CONTROLAB INC.

www.controlab-pulsar.com

DSP-1L

PHASE FAILURE, REVERSAL AND ASYMMETRIC 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 you 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 unbalance (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 Unbalance (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 working. 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.

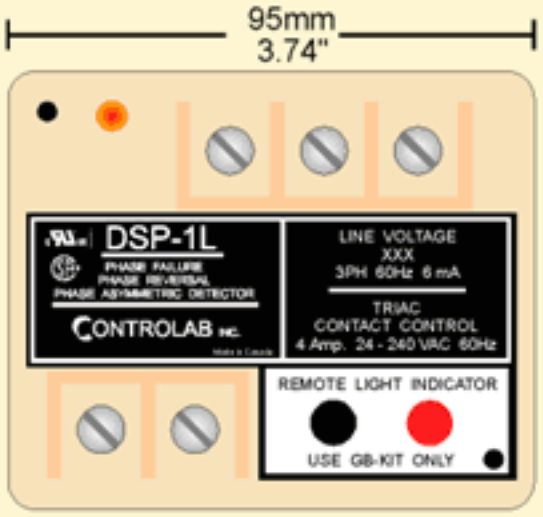
The Solution
There is an affordable solution now available to provide 100% protection for your motors, compressors, pumps and ventilators against problems caused by phase loss, phase unbalance and phase reversal. It consists in the **DSP-1L** detector, available from your Distributor.

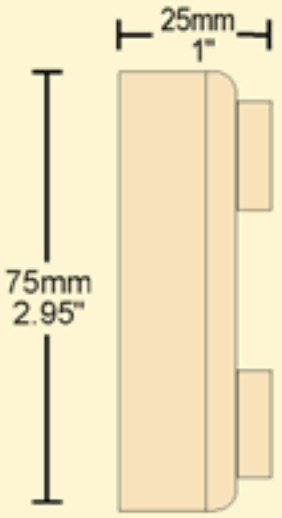
DESCRIPTION

The **DSP-1L** detector is an electronic device that constantly monitors the voltage level of every phase of your electrical supply. If a phase unbalance (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 ajustments are performed at the factory. The device is ready to be installed !
Phase unbalance 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 unbalance 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 unbalanced 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 unbalance 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): LED indicator to be installed on the starter panel front door

SPECIFICATIONS

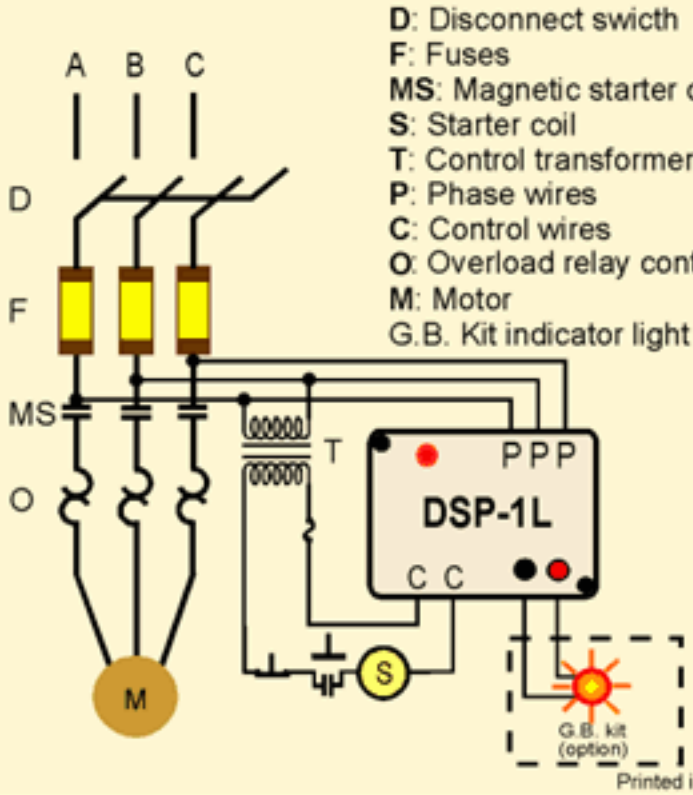
Operating voltage
600V, 480V, 240V, 208V
(to be specified when ordering – see «Ordering informations»)
3ph 60Hz 6mA
Note: other voltages or frequencies available on demand
Response time
2-3 seconds for opening and closing mode
Phase unbalance (asymmetry)
Detection sensitivity between 8% to 9%
Contacts rating
DSP-1L : (TRIAC) 24VAC–240VAC, 4A
DSP-1LS: (Relay Contact) 30 VDC / 120VAC, 200mA

ORDERING INFORMATIONS

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

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

INSTALLATION



D: Disconnect swicth
F: Fuses
MS: Magnetic starter contacts
S: Starter coil
T: Control transformer
P: Phase wires
C: Control wires
O: Overload relay contacts
M: Motor
G.B. Kit indicator light

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