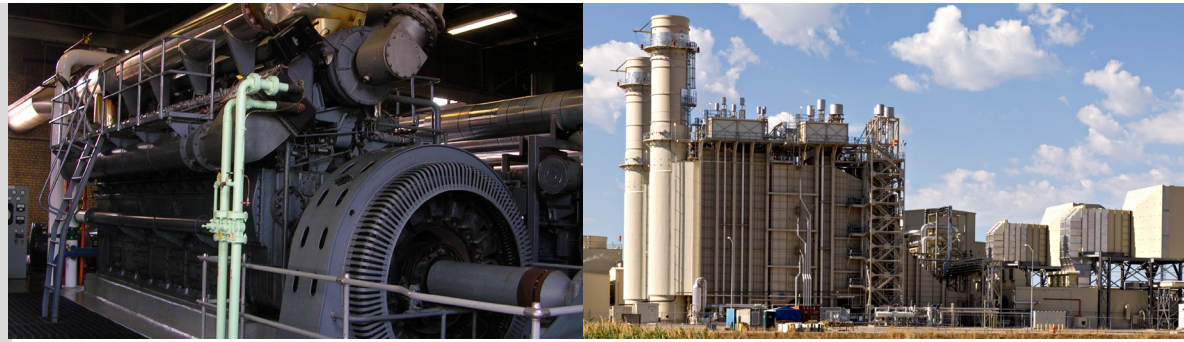


# ES Series Protection Relays



## Overview

ES Series Protection Relays provide a wide range of cost-saving options to simplify protection related to Auto Transfer, Distribution, Generators, Motors, Process Control, and Transformers. Multiple DIN-rail mounting options are available.

## Features

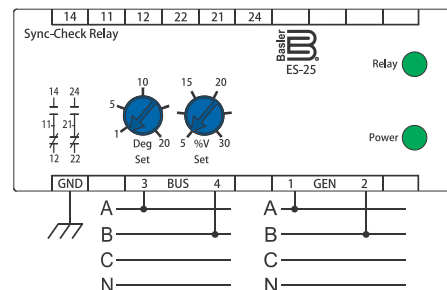
- Fundamental sensing technology
- DIN rail mounting
- Covers a wide range of applications
- Models available in six standard voltages
- Many self-powered options
- Conformal coating for improved protection against dust and corrosion
- HMI
  - Front Panel accessible adjustments
  - Front panel Indications - Red indicates a fault condition, green indicates a normal, non-fault condition.
- Digital microprocessor design
- Internal diagnostics
- High dependability and security
- Two form-C auxiliary contacts available on most models
- High quality relaying solutions based on more than 50 years of relaying experience and more than 30 years of reliable digital relaying design.

## Benefits

- Fundamental sensing technology provides high-end harmonic protection capabilities that prevent false tripping and allow you to be more selective with your settings.
- DIN-rail mounting provides easy, time-saving, and compact installation.
- Simple, economical, yet sophisticated protection for generator, transformer, distribution, process control, automatic transfer schemes, and motor applications.
- Many ES relay models are self-powered, eliminating the need for additional power sources.
- Relay settings are simple and intuitive, making setup fast with no PC required.
- Red and Green LEDs ensure clear indication of system status to avoid misinterpretations that could lead to downtime.
- Digital microprocessor design offers consistency for all models, enhances functionality, and improves performance.
- Internal diagnostics self-monitor and visually annunciate when relay function or accuracy is compromised, providing clear understanding of the functional status of the device.
- High dependability and security means relays trip when they are supposed to and do not trip when they are not supposed to.

## Available Models

| ES Model | Description       | ES Model  | Description          |
|----------|-------------------|-----------|----------------------|
| ES-25    | Sync check        | ES-47N/27 | Voltage Phase        |
| ES-27    | Undervoltage      |           | Unbalance/           |
| ES-59    | Overvoltage       |           | Undervoltage         |
| ES-27/59 | Under/Overvoltage | ES-49     | Temperature          |
| ES-32    | Power             | ES-55     | Power Factor         |
| ES-37    | Undercurrent      | ES-74S    | Transducer/Shunt     |
| ES-51    | Overcurrent       |           | Sensing DC Millivolt |
| ES-37/51 | Under/Overcurrent | ES-74V    | DC Voltage           |
| ES-47    | Voltage Reverse   | ES-810    | Overfrequency        |
|          | Phase Rotation    | ES-81U    | Underfrequency       |
| ES-47N   | Voltage Phase     | ES-810/U  | Over/Underfrequency  |
|          | Unbalance         |           |                      |



Connections to Three-Phase System

Figure 1 - ES-25 Connection Diagram for a Typical Application

## Specifications

Basler Electric ES Series Protection Relays provide a wide range of functions with the following common specifications:

### Applied Standards

For all ES Series Protection Relays:

IEC 60255-1 Measuring Relays and Protection Equipment-Part 1: Common requirements

IEEE C37.90™-2005 Relays and Relay Systems Associated with Electric Power Apparatus

IEEE C37.90.1™-2012 Surge Withstand Capability Tests for Relays and Relay Systems Associated with Electric Power Apparatus

IEEE C37.90.2™-2004 Withstand Capability of Relay Systems to Radiated EMI from Transceivers

IEEE C37.90.3™-2001 ESD Tests for Protective Relays

For ES-74S Relay only:

IEEE 421.3™-1997 For High-Potential Test Requirements for Excitation Systems for Synchronous Machines (for field voltages up to 600 Vdc and bridge input voltages up to 1,300 Vac)

### Agency/Certifications

UL listed (UL 508, CSA C22.2 No. 0 and 14), CE and UKCA compliant (LVD, EMC, and RoHS2), China RoHS Compliant

### Power Supply

All units are self-powered except for the ES-37, ES-51, ES-37/51, ES-49, ES-74S, and ES-74V relays.

| ES Relay Model                        | Nominal Sensing Input               |
|---------------------------------------|-------------------------------------|
| 25, 27, 59, 32, 47, 47N, 55, 810, 81U | 120, 208, 240, 380, 415 or 480 Vac* |
| 32, 37, 51, 55                        | 5 A (or 1 A for 55)                 |
| 74S                                   | 50 or 100 mVdc                      |
| 74V                                   | 1, 10, 100, or 125 Vdc              |
| 49                                    | 10 Ω Cu or 100 Ω Pt                 |

\*For other nominal voltages, contact Basler Electric

### Output

Relay Type: SPDT (form-C)

Make and Carry for Tripping Duty:

30 A, 250 Vdc for 0.2 seconds per IEEE Std C37.90-2005; 7 A continuous ac or dc

Break Resistive or Inductive:

0.3 A at 125 or 250 Vdc (L/R = 0.04 maximum)

### Environmental

Operating Temp: -40°C to 70°C (-40°F to 158°F)

Storage Temp: -40°C to 85°C (-40°F to 185°F)

Relative Humidity: ≤95% non-condensing

As required by IEC 60255-27:

Ingress Protection: IP50 Case, IP20 Terminals

Pollution Degree: 1

Insulation: Class II

Overvoltage: Category III

### Physical

Case Material: Complies with UL 94 V-0

Weight: 0.85 lb (0.38 kg) narrow case

1.10 lb (0.50 kg) wide case

Case Dimensions: See chart and figures 2-4 below

Mounting (HxD): DIN rail 1.38 x 0.29 inches

(35 x 7.5 mm)

Complies with IEC 60715

For complete specifications, download the instruction manual at [www.basler.com](http://www.basler.com).

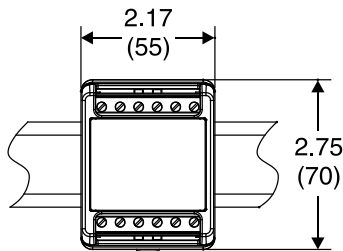


Figure 2 - Narrow Case Size in Inches (millimeters) (Front View)

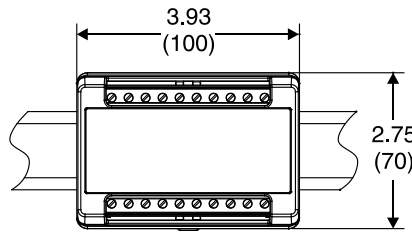


Figure 3 - Wide Case Size in Inches (millimeters) (Front View)

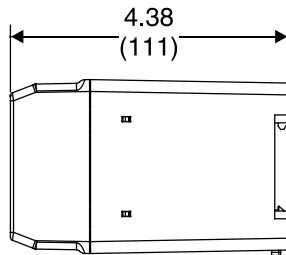


Figure 4 - Case Size in Inches (millimeters) (Side View)

## Related Products

### BE1-FLEX Protection, Automation and Control System

Designed to be configurable for nearly any Power System Application.

### Cases, Covers, Connectors, Mounting, Batteries, and Miscellaneous

Accessories are designed for adaptive customization with your protective device.

## Accessories

|                          |                        |
|--------------------------|------------------------|
| 3.0 in. (76.0 mm) wide   | Basler P/N: 9323900001 |
| 5.5 in. (140 mm) wide    | Basler P/N: 9323900002 |
| 8.0 in. (203 mm) wide    | Basler P/N: 9323900003 |
| 39.4 in. (1,000 mm) wide | Basler P/N: 17366      |
|                          | Basler P/N: 31761      |

## Case Dimension Chart

| ES Model   | Case Width           |
|--|----------------------|
| ES-27, ES-59, ES-37 1-phase, ES-51 1-phase, ES-47, ES-47N, ES-47N/27, ES-74S, ES-74V, ES-81U, ES-810                   | 2.17 inches (55 mm)  |
| ES-25, ES-27/59, ES-32, ES-37 3-phase, ES-51 3-phase, ES-37/51 1-phase, ES-49, ES-55, ES-74S O/U, ES-74V O/U, ES-810/U | 3.93 inches (100 mm) |
| ES relays with optional auxiliary relay output contacts are always supplied in a wide case.                            |                      |