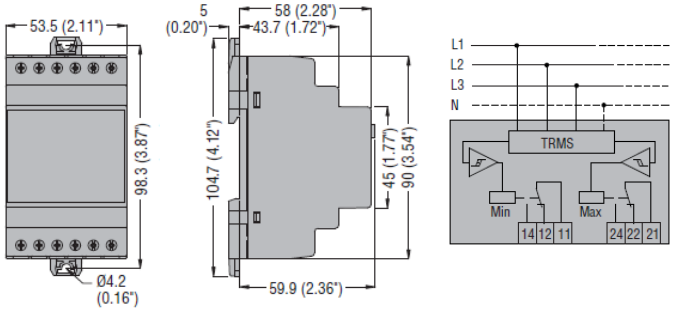
Lovato electric

ENERGY AND AUTOMATION

| Order code | Rated voltage to control Ue (phase to phase) | Qty per pkg | Wt |
|---|---|---|---|
| | [V] 50/60Hz | n° | [kg] |
| Three-phase system, with or without neutral. Minimum and maximum AC voltage. Delayed trip. Phase loss, neutral loss and incorrect phase sequence. Instantaneous trip. | | | |
| **PMV50N A240** | 208-240VAC | 1 | 0.150 |
| **PMV50N A440** | 380-440VAC | 1 | 0.150 |
| **PMV50N A600** | 480-600VAC | 1 | 0.150 |



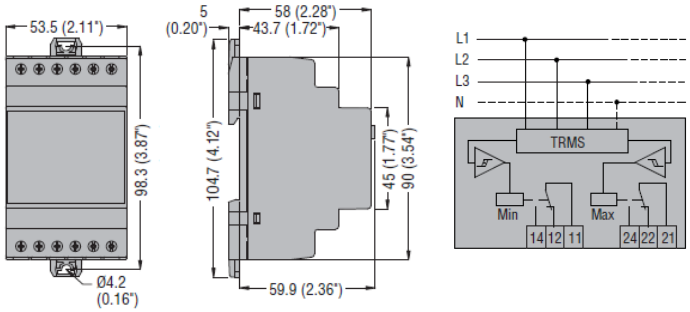

**General characteristics**

- Voltage monitoring relay, self powered, for minimum and maximum voltage, phase loss, neutral loss and incorrect phase sequence
- 4 configurable rated voltage (Ue):
  - PMV50N A240: 208-220-230-240VAC (phase-phase) 120-127-132-138VAC (phase-neutral)
  - PMV50N A440: 380-400-415-440VAC (phase-phase) 220-230-240-254VAC (phase-neutral)
  - PMV50N A600: 480-525-575-600VAC (phase-phase) 277-303-332-347VAC (phase-neutral)
- Excellent tripping accuracy
- TRMS measurements (True Root Mean Square)
- Phase loss detection when one of the voltages is <70% rated voltage
- Phase or neutral loss tripping time: 60ms
- 2 relay outputs, each with 1 changeover contact (SPDT)
- Modular DIN 43880 housing, 3 module
- IEC protection degree: IP40 on front (only when placed in IP40 enclosure or control board); IP20 at terminals.

ADJUSTMENTS

| | |
|---|---|
| "V max" | Maximum voltage tripping threshold 105-115% Ue |
| "V min" | Minimum voltage tripping threshold 80-95% Ue |
| "Delay" for each | Tripping time 0.1-20s |
| "Reset Delay" | Resetting time 0.1-20s. |

| Order code | Rated voltage to control Ue (phase to phase) | Qty per pkg | Wt |
|---|---|---|---|
| | [V] 50/60Hz | n° | [kg] |
| Three-phase system, with or without neutral. Minimum and maximum AC voltage and asymmetry. Delayed trip. Phase loss, neutral loss and incorrect phase sequence. Instantaneous trip. | | | |
| **PMV70N A240** | 208-240VAC | 1 | 0.150 |
| **PMV70N A440** | 380-440VAC | 1 | 0.150 |
| **PMV70N A600** | 480-600VAC | 1 | 0.150 |




**General characteristics**

- Voltage monitoring relay, self powered, for minimum and maximum voltage, phase loss, neutral loss, incorrect phase sequence and asymmetry
- 4 configurable rated voltage (Ue):
  - PMV70N A240: 208-220-230-240VAC (phase-phase) 120-127-132-138VAC (phase-neutral)
  - PMV70N A440: 380-400-415-440VAC (phase-phase) 220-230-240-254VAC (phase-neutral)
  - PMV70N A600: 480-525-575-600VAC (phase-phase) 277-303-332-347VAC (phase-neutral)
- Excellent tripping accuracy
- TRMS measurements (True Root Mean Square)
- Phase loss detection when one of the voltages is <70% rated value
- Phase or neutral loss tripping time: 60ms
- 2 relay outputs, each with 1 changeover contact (SPDT)
- Modular DIN 43880 housing, 3 module
- IEC protection degree: IP40 on front (only when placed in IP40 enclosure or control board); IP20 at terminals.

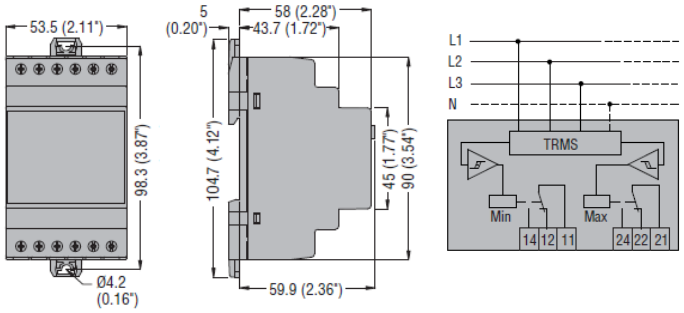
ADJUSTMENTS

| | |
|---|---|
| "V max" | Maximum voltage tripping threshold 105-115% Ue |
| "V min" | Minimum voltage tripping threshold 80-95% Ue |
| "Delay" for each | Tripping time 0.1-20s |
| "Asymmetry" | High voltage asymmetry tripping threshold 5-15% Ue. |

Lovato electric

ENERGY AND AUTOMATION

| Order code | Rated voltage to control Ue (phase to phase) | Qty per pkg | Wt |
|---|---|---|---|
| | [V] 50/60Hz | n° | [kg] |
| Three-phase system, with or without neutral. Minimum and maximum AC voltage, minimum and maximum frequency. Delayed trip. Phase loss, neutral loss and incorrect phase sequence. Instantaneous trip. | | | |
| **PMV80N A240** | 208-240VAC | 1 | 0.150 |
| **PMV80N A440** | 380-440VAC | 1 | 0.150 |
| **PMV80N A600** | 480-600VAC | 1 | 0.150 |



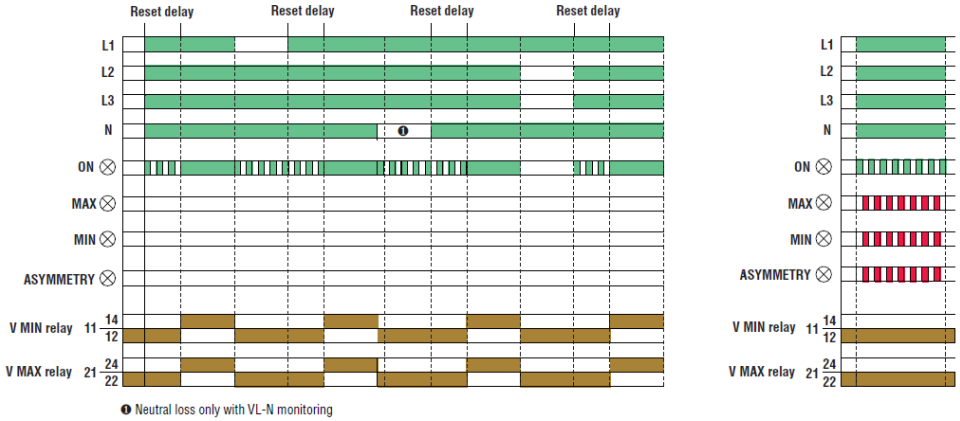

## General characteristics

- Voltage monitoring relay, self powered, for minimum and maximum voltage, minimum and maximum frequency, phase loss, neutral loss and incorrect phase sequence
- 4 configurable rated voltage (Ue):
  - PMV80N A240: 208-220-230-240VAC (phase-phase) 120-127-132-138VAC (phase-neutral)
  - PMV80N A440: 380-400-415-440VAC (phase-phase) 220-230-240-254VAC (phase-neutral)
  - PMV80N A600: 480-525-575-600VAC (phase-phase) 277-303-332-347VAC (phase-neutral)
- Excellent tripping accuracy
- TRMS measurements (True Root Mean Square)
- Phase loss detection if one of the voltages is <70% rated value
- Phase or neutral loss tripping time: 60ms
- 2 relay outputs, each with 1 changeover contact (SPDT)
- Modular DIN 43880, 3 module
- IEC protection degree: IP40 on front (only when placed in iP40 enclosure or control board); IP20 at terminals.

ADJUSTMENTS

| | |
|---|---|
| "V max" | Maximum voltage tripping threshold 105-115% Ue |
| "V min" | Minimum voltage thripping threshold 80-95% Ue |
| "Hz min/max" | Minimum/maximum frequency tripping threshold 1-10% |
| "V delay" | Tripping time 0.1-20s |
| "Hz delay" | Tripping time 0.1-5s. |

Phase loss and incorrect phase sequence (PMV50N - PMV70N - PMV80N)



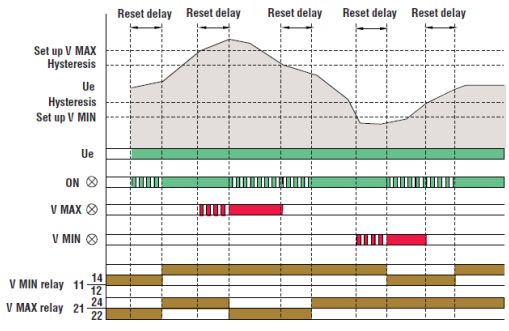

❶ Neutral loss only with VL-N monitoring



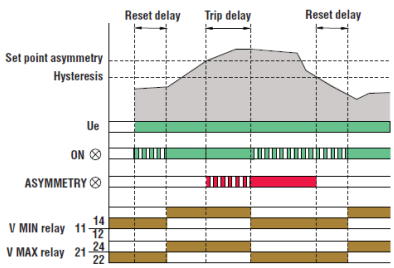

## Certifications and compliance

Certifications obtained: EAC.
Compliant with standards: IEC/EN 60255-5, IEC/EN 61000-6-2, IEC/EN 61000-6-3, UL 508, CSA C22.2 n° 14.

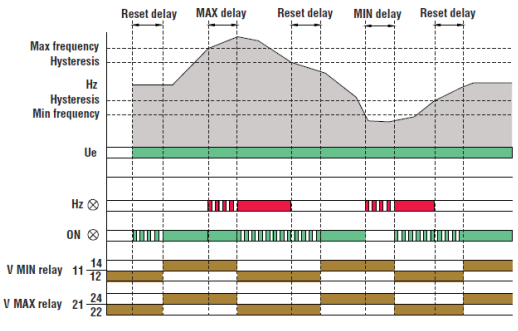
Maximum and minimum voltage (PMV50N - PMV70N - PMV80N)




Asymmetry (PMV70N)




Maximum and minimum frequency (PMV80N)



Lovato electric

ENERGY AND AUTOMATION

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| TYPE | Single phase | — | — | — | — | — | — |
| | Three phase | **PMV50** | **PMV60** | **PMV70** | — | — | — |
| | Three phase with/without neutral | — | — | — | **PMV50 N** | **PMV70 N** | **PMV80 N** |
| DESCRIPTION | | Minimum and maximum AC voltage, phase loss and incorrect phase sequence | Minimum AC voltage, phase loss, incorrect phase sequence and asymmetry | Minimum and maximum AC voltage, phase loss, incorrect phase sequence and asymmetry | Minimum and maximum AC voltage, phase loss, neutral loss and incorrect phase sequence | Minimum and maximum AC voltage, phase loss, neutral loss, incorrect phase sequence and asymmetry | Minimum and maximum AC voltage and frequency, phase loss, neutral loss and incorrect phase sequence |
| CONTROL CIRCUIT | | | | | | | |
| Rated voltage to control (Ue) | | 208-240VAC | 208-240VAC | 208-240VAC | 208-240VAC | 208-240VAC | 208-240VAC |
| | | 380-575VAC | 380-575VAC | 380-575VAC | 380-440VAC | 380-440VAC | 380-440VAC |
| | | 600VAC | 600VAC | 600VAC | 480-600VAC | 480-600VAC | 480-600VAC |
| Maximum voltage set-point | | 105-15% Ue | — | 105-115% Ue | 105-115% Ue | 105-115% Ue | 105-115% Ue |
| Minimum voltage set-point | | 80-95% Ue | 80-95% Ue | 80-95% Ue | 80-95% Ue | 80-95% Ue | 80-95% Ue |
| Asymmetry set-point | | — | 5-15% Ue | 5-15% Ue | — | 5-15% Ue | — |
| Minimum and maximum frequency set-point | | — | — | — | — | — | 1-10% rated frequency |
| Tripping time | | 0.1-20s | | | | | 0.1-20s / 0.1-5s frequency |
| Resetting time | | 0.1-20s (0.5s at power up) | 0,1-20s (0.5s at power up) | 0.5s | 0.1-20s | 0.5s | 0.5s |
| Resetting hysteresis | | 3% | 3% | 3% | 3% | 3% | 3% / 0.5% frequency |
| Instantaneous tripping for Ue | | <70% Ue configured | | | | | |
| Repeat accuracy | | < ±0.1% | | | | | |
| POWER SUPPLY | | | | | | | |
| Auxiliary voltage (Us) | | Self powered | | | | | |
| Operating range | | 0.7-1.2Ue | | | | | |
| Frequency | | 50/60Hz ±5% | | | | | |
| Power consumption (maximum) | | 11VA (208-240VAC)❶<br>30VA (380-575VAC)❶<br>19VA (600VAC)❶ | | | 27VA max | | |
| Power dissipation (maximum) | | 2.5W | | | 1.9W max | | |
| RELAY OUTPUTS | | | | | | | |
| Number of relays | | 1 | | | 2 | | |
| Relay state | | Normally energised<br>De-energises at tripping | | | | | |
| Contact arrangement | | 1 changeover SPDT | | | 2 changeover SPDT | | |
| Rated operational voltage | | 250VAC | | | | | |
| Maximum switching voltage | | 400VAC | | | | | |
| Conventional free-air thermal current (Ith) | | 8A | | | | | |
| UL/CSA and IEC/EN 60947-5-1 designation | | B300 | | | | | |
| Electrical life (with rated load) | | $10^5$ cycles | | | | | |
| Mechanical life | | $30x10^6$ cycles | | | | | |
| Indications | | 1 green LED for power on and tripping<br>2 red LEDs for tripping | | 1 green LED for power on and tripping<br>3 red LEDs for tripping | 1 green LED for power on and tripping<br>2 red LEDs for tripping | | |
| CONNECTIONS | | | | | | | |
| Terminal tightening torque (maximum) | | 0.8Nm (7lbin; 7-9lbin per UL/CSA - PMV...N excluded) | | | | | |
| Conductor section min-max | | 0.2-4.0mm² (24-12AWG; 18-12 AWG per UL/CSA - PMV...N excluded) | | | | | |
| INSULTION (input-output) | | | | | | | |
| IEC rated insulation voltage Ui | | 600VAC | | | | | |
| IEC rated impulse withstand voltage Uimp | | 6kV | | | | | |
| IEC power frequency withstand voltage | | 4kV | | | | | |
| AMBIENT CONDITIONS | | | | | | | |
| Operating temperature | | –20...+60°C | | | | | |
| Storage temperature | | –30...+80°C | | | | | |
| HOUSING | | | | | | | |
| Material | | Self-extinguishing polyamide | | | | | |

❶ Power consumption (maximum) at 50Hz.