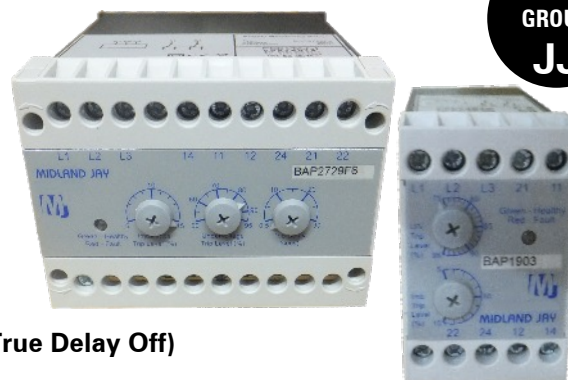


MIDLAND JAY SINGLE & THREE PHASE VOLTAGE SUPPLY MONITORING RELAYS FOR HEAVY INDUSTRIAL & ELECTRICALLY NOISY APPLICATIONS FEATURING PHASE IMBALANCE & ASYMMETRY CONTROL

TYPES: BAE, BAP, BBE, BBP, BCE, BDE, BDP, BMP, BPP, BQE, BQP, BRP, BWP

PRODUCT
GROUP
JJ



FEATURES

- Din rail mounted & surface mounting housings
- Monitors phase failure & Neutral loss
- Optional phase sequence detection
- Optional phase imbalance detection
- Calibrated voltage scale on adjustable units
- Single phase & three phase 3 wire or 4 wire units
- Adjustable time delay on tripping 0.5-30 secs (most True Delay Off)
- Dual LED indication

DESCRIPTION AND MODE OF OPERATION

A range of Din rail mounted and surface mounted enclosures, voltage supply monitoring relays for particularly harsh industrial applications and electrically noisy environments.

Construction of most three phase units are based around an internally fitted transformer, not only does this transformer coupled with active filters facilitate a high degree of protection from harmonics and supply irregularities but also enables units to monitor Phase Imbalance and Asymmetry Control as all phases are referenced to the Star point.

These monitoring devices offer protection both from monitoring accuracy and product survival against the following supply phenomenon:-

Harmonic voltage distortion by large non-linear loads such as; soft starts under starting, large variable speed drives and a large number of computers. These effects are exaggerated under weak supply conditions. All product types except for products with prefix **BDE** are particularly suited for such conditions.

Notching (momentary supply loss / negative transient), caused by large thyristor controlled three phase rectifiers found in DC drives, current source inverters, again the effects are exaggerated under weak supply conditions. Product types with prefix **BCE, BMP, BQE, BQP, BAE, BAP, BBP, BWP** and **BBE** are particularly suited for such conditions.

Spikes, caused by switching transients and electrical storms disturbances, supplies in remote locations are particularly prone. Product types with prefix **BCE, BMP, BQE** and **BQP** are particularly suited for such conditions.

SPECIFICATIONS

Single Phase units

| | |
|---------------------------|---------------|
| Nominal voltage: | 240VAC L-N*** |
| Voltage range: | 170-265VAC |
| Adjustable U/V setpoint: | 170-250VAC |
| Fixed units U/V setpoint: | 170VAC |
| Hysteresis: | Adjustable* |
| Repeat accuracy: | < 1% |

Three Phase units

| | |
|--------------------------|--|
| Nominal voltage: | 415VAC L-L*** |
| Voltage range: | 300-460VAC |
| Adjustable U/V setpoint: | 300-440VAC |
| Fixed units setpoint: | 300VAC |
| Hysteresis: | Adjustable* |
| Repeat accuracy: | < 1% |
| Phase imbalance: | Adj. 15% of nominal phase amplitude** Fixed 15%, 25%, 35%, 40% of nominal phase amplitude** |

Relay outputs

| | |
|--------------------|---------------------------|
| Rating: | See table |
| General | |
| Isolation: | 2KV for 1 min |
| Power consumption: | < 12VA |
| Trip delay time: | Adjustable 0.5 to 30 secs |
| Operating temp: | -40°C to +65°C |
| CE marked: | Yes |

*Most units, please request individual data sheets for specific details, please call for assistance.

**Depending on exact model type, see ordering information and selection table.

***Other system voltages are available, please call for assistance

ORDERING INFORMATION & SELECTION TABLE



| Type | Phase Imbalance | Under Voltage | Over Voltage | Phase Sequence | Time Delay | Supply Type | Supply Voltage | Supply Hz | Output | Output Rating | Enclosure ** |
|----------|-----------------|---------------|--------------|----------------|------------|-------------|----------------|-----------|--------|---------------|--------------|
| BAE 0203 | 5-15% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 415V | 3 |
| BAE 0503 | 5-15% | 25% | - | Yes | 0.5-30s* | 3 phase | 415V | 50 | DPCO | 1A / 415V | 3 |
| BAE 0703 | 5-15% | 5-50% | - | Yes | 0.5-30s* | 3 phase | 415V | 50 | DPCO | 1A / 415V | 3 |
| BAE 3203 | 5-15% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 415V | 4 |
| BAE 3503 | 5-15% | 25% | - | Yes | 0.5-30s* | 3 phase | 415V | 50 | DPCO | 1A / 415V | 4 |
| BAE 3703 | 5-15% | 5-50% | - | Yes | 0.5-30s* | 3 phase | 415V | 50 | DPCO | 1A / 415V | 4 |
| BAP 1203 | 15% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | SPCO | 3A / 230V | 1 |
| BAP 1403 | 5-15% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | SPCO | 3A / 230V | 1 |
| BAP 1603 | 15% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 230V | 1 |
| BAP 1703 | 5-15% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 230V | 1 |
| BAP 1903 | 5-15% | 5-25% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 230V | 1 |
| BAP 2703 | 5-15% | 5-50% | - | Yes | 0.5-30s* | 3 phase | 415V | 50 | DPCO | 3A / 230V | 2 |
| BBE 0703 | 5-15% | 5-50% | 12% | Yes | 0.5-30s* | 3 phase | 415V | 50 | DPCO | 1A / 415V | 3 |
| BBP 1203 | 15% | 25% | 12% | Yes | 0.5s | 3 phase | 415V | 50 | SPCO | 3A / 230V | 1 |
| BBP 1403 | 5-15% | 25% | 12% | Yes | 0.5s | 3 phase | 415V | 50 | SPCO | 3A / 230V | 1 |
| BBP 1603 | 15% | 25% | 12% | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 230V | 1 |
| BBP 1703 | 5-15% | 25% | 12% | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 230V | 1 |
| BBP 2703 | 5-15% | 5-50% | 12% | Yes | 0.5-30s* | 3 phase | 415V | 50 | DPCO | 3A / 230V | 2 |
| BCE 3103 | - | 2-30% | - | No | 0.5s | 3 phase | 415V | 40-70 | DPCO | 1A / 415V | 3 |
| BCE 3603 | - | 2-30% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 1A / 415V | 3 |
| BDP 1403 | 35% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | SPCO | 1A / 415V | 1 |
| BDP 1603 | 35% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 230V | 1 |
| BDP 2403 | 25% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | SPCO | 3A / 230V | 1 |
| BDP 2603 | 25% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 230V | 1 |
| BDE 0403 | 35% | 25% | - | Yes | 0.5s | 3 phase | 415V | 50 | SPCO | 1A / 415V | 3 |
| BMP 1903 | - | 5-30% | 5-20% | Yes | 0.5-30s* | 3 phase | 415V | 50 | 2xDPCO | 3A / 230V | 2 |
| BMP 2003 | - | 5-30% | 5-20% | No | 0.5-30s* | 3 phase | 415V | 40-70 | 2xDPCO | 3A / 230V | 2 |
| BMP 2103 | - | 5-30% | 5-20% | No | 0.5s | 3 phase | 415V | 40-70 | DPCO | 3A / 230V | 2 |
| BMP 2203 | - | 5-30% | 5-20% | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 3A / 230V | 2 |
| BMP 2303 | - | 5-30% | 5-20% | Yes | 0.5-30s* | 3 phase | 415V | 50 | DPCO | 3A / 230V | 2 |
| BMP 2403 | - | 5-30% | 5-20% | No | 0.5-30s* | 3 phase | 415V | 40-70 | DPCO | 3A / 230V | 2 |
| BMP 2503 | - | 5-30% | 5-20% | Yes | 0.5s | 3 phase | 415V | 50 | 2xDPCO | 3A / 230V | 2 |
| BMP 2603 | - | 5-30% | 5-20% | No | 0.5s | 3 phase | 415V | 40-70 | 2xDPCO | 3A / 230V | 2 |
| BQE 0702 | - | 15% | - | - | 0.5-30s* | 1 phase | 240V | 50 | DPCO | 3A / 230V | 3 |
| BQE 3702 | - | 15% | - | - | 0.5-30s* | 1 phase | 240V | 50 | DPCO | 3A / 230V | 4 |
| BQP 1102 | - | - | 0-30% | - | 0.5s | 1 phase | 240V | 50 | SPCO | 3A / 230V | 1 |
| BQP 1202 | - | 0-30% | - | - | 0.5s | 1 phase | 240V | 50 | SPCO | 3A / 230V | 1 |
| BQP 1402 | - | 0-30% | - | - | 0.5s | 1 phase | 240V | 50 | DPCO | 3A / 230V | 1 |
| BQP 1502 | - | - | 0-30% | - | 0.5s | 1 phase | 240V | 50 | DPCO | 3A / 230V | 1 |
| BRP 0103 | 40% | 40% | - | Yes | 0.5s | 3 phase | 415V | 50 | SPCO | 1A / 415V | 1 |
| BRP 1103 | 40% | 40% | - | Yes | 0.5s | 3 phase | 415V | 50 | DPCO | 1A / 415V | 1 |
| BWP 0103 | - | 3-20% | 3-15% | No | 0.5-30s | 4 wire | 415V | 50 | SPCO | 3A / 230V | 1 |

NOTES

*True Delay Off

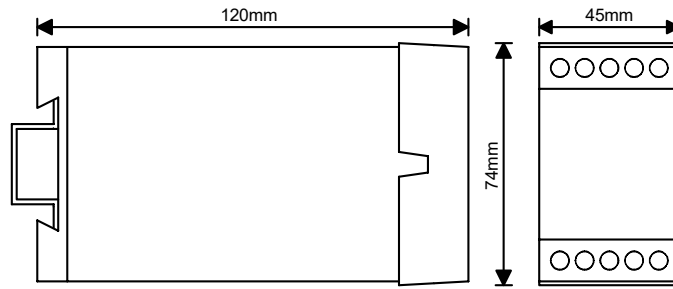
Special voltages and frequencies in many of the above products are available on request, please call for assistance.

Individual data sheets specifically on each of the above detailed variations are available, please call for assistance.

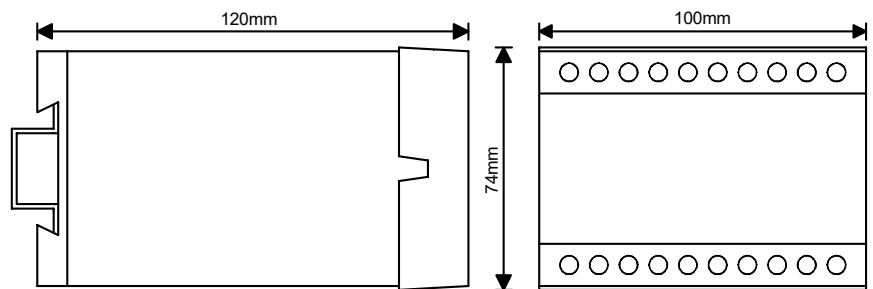
**Please see page 54 for enclosure dimensions



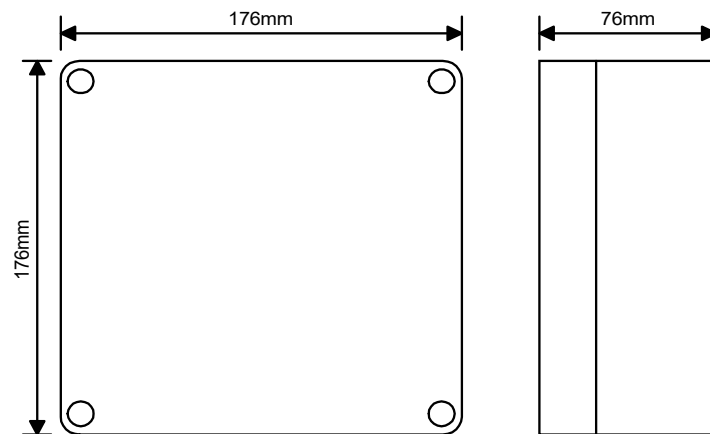
■ ENCLOSURE TYPE: 1



■ ENCLOSURE TYPE: 2



■ ENCLOSURE TYPE: 3



■ ENCLOSURE TYPE: 4

