

CONTROLAB INC.

www.controlabinc.com

DSP-1L

PHASE LOSS, REVERSAL AND IMBALANCE DETECTOR



Why do three-phase motors or compressors burn out ?

In most cases, it is due to the loss of a phase. So, why do the overload relays not react ? This is simply due to the fact that overload relays have a limited range of application. For instance, if your motor operates at 75% or less of its specified load, then a typical overload protection will not react.

What are the real costs of a phase loss?

- Cost of motor/compressor
- Cost of motor/compressor installation
- Cost of possible delayed shipment
- Cost of possible production losses
- Cost of overtime
- Cost of potential loss of orders
- Cost of collateral damages

Next time your power utility network or your own electrical installations break down (phase loss, phase reversal or phase imbalance (asymmetry), for example), your motors/compressors, pumps and/or ventilators could burn out without warning.

... **Unless** you protect them with a **DSP-1L** Phase Failure Detector available from your distributor.

Let us explain ...

Phase Loss and Phase Imbalance (Asymmetry)

The electrical motors, compressors, pumps and ventilators used by companies are usually powered by three-phase electrical voltage, typically at 208, 240, 480 and 600 volts.

Even the slightest incident affecting the transmission or distribution of electricity by your electrical facilities or a burnt fuse on your own electrical installation will cause your company to experience a sudden voltage loss or asymmetry on one phase. When this happens, your motors, compressors, pumps and ventilators will no longer be powered normally. They will continue to run for a few more minutes, but will overheat substantially because only two of the three motor coils are powered. It only takes a few minutes to inflict fatal damage on your motors, compressors, pumps or ventilators.

Phase Reversal

It sometimes happens that your power utility or a contractor, working on the power lines inside or outside your facilities, may reverse two of the three phases by mistake. Most compressors or motors will react very badly to such a situation. Your motors or compressors could suddenly begin to turn in the wrong direction, causing major collateral damage.

The Solution

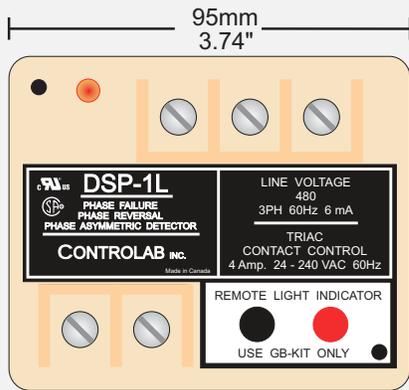
There is an affordable solution now available to provide 100% protection for your motors, compressors, pumps and ventilators against problems caused by phase loss, phase imbalance and phase reversal. It consists in the **DSP-1L** detector, available from your Distributor.

DESCRIPTION

The **DSP-1L** detector is an electronic device that constantly monitors the voltage level of every phase of your electrical supply. If a phase imbalance (asymmetry), phase reversal or phase loss occurs, the **DSP-1L** immediately opens the control circuit of the equipment it protects, thus preventing damage. When the phases return to normal, the **DSP-1L** resets itself and closes the control circuit, allowing the motors to be started-up normally and safely.

Would you dare plug your electrical equipment into an electricity supply that was not protected by fuses and circuit breakers? Of course not. And now you know of its existence, motors or compressors should never be connected into a three-phase supply without first installing a **DSP-1L** phase failure detector to protect them.

CONTACT YOUR DISTRIBUTOR



G.B. kit
(option)

FEATURES

High-Quality Solution

A full 2-year warranty
UL and CSA certified
Encased in epoxy, hence 100% resistant to hostile, humid and dusty environments
Self-check circuitry

Easy-to-install ...

No adjustment required
No tracks, no external power-supply, no tricky socket needed
Thanks to its small size, it can be easily installed inside any starter panel

One DSP-1L(S) model fits all motor sizes!

The DSP-1L works on the voltage, not on the current. Therefore, for a given voltage environment, the same model can be used for motor sizes ranging from 1 to 2000 HP !

Over/Under Voltage Resistant!

An increase or decrease of the voltage on the three phases will not trigger the DSP-1L, thus avoiding undesirable false alarms.

Full-Factory Calibrated

For a maximum reliability and accuracy, all adjustments are performed at the factory. The device is ready to be installed !
Phase imbalance set between 8% and 9%. Why ?
All North American power utility companies guarantee that voltage fluctuations between phases will not exceed 6% under normal operating conditions. Therefore, we adjust the phase imbalance section of the detector to ensure that it will not react to the normal phase voltage fluctuations.

When a phase is missing, the motor suddenly acts as a generator on the missing phase, regenerating up to 90% of the normal voltage. This gives the illusion that the voltage is imbalanced by a factor of only 10% on this specific phase, which, in fact, is wrong. For a maximum protection, and to avoid the «regeneration illusion», the DSP-1L is factory-calibrated to detect phase imbalance accurately between 8% and 9%.

Visual Alarm Indicator

A LED indicator located on the DSP-1L(S) lights-up when an alarm is given.
A remote alarm indicator (GB-Kit, optional): is available, and can be installed on the front door of the control panel.

SPECIFICATIONS

Operating voltage

600V, 480V, 240V, 208V
(to be specified when ordering – see «Ordering informations»)
3ph 60Hz 6mA
Note: other voltages or frequencies available on demand

Response time

2-3 seconds for opening and closing mode

Phase imbalance (asymmetry)

Detection sensitivity between 8% to 9%

Contacts rating

DSP-1L : (TRIAC) 24VAC-240VAC, 4A
~~DSP-1LS: (Reed Relay Contact) 120 VAC / 30VDC, 200mA~~

ORDERING INFORMATIONS

DSP-1L 600 volts c/w triac contact
~~DSP-1LS 600 volts c/w reed relay contact~~
~~DSP-1L 480 volts c/w triac contact~~
~~DSP-1LS 480 volts c/w reed relay contact~~
~~DSP-1L 240 volts c/w triac contact~~
~~DSP-1LS 240 volts c/w reed relay contact~~
~~DSP-1L 208 volts c/w triac contact~~
~~DSP-1LS 208 volts c/w reed relay contact~~

G.B. Kit Option for remote LED alarm indicator to be installed on the starter panel front door

INSTALLATION

