LIGHT SENSOR

Description D0513

Figure 1. The Light Sensor

Description

The light sensor uses a phototransistor to measure light intensity. The intensity is measured in W/m^2. The output voltage of the sensor is linearly proportional to the intensity of the light falling upon it.

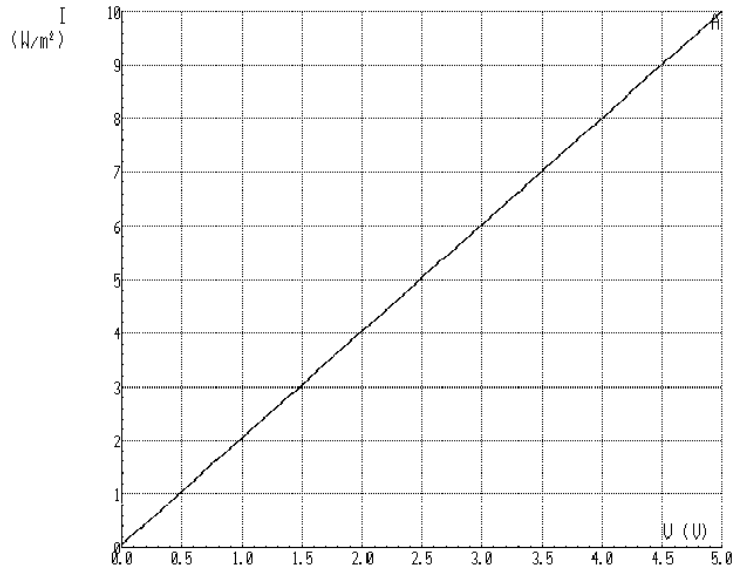
The sensor's range is from 0.1 W/m^2 to 10 W/m^2. For comparison: the light intensity on a cloudy day is approximately 8 W/m^2.

The sensor is direction dependent and achieves a maximum output when the end of the probe is pointed directly at the light source.

The sensor is sensitive in the visible and near-infrared (IR) light range. This means that the sensor can be used for measurements of IR emitting diodes as well as visible light sources.

The sensor is designed to work in air only; it is not waterproof. It has a built-in facility for automatic sensor identification.

Calibration



Calibration curve of the Light sensor.

The name of the light sensor in the sensor library of Coach 5 program is **Light sensor (0513bt) (CMA/CoachLab).** The sensor has two calibrations between 0..100%, and between 0..10 W/m^2.

Technical data

Maximum current drain	5 mA
Intensity range	0.1 W/m^2 to 10 W/m^2
Voltage range	0 - 5 V (0V corresponds to 0 W/m^2 , 5V to 10 W/m^2
Spectral response	300 - 1100 nm (not flat)
Chemical tolerance	None (air only)
Calibration curve Coefficients	Intensity = (K_0 * Voltage) + K_1 K_0 = 1.98795; K_1 = 0.0602410
Accuracy	± 20% (calibrated with a Tungsten lamp. Other light sources give an intensity < the real value)
Connection Connection pins	 BT (British Telecom) plug **2** GND; **4** AUTOIdent resistor; **5** +5 V DC; **6** Signal