

# IRS Power Control PCB

Suitable for EMIRS200 & EMIRS50 IR sources



## 1. Product Description

The Axetris Power Control PCB is a small, printed circuit board designed to drive an Axetris EMIRS200 or EMIRS50 MEMS infrared source. When an appropriate control signal and power supply are connected, the board electrically drives a connected Axetris EMIRS source in the recommended power control mode, optimising performance and leading to a long lifetime and stable optical output.

### 1.1 Main Application Area

Two versions of the power control PCB are available; one optimised for the EMIRS200, the other for EMIRS50 infrared sources and they are ideal for gas sensor or gas detection applications. Whether being used for rapid prototyping or for low- to mid-volume manufacturing, the board can easily be accommodated in even the most compact gas sensor or gas detection designs, due to its small size.

Each board is provided with a TO-socket designed to accommodate the relevant EMIRS source. The only connections required are power supply (nominally 12V), and a square wave modulated control signal plus relevant grounds all connected via a "Molex PicoBlade" socket.

### 1.2 Benefits "at a glance"

- Rapid IRS testing, development and implementation
- Reduced development costs
- Best IR performance with optimised IRS power drive mode
- Small physical footprint

## 2. Power Control PCB Technical Specifications

The Power Control PCB is supplied in two different formats.

Compatible EMIRS	Article Number	TO Socket
EMIRS200	607.105	TO-39
EMIRS50	607.106	TO-46

## 2.1 General Specifications

Specification		Minimum	Nominal	Maximum
Power Supply (Volts, V)		11.5	12	12.5
Control Voltage Form		Square Wave	Square Wave	Square Wave
Recommended control voltage amplitude EMIRS200 (V)		0	2.6	3.3
Recommended control voltage amplitude EMIRS50 (V)		0	2.9	3.3
Signal duty cycle (%)		20	50	80
Signal	EMIRS200	1	5	50
Frequency (Hz)	EMIRS50	1	10	100
Electrical Output Power (mW)	EMIRS200	0	450	600
	EMIRS50	0	220	250
Output Power Accuracy (%)		-5	-	5

The electrical output Power varies linearly with the applied Control Voltage Amplitude. The electrical output power can be calculated from the control voltage using the following relationships:

### EMIRS200

### EMIRS50

$$\text{Power (mW)} = \text{Control Voltage (V)} * 600 \text{mW} / 3.3\text{V} \quad \text{Power (mW)} = \text{Control Voltage (V)} * 250 \text{mW} / 3.3\text{V}$$

Refer to Section 4 in the Operation Manual for more details regarding the recommended form of the Control Voltage.

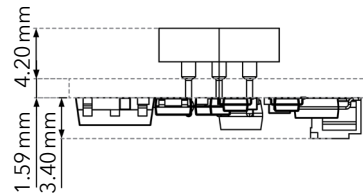
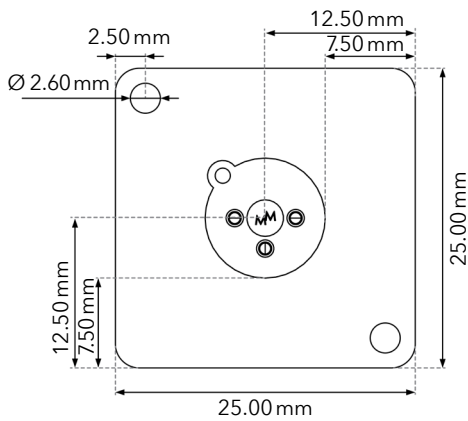
## 2.2 Environmental Specifications

Environmental Parameter	Minimum	Max
Operating Temperature (°C)	-40	85
Storage Temperature	-40	125
Operating Humidity (% RH)	0	85

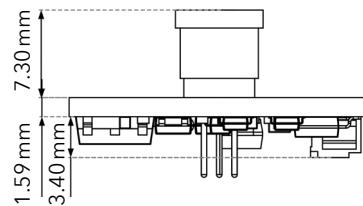
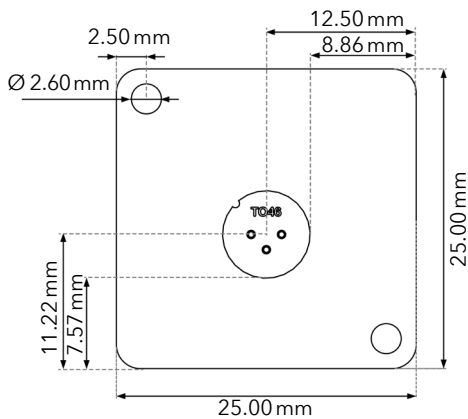
## 2.3 Physical Specifications

The dimensions and location of mounting points and sockets of the EMIRS200 version are shown in the diagram below.

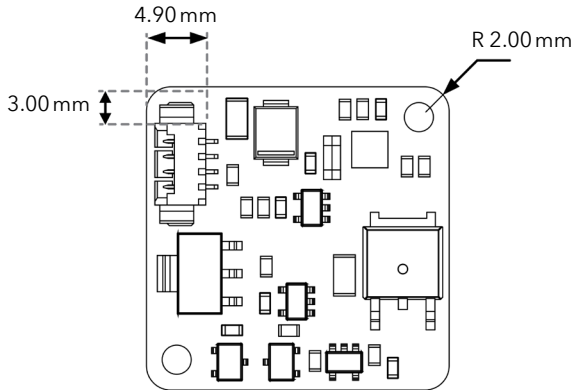
The Power Control PCB has 2 mounting holes which are intended to be used with 2 mm diameter screws.



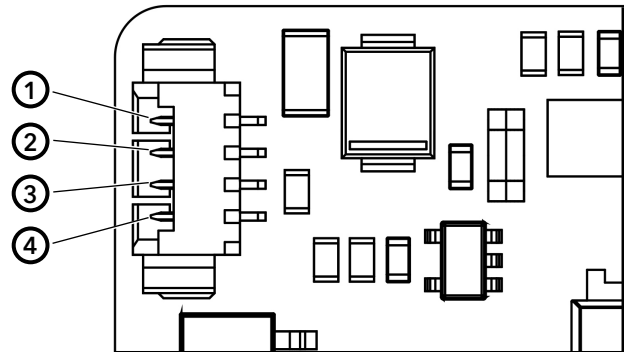
The dimensions and location of mounting points and sockets of the EMIRS50 version are shown in the diagram below.



The relative location of the Molex electrical connector is shown in the diagram below.



For both versions of the power control PCB, the Molex connector is in the same relative location.



## Connector Assignment

Electrical connections to the Power Control PCB are made via a Molex 53261-0471 (PicoBlade

1.25 mm 4 Pin) connector. The pin assignment is summarised in the table below.

Name	Number	Type	Description
VCC	1	Power	Supply Voltage (nominal 12V)
GND	2	Power	Ground
Control	3	Input	Control Voltage
GND	4	Power	Ground

The pin assignments are also printed directly on the reverse side of the PCB.

## 2.4 Scope of Supply

The scope of supply includes the following items:

- Power Control PCB
- Supplied in an ESD packaging bag with ESD label affixed

**Important note:** The EMIRS200 or EMIRS50 source must be ordered as a separate item and does not form part of the scope of supply.

### 3. Norms and Regulations

RoHS compliance according to Directive 2011/65/EC

REACH compliance according to regulation number 1907/2006 (EC)

### 4. Caution

Read all instructions before using the device.

Failure to comply with these instructions may result in product damage or failure.

Use the correct Power Control PCB version for the type of Axetris EMIRS source under operation (see table Section 2.0)

The product must not be used in damp or wet conditions and is designed for indoor use only.

#### 4.1 Product Damage

- Do not use if the product is damaged.
- The product may be irreparably damaged if incorrect electrical connections are made. Refer to the instructions before applying electrical current to the device.
- Do not apply control voltage greater than those specified. **Note: Control voltages greater than 5V will cause device failure and are not covered by the product warranty.**
- Do not apply power supply voltage greater than specified. **Note: Supply voltages greater than 15V will cause device failure and are not covered by the product warranty.**

#### 4.2 Danger to Life

- Do not connect the device directly to mains voltage.
- Only use the device within the specified design parameters.

### 5. Importance Notice / Disclaimers

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### 6. Axetris Certifications

Axetris is a ISO9001: 2015 certified company.