



## OH Line Fault Indication

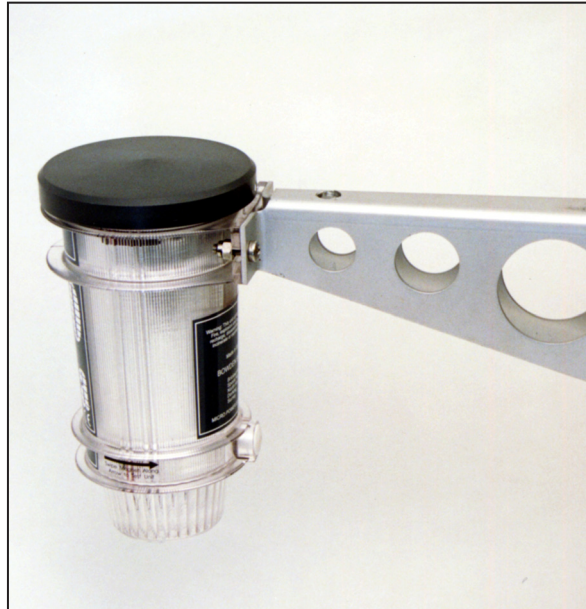
### Pathfinder 360 ALPHA

#### Principle of Operation:

The Pathfinder 360 Alpha is an overhead line fault indicator to detect phase-phase and phase-earth faults of either a permanent or transient nature, indicating with both a high intensity xenon gas flashing light and a bright LED.

Pathfinder technology compares the balance of electromagnetic fields which exists under a healthy line with the out-of-balance fields which occur under fault conditions.

When positioned 3 metres under the conductors, Pathfinder will monitor load currents and voltage. If a fault occurs on the line, Pathfinder will sense the passage of fault current and will flash.



A field patrol can follow the line to locate the faulty section between two Pathfinders.

#### Technical Description:

The Pathfinder 360 Alpha's microprocessor technology allows infinite flexibility of model variations, and a better defined logic to accurately and reliably identify the passage of fault current.

The dual current logic in Pathfinder 360 Alpha senses very low values of fault current continuously for at least 200 milliseconds. This gives more reliable identification of fault currents against transient fluctuations in load or spurious line currents. It will also identify high fault currents within 50 milliseconds, for successful operation within the very fast clearance times of modern ground- or pole-mounted reclosers.

Apart from the 'F' model, the Pathfinder 360 Alpha requires confirmation of fault conditions before alarm, by the recognised loss of voltage field 30 seconds after identification of fault current.

The Auto Gain feature continuously samples the residual electromagnetic field according to the prevailing load conditions, and automatically adjusts the sensitivity to fault current.

All models are designed to be permanently installed 3m below either a flat- or triangular-construction overhead line. They can only be used in wood poles with a single HV overhead current above. They cannot be used near LV, concrete poles.



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#### Benefits:

- Faster fault location
- More effective line patrols
- Reduced fault outage times
- Reduction in customer minutes lost
- Reduction in customer complaints

#### Features:

- Designed to respond to live-line faults, or to a fault following a circuit breaker reclosure onto a dead line.
- Unique field monitoring feature incorporates a 40 millisecond delay to inhibit operation due to stray capacitive and magnetising inrush currents.
- Microprocessor technology uses dual current logic to sense SEF earth faults & high-resistance phase-earth or phase-phase faults
- Type 'F' Alpha will operate for low-level faults cleared by SEF at source where a fuse has insufficient current to rupture.
- Auto Gain adjusts sensitivity according to magnitude and balance of load currents.
- Dual indication from high-intensity xenon flashing light and red LED to indicate sustained and transient faults.
- Timed reset of flashing light to suit customer (3,4,6,or 8 hours), and reset of LED on restoration of line voltage for normal operation.
- Purpose-moulded single piece polycarbonate casing with screw-top lid, pressure tested to 10p.s.i.for 24 hours.
- CE mark certified
- EMC (electromagnetic compatibility) compliance to BSEN50081-1 and BSEN50082-1 (Heavy Industrial)
- Replaceable 16AH lithium battery gives over 1000 flashing hours (depending on temperature).



#### Specifications:

System voltages	6.6kV to 33kV wood pole lines
Live/dead line trip level	7 to 20 A dependent on AGC
Initial time delay	40 msecs
Installation	3m from lowest conductors
Battery	1 x lithium thionyl chloride 16AH
Flash Capacity	1000 hours average
Battery life	10 years average dependent on temperature
Flash Rate	10/15 sec intervals
Temperature range	-40°C to +70°C
Humidity	0-100%

**Code:** P360AS (other types on request)



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#### Pathfinder 360 ALPHA Models

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**Type 'S'**- standard model: Detects a permanent fault on main feeders or spurs. A permanent fault will be indicated by the xenon gas flashing light, which will flash for 3 hours, or will reset on restoration of line voltage. At the same time a super-bright LED remains flashing until normal line voltage is restored.

**Type 'F'**- for operation down-stream of fuses: The Type 'F' will alarm for faults cleared by a single or multiphase fuse, where line voltage may be present on other phases. Both the xenon flashing light and the super-bright LED will flash for 3 hours before resetting. The dual current logic will detect low-current faults which will not rupture a fuse, but are sensed and cleared by SEF protection at the source substation or pole-mounted recloser.

**Type 'D'**- for both transient and permanent faults: The xenon light will not flash for a transient fault, as normal line voltage will have been restored by successful reclosure. However, the super-bright LED will stay tripped for 24 hours, regardless of line voltage. This will enable a patrol to track the path of an elusive intermittent fault.

**Type 'ROSCO'**-Incorporates a communications interface for system automation via radio, telecommunication lines or pilot wires. Facilities for indication of the passage of fault current, as well as line voltage, are available. The Type 'ROSCO' can be applied to each of the above instrument types.

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