

## The unique replacement for Coaxial cable in Automotive EMI Applications

*Loss/Noise · High Dynamic Range · Eight Channel System*

The RadiLink system is typically used to replace coaxial connections in RF measurement applications. Where coaxial cables introduce losses that increase with frequency and length of the cable, the RadiLink provides a stable RF-link with flat frequency response. Furthermore, common mode currents, running through shields of coaxial cables, are eliminated using a fiber system. The RadiLink RF Optical Link is a special version designed for CISPR25 compliant Automotive emission measurements of car antenna signals.

### One- or Eight Channel RF Optical Link

The RadiLink RF Optical Link system consists of two parts; a RadiLink plug-in card for the RadiCentre system that acts as a receive unit. The second part is the RadiLink RF Optical Link remote unit, which is mounted in a ruggedized aluminum enclosure. This RadiLink RF Optical Link has a built-in 8 channel RF-switch, which allows automatic selection of different measurement antennae in the car. Each channel can deliver up to 200mA of bias current to power active antennae. In addition, the RadiLink RF Optical Link is equipped with two DC-inputs to measure the switched supply (Radio) and the ignition signal from the car.

### CISPR 25 Compliant

The RadiLink RF Optical Link is compliant to the CISPR25 standard paragraph 5 'measurement of emissions received by an antenna on the same vehicle' and has a frequency range of 9 kHz to 6 GHz (useable up to 8 GHz) covering different antenna signals, including AM broadcast (150 kHz to 6.2 MHz), FM broadcast (76 MHz to 108 MHz) and mobile services (26 MHz to 2.5 GHz).



### High Dynamic Range

With other common fibre optic link systems the dynamic range is often too low for use in CISPR 25 EMI applications. The RadiLink RF Optical Link provides an unprecedented 95 dB dynamic range. In fact, the high dynamic range in combination with the low loss makes most measurement receivers perform much better.

### Internal pre-amplifier

The RadiLink has an internal controllable pre-amplifier to increase the gain of the RF link from 0 dB to 20 dB so it can detect power levels as low as -120 dBm.



### Low Noise

The RadiLink RF Optical Link has an extremely low noise figure, resulting in a noise floor of typical -20 dBμV @ 9kHz RBW from 150kHz to 30 MHz (pre-amplifier ON). This enables the engineer to measure peak and quasi peak measurements in the same set-up.

### Cover great distances

Unlike coaxial cables fiber cables provide almost no loss. The RadiLink RF Optical Link has an internal and selectable 20dB pre-amplifier allowing compensation for very long lengths (to 100 m). This makes it the perfect product for laboratories with large distances between the control room and the antenna in the anechoic chamber.

### Emission applications

Emission applications have typically low signal strengths. By applying the receiving side to the antenna, the maximum signal is converted in to light and transferred to the measurement receiver without loss.

# RadiLink RF Optical Link

## Technical Specifications



Performance	RLK2008A
Input Impedance	50 Ohms
Frequency range, 50 Ohm input	9 kHz to 6 GHz (8 GHz)
Relative frequency response	+3 dB to -1 dB max (150 kHz - 1 GHz) +3 dB to -3 dB max (1 - 6 GHz)
Link gain 50 Ohm mode	typical 20 dB / 0 dB switchable
Input 1 dB compression	> -18 dBm @ 20 dB gain (pre-amp ON) > -12 dBm @ 0 dB gain (pre-amp OFF)
Dynamic range	> 95 dB
Harmonic suppression	> 30 dBc
Equivalent input noise: input 150kHz - 30MHz input 30MHz - 6GHz	Typical -18 dBμV @ 9 kHz RBW Typical -8 dBμV @ 120 kHz RBW
Input VSWR, 50 Ohm input	1:2 max (150kHz - 1 GHz) 1:4 max (1 - 3 GHz)
Output VSWR	1:2 max
Internal bias voltages (per RF input)	Off, +5,0 V to +12,0 V in steps of 0,1 V Separately switchable at each input
Maximum bias current (per RF input)	200 mA
Internal battery (remote unit)	Li-Ion 1,55 Ah (4 cells) with charger (4 hours duration, no bias)
Power supply range (remote unit)	10,0 to 16,0 V / max. 1.2A

Mechanical (remote unit)	RLK2008A
Number of measurement antenna inputs	8
Type of RF connector	SMA (female)
External bias input connectors	SMA (female)
Dimensions excluding connectors (WxHxD)	170 mm x 45 mm x 82 mm
Weight	0,5 kg

Mechanical (plug-in card)	RLK2003A
RF output connector	SMA (female)
Dimensions (WxHxD)	3 HU x 8 TE x 200 mm
Weight	0,2 kg

Optical	
Digital LASER (controller side)	Max 2 mW, 1310 nm
Digital LASER (remote side)	Max 2 mW, 1550 nm
Analogue laser (remote side)	Typical 2 mW, max. 5 mW, 1310 nm
Digital data connector	ST/PC
Analog data connector	DIN/APC8
Standard Fibre length	25 m duplex 9/125 μm (extended length on request)

Environmental	
Temperature range	15° to 40° Celsius
Relative humidity	10 - 90% (non-condensing)

Compliance	
EMC	EN 61326
Low Voltage	EN 61010
Laser safety	EN 60825-1 & EN 60825-2
Immunity to radiated fields (remote unit)	200 V/m (10 kHz - 3 GHz)

Dimensions	
Length x Width	185 x 105 mm
Height	45 mm
Weight	0,85 kg

Models	
RLK2003A	RadiLink plug-in card for RadiCentre
RLK2008A	RadiLink CISPR25 RF Optical Link, 8 ch.