Description

The E-T-A Zero Current Monitor comprises a monitoring circuit with a current transformer and an opto decoupled output circuit with a triac (with AC output circuit) or transistor (with DC output circuit). The current transformer in the monitoring circuit does not only supply the input signal but also the very low power consumption of the Monitor. Zero current monitors are generally used to monitor circuits for wire breakage. The E-T-A Zero Current Monitor E-1076-SR may also be used to switch on an elapsed-hour meter. In this case the opto decoupled triac or transistor output will provide the control signal for the meter as soon as the load to be monitored is switched on. The E-T-A Zero Current Monitor is supplied in a compact moulded housing with screw terminals for mounting on DIN EN 50022 and DIN EN 50035 rails.

Typical applications

- Wire break monitoring
- Control of elapsed-hour meters
- Life testing (e.g. lamps)
- Monitoring of heater elements (e.g. in furnaces)

Features

- No auxiliary voltage required
- Compact design
- Expandable by external current transformers
- Operation of monitoring circuit > AC 250 V only via additional external current transformer

Ordering information

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Zero Current Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1076-SR</td>
<td>AC 20 A load current 0.2 to 20 A</td>
</tr>
</tbody>
</table>

Output circuit (conductive at $I_{\text{load}} > I_{\text{min}}$)

<table>
<thead>
<tr>
<th>Voltage rating $U_N$</th>
<th>AC 12...250 V</th>
<th>DC 2...60 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output current $I_{\text{max}}$</td>
<td>200 mA</td>
<td>50 mA</td>
</tr>
</tbody>
</table>

General data

| Insulation resistance | 10 MΩ at 500 V DC |
| Dielectric strength | control circuit to output circuit: 1 kV |
| Mounting | rail DIN EN 50022-35x7.5, or rail DIN EN 50035-G32 |
| Temperature range | 0...+60 °C |
| Degree of protection: | IP20 housing DIN 40050 |
| | IP20 terminals DIN 40050 |
| Terminals | screw terminals |
| Cable size | 1 x 2.5 mm² each (AWG 14) |
| Housing dimensions | 17 x 63 x 64 mm (width x height x depth) |
Zero Current Monitor E-1076-SR

Dimensions

Connection diagrams

Output circuit AC 250 V

Output circuit DC 60 V
(e.g. check-back signalling for PLC systems)

If no physical isolation is required, the monitoring circuit and the output circuit may be fed by the same power supply. The elapsed-hour meter may be installed either before, or after, the triac.

Check-back signalling may be tapped either before, or after, the transistor.

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
Description

The E-T-A Current Protector is designed to monitor the primary current of low-voltage transformers for halogen fittings. After system installation, the admissible current range can be stored by operating the storage button. If the admissible range is exceeded (e.g., by overloads or short-circuit), the Protector will immediately disconnect the system. Underload (e.g., through defective terminal connections) will also cause system disconnection. Fault conditions are indicated by the integral LED. The system can be reconnected by turning the light switch on again once the cause of failure has been remedied.

Typical applications

- Low-voltage halogen lighting systems
- Can generally be used with sensor touch dimmers (please enquire)
- In sub-distribution
- Low-voltage transformers (no electronic transformers)

Features

- Eliminating fire hazard
- Storage of actual lamp load by push button
- LED fault indication
- Suitable for lighting systems with dimmers
- Passive relay for long use
- Mounting on symmetric rail
- Unaffected by inrush currents

Ordering information

Type No. E-1078-4

Version: 2 - with storage button, capacity up to 400 W
3 - with storage button, capacity up to 600 W

Housing
1 - track-mountable housing

Voltage rating
AC 230 V - voltage rating AC 230 V

Rated load
60-300 W lamp capacity 60...300 W
100-400 W lamp capacity 100...400 W
300-600 W lamp capacity 300...600 W

E-1078-4 2 - AC 230 V - 100-400 W ordering example

Technical data

Protective function short-circuit, overload, underload
Lamp load
60...300 W
100...400 W
300...600 W

Monitoring window typically: ± 40 W
Response times typ.: overload 200 ms...2 s
(short-circuit 200 ms
underload 3 s

Voltage rating AC 230 V ±10 %, 50 Hz
Interrupting capacity relay contact 8 A
Dimmer operation between 35 and 100 % of the rated load stored
Temperature range 0...+45 °C
Degree of protection: IP20 housing DIN 40050
IP20 terminals DIN 40050

Housing track-mountable housing (for DIN rails)
Connection screw terminals

VDE approval Reg. Nr. 8319 to VDE 0160

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
**Dimensions**

<table>
<thead>
<tr>
<th>E-1078-421-...</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.19 x 2.64 x 5</td>
</tr>
</tbody>
</table>

Housing for DIN rail mounting

**Basic circuit diagram**

![Basic circuit diagram](#)

**Instructions for installation and adjustment**

For correct performance, the E-T-A Current Protector shall be used on the primary side before the low-voltage transformer. It should be connected behind the light switch and the dimmer, if any, into the line to the transformer.

---

**Caution: Installation by skilled personnel only!**

- Install the low-voltage system with the desired rated capacity.
- Set dimmer, if any, at the maximum value (turn button to right-side stop).
- Switch the light on.
- Keep storage button on the Protector pressed for approx. 5 sec to store the lamp load installed.
- The stored value will be maintained even when the lighting is switched off.
- A new rated load can be set by pressing the storage button again.

**Caution:**

- Observe max. transformer capacity!
- Eliminate unsymmetrical load on the power feed caused by half-wave operation.
- Use separate power cables when several low-voltage systems are operated in parallel.

**Protective functions**

Immediate disconnection upon short-circuit and overloads when additional lamps (loads) are connected.
Underload disconnection when lamps (loads) are removed or upon defective terminal connections.

**Action in the event of faults:**

Switch the lighting system off by means of the light switch. Remedy cause of failure (call in skilled personnel, if necessary!).

**Possible faults:**

- defective lamps
- loose or broken terminals or screw connections
- short-circuit
- additional lamps

**Reset function**

- provided when the lighting is reconnected by switching the light switch on. The lamp load is not re-stored.
- If the load conditions have changed after remedying the fault, the Protector will switch off within max. 3 sec after reconnection. To re-store the lamp load, keep the button pressed for approx. 5 sec.

---

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8 - 10

www.e-t-a.com
Description

The E-T-A Current Protector is designed to monitor the primary current of low-voltage transformers for halogen fittings. After system installation, the admissible current range can be stored by operating the storage button (or light switch, with type E-1078-482-...). If the admissible range is exceeded (e.g. by overloads or short-circuit), the Protector will immediately disconnect the system. Underload (e.g. through defective terminal connections) will also cause system disconnection. Fault conditions are indicated by the integral LED. The system can be reconnected by turning the light switch on again once the cause of failure has been remedied.

Typical applications

- Low-voltage halogen lighting systems
- Can generally be used with sensor touch dimmers (please enquire)
- Suitable for installation in transformer housing or close to transformer (in inaccessible areas, E-1078-482-...)
- Low-voltage transformers (no electronic transformers)

Features

- Eliminating fire hazard
- Storage of actual lamp load by button (or light switch, with type E-1078-482-...)
- Reset function by light switch
- LED fault indication
- Suitable for lighting systems with dimmers
- Passive relay for long use
- Housing for surface mounting
- Unaffected by inrush currents

Ordering information

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Current Protector for low voltage lighting systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1078-4</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>with storage button, capacity up to 400 W</td>
</tr>
<tr>
<td>3</td>
<td>with storage button, capacity up to 600 W</td>
</tr>
<tr>
<td>8</td>
<td>load storage by light switch, capacity up to 600 W</td>
</tr>
</tbody>
</table>

**Housing**

- 2 - housing for surface mounting
- 3 - without housing (without VDE logo)

**Rating**

- AC 230 V voltage rating AC 230 V
- AC 120 V voltage rating AC 120 V (please enquire)

**Rated load**

- 60-300 W lamp capacity 60...300 W (AC 230 V only)
- 100-300 W lamp capacity 100...300 W (AC 120 V only)
- 100-400 W lamp capacity 100...400 W (AC 230 V only)
- 300-600 W lamp capacity 300...600 W (AC 230 V only)

E-1078-4 2 2 - AC 230 V - 100-400 W ordering example

Technical data

- Protective function: short-circuit, overload, underload
- Lamp load: 60...300 W (AC 230 V only)
- 100...300 W (AC 120 V only)
- 100...400 W (AC 230 V only)
- 300...600 W (AC 230 V only)
- Monitoring window typically: ± 40 W
- Response times typ.: overload 200 ms...2 s (depending on overload)
- short-circuit 200 ms
- underload 3 s
- Voltage rating: AC 230 V ±10 %, 50 Hz
- AC 120 V ±10 %, 60 Hz
- Interrupting capacity: relay contact 8 A
- Dimmer operation: between 35 and 100 % of the rated load stored
- Temperature range: 0...+60 °C
- Housing: surface mounted type
- Degree of protection: IP20 housing DIN 40050
- IP20 terminals DIN 40050
- Connection: screw terminals
- VDE approval: Reg. Nr. 8319 to VDE 0160
- UL-approval: AC 120 V, 300 W, 60 Hz, to UL 1077

Courtesy of Steven Engineering, Inc.-230 Ryan Way, South San Francisco, CA 94080-6370-Main Office: (650) 588-9200-Outside Local Area: (800) 258-9200-www.stevenengineering.com
For correct performance, the E-T-A Current Protector must be used on the primary side before the low-voltage transformer. It should be connected behind the light switch and the dimmer, if any, into the line to the transformer.

**Caution: Installation by qualified personnel only!**

- Install the low-voltage system with the desired rated capacity.
- Set dimmer, if any, at the maximum value (turn knob fully clockwise).
- Switch on light.
- Storage of lamp load:
  - **With version -422/-432 (with storage button):**
    - Keep storage button pressed for approx. 5 s to store lamp load installed.
  - **With version -482 (storage by light switch):**
    - The lighting will be on for a short time and will go out after max. 0.2 sec (the Protector which has not yet been set senses an overload and disconnects the system).
    - Turn light switch OFF and ON within 0.5 s to store the actual rated load. Storage takes approx. 20 s; do not switch off the lighting during this period!
    - A new rated load can only be set after the Protector has responded to a fault.
- The stored value will be maintained even when the lighting is switched off.

**Caution:**

- Observe max. transformer capacity!
- Eliminate any unsymmetrical loading of the power feed caused by half-wave operation.
- Use separate power cables when several low-voltage systems are operated in parallel.

**Protective functions**

Immediate disconnection upon short-circuit and overload when additional lamps (loads) are connected.

Underload disconnection when lamps are removed or in the event of defective terminal connections.

**Action in the event of faults:**

- Switch off the lighting system by means of the light switch.
- Remedy cause of failure (call in qualified personnel, if necessary!).

**Possible faults:**

- defective lamps
- loose or broken terminals or screw connectors
- short-circuit
- additional lamps

**Reset function of the Protector:**

- provided when the lighting is reconnected by switching the light switch on. The lamp load is not re-stored.
- If the load conditions have changed after remediing the fault, the Protector will disconnect within max. 3 s after reconnection of the lighting system.
- Re-storage of lamp load:
  - **With version -422/-432 (load storage by storage button):**
    - Keep the storage button pressed for approx. 5 sec.
  - **With version -482 (load storage by light switch):**
    - Turn light switch OFF and ON within 0.5 s. Re-storage takes approx. 20 s; do not switch off the lighting system during this period as this will interrupt the storage process.

All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
The Combi Safety Protection E-1078-911 allows the simultaneous connection of a washing machine and dryer (for example) without overloading the circuit. The dryer is disconnected during the heating cycle of the washing machine and automatically reconnected when the current consumption of the washing machine drops. Other equipment combinations such as a dishwasher and a hot-water heater are also made possible, provided that one of the loads connected has an operating mode with a current consumption of less than 2 A (= reconnection threshold).

**Typical applications**
- Household
- Commercial premises (e.g., medical practices)
- Recreational vehicles

For the first time it is possible to simultaneously connect to the same socket two large appliances such as a washing machine and a hot-water heater and to leave them unattended, without the danger and inconvenience of overloading the supply. There is no need for a second line with socket and circuit breaker.

**Features**
- Reliable current monitoring when two large appliances are operated simultaneously.

**Ordering information**

<table>
<thead>
<tr>
<th>Type No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1078-911</td>
<td>Combi Safety Protection</td>
</tr>
<tr>
<td>E-1078-911</td>
<td></td>
</tr>
</tbody>
</table>

**Technical data**

- **Voltage rating**: AC 230 V ±10 %, 50 Hz
- **Supply current**: 16 A
- **Load capacity**: 3,700 VA
- **Socket outlets with earthing contact**: to DIN 49440
- **Cable**: H05W-F3G 1.0 mm², approx. 1.4 m long with moulded earthing-pin plug
- **Upper response threshold**: typically 15.5 ± 1 A
- **Lower response threshold**: typically 2.0 A ± 1 A
- **Hysteresis**: typically 13.5 A
- **Temperature range**: 0…+45 °C
- **Environmental duty**: suitable for dry, clean conditions
- **Socket outlet material**: impact-resistant Polypropylene
- **Housing dimensions**: 255 mm x 60 mm x 40 mm (LxWxH), with provisions for screw fixings
- **Mass**: approx. 480 g

**Caution**: Connect appliances with a program memory that is not protected from supply failure, to the “washing machine” outlet!

**Approvals**

CE mark to demonstrate compliance with applicable directives.
Combi Safety Protection E-1078-911

Dimensions

- Switching curve

![Diagram of switching curve]

This is a metric design and millimeter dimensions take precedence (mm). All dimensions without tolerances are for reference only. In the interest of improved design, performance and cost effectiveness the right to make changes in these specifications without notice is reserved. Product markings may not be exactly as the ordering codes. Errors and omissions excepted.
**Description**

The electronic E-T-A Voltage Monitor E-1079-60 is designed to monitor DC or AC voltages against falling below, or rising above, preset tolerance limits. Two LEDs indicate relay status or overlimits; an opto coupler output provides a physically isolated signal. The device is available either with a (non-conducting) N/O or a (conducting) N/C contact. It is powered by the measuring signal so that there is no need for an additional power supply.

**Features**

- Voltage under and over limit monitoring (tolerance window)
- For DC and AC voltages between 5 V and 230 V
- DC and AC voltage output
- N/O or N/C contact (MOSFET)
- Status indication by red and green LEDs
- No need for separate power supply
- Reverse polarity protection
- Compact design (plug-in housing)
- 12 mm wide housing

**Ordering information**

<table>
<thead>
<tr>
<th>Type No.</th>
<th>E-1079 Electronic Voltage Monitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>600</td>
<td>signal output as N/O contact</td>
</tr>
<tr>
<td>601</td>
<td>signal output as N/C contact</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Voltage rating</th>
<th>DC 12 V</th>
<th>DC 24 V</th>
<th>DC 48 V</th>
<th>DC 110 V</th>
<th>DC 220 V</th>
<th>AC 115 V</th>
<th>AC 230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tolerance U&lt;sub&gt;N&lt;/sub&gt;</td>
<td>± 25 %</td>
<td>± 25 %</td>
<td>± 25 %</td>
<td>+10 %/-15 %</td>
<td>+10 %/-15 %</td>
<td>+10 %/-15 %</td>
<td>+10 %/-15 %</td>
</tr>
<tr>
<td>Tolerance range U&lt;sub&gt;min&lt;/sub&gt;...U&lt;sub&gt;max&lt;/sub&gt;</td>
<td>(9...15 V)</td>
<td>(18...30 V)</td>
<td>(36...60 V)</td>
<td>(93.5...121 V)</td>
<td>(187...242 V)</td>
<td>(97.8...126.5 V)</td>
<td>(195.5...253 V)</td>
</tr>
</tbody>
</table>

**Technical data**

- Input voltage U<sub>E</sub>
- Voltage rating U<sub>N</sub>
- Tolerance
- Tolerance range U<sub>min</sub>...U<sub>max</sub>

<table>
<thead>
<tr>
<th>Voltage rating</th>
<th>DC 12 V</th>
<th>DC 24 V</th>
<th>DC 48 V</th>
<th>DC 110 V</th>
<th>DC 220 V</th>
<th>AC 115 V</th>
<th>AC 230 V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load current</td>
<td>3 mA DC and AC</td>
<td>3 mA DC and AC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dielectric strength</td>
<td>260 V DC and AC</td>
<td>260 V DC and AC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reverse polarity protected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output U&lt;sub&gt;U&lt;/sub&gt;/I&lt;sub&gt;A&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOSFET output</td>
</tr>
<tr>
<td>Max. load current</td>
</tr>
<tr>
<td>Voltage drop</td>
</tr>
<tr>
<td>&lt; 0.8 V with 10 mA load</td>
</tr>
</tbody>
</table>

| Free-wheeling diode for non-resistive loads | in-built |
| Polarization | optional |
| Response time | 200 mA |

| Signalling green LED | voltage within set tolerance limits |
| red LED | voltage outside set tolerance limits |

<table>
<thead>
<tr>
<th>Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undervoltage</td>
</tr>
<tr>
<td>Overvoltage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Environmental conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature range</td>
</tr>
<tr>
<td>Degree of protection</td>
</tr>
<tr>
<td>Dielectric strength (IEC 6064)</td>
</tr>
<tr>
<td>EMC</td>
</tr>
<tr>
<td>Housing</td>
</tr>
<tr>
<td>Terminals</td>
</tr>
<tr>
<td>Mounting attitude</td>
</tr>
<tr>
<td>Mass</td>
</tr>
</tbody>
</table>

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The operating voltage applied at the input terminals is monitored for upper and lower limits. When the input signal is within tolerance limits, the green LED will indicate and the MOSFET of the signal output has the following operating status:
- N/O contact (-600): MOSFET is active
- N/C contact (-601): MOSFET is inactive
From approx. 5 V to the lower tolerance limit the red LED will indicate. It also indicates when the upper tolerance limit has been exceeded. The output will change its operating status.
## Accessories for E-1079-600/601

### Single mounting sockets
(up to 16 A max. load)
- **17-P10-Si**
- **17-P70-Si**
(retaining clip Y 300 581 11 available on request)

- **polarized blade terminal DIN 46244-A6.3-0.8 (QC .250)**
- **blade terminal DIN 46344 part 2 C profile (2xA2.8-0.8) (QC 2x.110)**

- **slot for fitting labels from Phoenix, Weidmüller**

**Busbar (10-way)**
(supplied as a complete package)
(for max. 100 A continuous load, more positions available on request)
- **X 211 157 01**
- **X 211 157 02**

**Phoenix terminal AKG 35 max. cross section 35 mm² (AWG 2)**

**cylinder head screw M4x4 ISO 1207 nickel plated**

**washer A 4.3 DIN 125 nickel plated**

**female connector**

**M4 Cu rail, tin-plated**

**pressure-relief joint (1.1 mm (0.043 in.) thick constriction)**

**Insulating sleeving for busbar (10-way)**
- **Y 303 824 01**

### 2-way mounting socket
- **23-P10-Si**
(retaining clip Y 300 581 03 available on request)

### 6-way mounting socket
- **63-P10-Si**

### Connector bus bar - P10
- **X 210 588 01/ 1.5 mm² (AWG 16), brown (up to 13 A max. load)**
- **X 210 588 02/ 2.5 mm² (AWG 14), black (up to 20 A max. load)**
- **X 210 588 03/ 2.5 mm² (AWG 14), red (up to 20 A max. load)**
- **X 210 588 04/ 2.5 mm² (AWG 14), blue (up to 20 A max. load)**

### 2 mounting clips
- **Y 300 504 02**
(2 pcs needed per unit)

### Installation drawing with mounting clips Y 300 504 02

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**This is a metric design and millimeter dimensions take precedence (mm) over (i).**

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