



- New compact arc detector box with keypad for test/ reset & configuration
- Very high light sensitivity < 1 Lux (new!)
- Fast arc response time < 2µs
- 2x FSMA input for fiber optic cable
- 2x 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 diodes. It is designed to effectively protect high-power RF equipment from damage due to unwanted electrical breakdown, corona discharge and arcing. The dual channel version of ARC1 2.0 provides two optical arc detector input ports (FSMA), CH1 and CH2. 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. A global arc output signal (GLBARC) offers a system interlock signal by applying a logical combination (AND/OR) of both arc channels. 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. Analog outputs allow access to the photo voltages of the detectors 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	2x FSMA (CH1, CH2)
■ Optical arc output (digital)	2x FSMA (CH1, CH2)
■ Electrical arc output (digital)	2x TTL, 2x Open Collector (CH1, CH2)
■ Global arc output (digital)	1x TTL (GLBARC), system interlock, configurable logic
■ Electrical arc output (analog)	2x photo voltage of detector (CH1, CH2)
■ 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

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 inputs	
	ARC IN – CH1 FSMA, ¼”-36 UNS 2A male thread
	ARC IN – CH2 FSMA, ¼”-36 UNS 2A male thread
Optical arc outputs	880 nm
	ARC OUT – CH1 FSMA, ¼”-36 UNS 2A male thread
	ARC OUT – CH2 FSMA, ¼”-36 UNS 2A male thread
Optical test signal output	600 nm, pulse length 100µs approximately
	ARC Test FSMA, ¼”-36 UNS 2A male thread
Electrical arc output signal (GLBARC)	TTL or Open Collector (configurable)
	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	CH2 arc output signal	Open Collector
3	Power/system failure	Open Collector
4	CH1 arc output signal	TTL
5	CH2 arc output signal	TTL
6	GLBARC	TTL or Open Collector (configurable)
7	CH1 photo voltage	mV output
8	CH2 photo voltage	mV output
9	+5V supply voltage	+5 V output, 100 mA max.
10	Test CH1, remote input	5 V, 10 mA, 0.5 s
11	Test CH2, remote input	5 V, 10 mA, 0.5 s
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-DC-00		ARC1 - Dual Channel Arc Detector 2.0
A1-2-USB-00		ARC1 - USB Software Interface 2.0 (Option)

Rev.	Remark	Date	Name
00	Initial	14.11.2017	C. Weil