2.03	0.19	4.01	0.37	25.00	11.34
	0.5 inch Ice	3.36	0.31	6.34	0.59	2.96	0.27	5.83	0.54	56.00	25.40
	1.0 inch Ice	4.44	0.41	8.34	0.77	3.92	0.36	7.69	0.71	103.00	46.72
	2.0 inch Ice	6.66	0.62	12.08	1.12	5.87	0.55	11.15	1.04	245.00	111.13
	4.0 Inch Ice	11.32	1.05	17.76	1.65	10.01	0.93	16.23	1.51	716.00	324.77

System Components

Type Number	Description
CV0001	Type N insulated connector for Type 601 phase sampling loop. Spare or replacement.

Installation Accessories

Type Number	Description
13550	Round member adapter for attaching hangers to round tower members up to 3 in diameter, includes 1/2 inch x 1-1/4 inch hanger attachment bolt and nut. Two required per loop.
13555A	Angle adapter for attaching hangers to tower angle members up to 7/8-inch thick. Two required per loop.
11662-2	Insulated hanger for 7/8-inch cable and 601 Sampling Loops, single piece.

Note: For insulated hangers contact ERI at 1-877-ERI-LINE or Sales@eriinc.com.

Mounting Note

The ERI Type Fixed Sampling Loop may be mounted directly to a tower leg. Tower leg adapters are not supplied, but round or angle leg adapters are readily available from broadcast equipment suppliers.

Mounting the loop directly to the tower leg requires an isolation choke, or filter, connected in series with the coaxial sampling line. Typical inductive value is 100 microhenries, or greater, thereby presenting a high shunt impedance across the base insulator of an insulated tower.

The sampling loop may also be mounted on stand-off insulators attached to the tower leg by suitable insulated tower adapters.