



- Compact arc detector box with keypad for test/ reset & configuration
- Very high light sensitivity < 1 Lux (new!)
- Fast arc response time < 2µs
- 1x FSMA input for fiber optic cable
- Optical and electrical interlock signal
- Optical test signal (new!)
- Photo detector voltage monitor (new!)
- Option (new!): adjustable sensitivity and auto-reset time via USB interface

1. Product Introduction

The **ARC1 2.0** arc detector is a compact electrical device for very fast and highly sensitive light and arc detection, using a wide-spectrum photo diode. It is designed to effectively protect high-power RF-equipment from damage due to unwanted electrical breakdown, corona discharge and arcing.

The single channel version of ARC1 2.0 provides one optical arc detector input port (FSMA). Arcs are signaled in three ways: (1) visually indicated by bi-colored LEDs at the front panel, (2) via a digital electrical output signal (TTL or Open Collector), and (3) via an optical output signal. Function keypads at the front panel as well as a D-SUB 15 remote control interface allow testing, resetting and customizing the device. The testing of the device is offered in two ways: (1) an internal self-test and (2) an optical test signal for external use. For safety reason the device comes with a power/system failure signal. An analog output allows access to the photo voltage of the detector for monitoring and analysis purpose.

As an option to be ordered separately, the *ARC1 2.0 USB software interface* enables an adjustment of light sensitivity (threshold level) and auto-reset time for customized needs.

Low-loss fiber optic cables are used to transmit/send light to/from the ARC1 unit. Cables are available in different standard length as accessories.

| 2. Product Features | Description |
|-------------------------------------|----------------------------------|
| ■ Optical arc input | 1x FSMA (CH1) |
| ■ Optical arc output (digital) | 1x FSMA (CH1) |
| ■ Electrical arc output (digital) | 1x TTL, 1x open collector (CH1) |
| ■ Electrical arc output (analog) | Photo voltage of detector (CH1) |
| ■ Visual arc/status indication | LEDs (red/ green) |
| ■ Optical self-test/ reset function | via keypad or remote control |
| ■ Reset options | manual or auto-reset, via keypad |
| ■ Optical test signal (output) | 1x FSMA, LED 600nm |
| ■ Power failure signal | 1x open collector |
| ■ Signal polarity setting | via keypad |

ARC1 - Single Channel Arc Detector 2.0

| 3. Optional Product Feature | | Description |
|--|--|-----------------------|
| USB Software Interface | | |
| ■ Adjustable light sensitivity (threshold) | | via USB Hyperterminal |
| ■ Adjustable auto-reset time | | via USB Hyperterminal |

| 4. Main Characteristics | | Description |
|--------------------------------------|----------------|---|
| Wavelength of optical input detector | | 400 nm to 1000 nm |
| Wavelength of optical output signal | | 880 nm |
| Wavelength of optical test signal | | 600 nm |
| Light intensity for detection | | < 1 Lux |
| Light sensitivity level | | 20 mV threshold (default), adjustable as an option |
| Response time | | < 2 µs, for typical arc light |
| | | < 3 µs, factory tested with an LED light source at 880 nm |
| Auto reset time | | 1 s (default setting) |
| | | 0.1 ms to 2 s, configurable as an option |
| Electrical signal ratings | | |
| | TTL | > 2.4 V (high), < 0.7 V (low) |
| | Open Collector | 50 V, 100 mA max. |
| | Remote inputs | 5 V, 10 mA, 0.5 s |
| Mains power supply | | 230 VAC / 50 Hz and 110 VAC / 60 Hz, universal |
| | | internal fuse 1 A, time delay |
| Temperature range (ambient) | | |
| | Operating | 0°C to +50°C |
| | Storage | -40°C to +85°C |
| Dimensions | | 180 x 112 x 46 mm ² |
| Weight | | 500 g approximately |
| Safety Class | | IP40 |

| 5. Interfaces | | Description |
|--------------------------------|---------------|--|
| Optical arc input | | |
| | ARC IN – CH1 | FSMA, ¼"-36 UNS 2A male thread |
| Optical arc output | | 880 nm |
| | ARC OUT – CH1 | FSMA, ¼"-36 UNS 2A male thread |
| Optical arc test signal output | | 600 nm, pulse length 100µs approximately |
| | ARC Test | FSMA, ¼"-36 UNS 2A male thread |
| Electrical arc output | | TTL or Open Collector |
| | ARC Out | BNC, female |
| Control Signals | | D-SUB 15, female |
| USB | | USB Type B, USB 2.0 |
| MAINS | | IEC-600320-C14 (male) |

| 6. Control Signals | | Description |
|--------------------|------------------------|---|
| Pin No. | Signal Description: | Signal Level: |
| 1 | CH1 arc output signal | Open Collector |
| 2 | | |
| 3 | Power/system failure | Open Collector |
| 4 | CH1 arc output signal | TTL |
| 5 | | |
| 6 | | |
| 7 | CH1 photo voltage | mV output |
| 8 | | |
| 9 | +5V supply voltage | +5 V output, 100 mA max. |
| 10 | Test CH1, remote input | 5 V, 10 mA, 0.5 s |
| 11 | | |
| 12 | Test EXT, remote input | 5 V, 10 mA, 0.5 s |
| 13 | RESET, remote input | 5 V, 10 mA, 0.5 s |
| 14 | GND remote* | remote ground for remote inputs Pin 10..13*, galvan. isolated |
| 15 | GND | internal device ground |

Note : * Remote ground Pin 14 has to be connected to device ground Pin 15, if the internal +5V voltage (Pin 9) is used to supply the galvanically isolated inputs Pin 10..13.

| 7. Conformity | | Description |
|-----------------|------------|-------------|
| ■ CE Directives | | |
| | 2014/35/EC | Low Voltage |
| | 2014/30/EC | EMC |
| | 2011/65/EC | RoHS |

| 8. Accessories (included) | | Description |
|---------------------------|--|--|
| Mains cable | | IEC-60320-C13 female, plug type F (CEE 7/4), 2m length |
| Mounting brackets | | 2x Clamping bracket |
| Connector kit | | D-SUB 15 male connector |

| 8. Order No. | | Description |
|--------------------|--|--|
| A1-2-SC-00 | | ARC1 - Single Channel Arc Detector 2.0 |
| A1-2-USB-00 | | ARC1 - USB Software Interface 2.0 |

| Rev. | Remark | Date | Name |
|------|---------|------------|---------|
| 00 | Release | 14.11.2017 | C. Weil |