

# Osna Motor Protection Concepts

Osna interfaces can provide motor protection against :

## OVERHEATING :

When a motor is in a running condition, and commences to heat up, due to any drop in supply voltage or due to a mechanical overloading, the resistance of a built in THERMISTOR in the winding of the motor will increase. This shall be sensed in the connected interface called :

MODEL : **OS PTC R 2** 22,5 mm Width , MODEL: **WE PTC R O2** 60mm Width  
Power supply 24 V DC Power supply 110/220V AC

There is an output relay built into the OS PTC R2. This relay can go from a normally open to close or vice versa position. In this way the motor burning can be prevented by tripping the starter of the motor.

## OVERLOAD CURRENT :

If your motor is drawing an overload current, there is a danger that it will burn out. This overload current can be measured even from a distance of 3 km. from the motor The secondary of the CT ( Current Transformer) is connected to the input of the:

MODEL: **OS CT-CC** 22,5 mm Width , MODEL: **WE CT-CC** 60mm Width  
Power supply 24 V DC Power supply 110/220V AC

The output of the WE CT-CC is a analogue 4-20 mA signal which is proportional to the motor current showing a value of 4 mA if the motor current is ZERO Amps and a value of 20 mA if the motor current is the rated current ( 100%). This is made possible by using an external powering of either 24V DC or 220 V AC to power the WE CT CC unit.

If an output of 0-20 mA is acceptable, no external powering is required and the unit is called WE LP CT CC. In this case there is no positive 4 mA signal received to show that the metering line is not broken, and that the motor is having ZERO current.

Main

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## LIMIT CURRENT / VOLTAGE MONITOR :

The input to this unit is a 4-20 mA signal which is taken from the WE CT CC. In this way the two units can be made to work in series, one can measure the overload current and the motor is tripped through the model:

MODEL: **OS GS-02** 22,5 mm Width , MODEL: **WE GS-02** 60mm Width  
Power supply 24 V DC Power supply 110/220V AC

## MOTION CONTROL : UNDER/OVER SPEED :

A contactless Sensor is mounted so that a toothed wheel mounted on the shaft of the motor can alternatively dampen and undampen the sensor resulting in a frequency being generated in the sensor which feeds a unit called:

MODEL: **OS DW-T** 22,5 mm Width , MODEL: **WE DW-T** 60mm Width  
Power supply 24 V DC Power supply 110/220V AC

The concept of under speed or over speed monitoring specifically requires that there is a fixed level from which monitoring is to be carried out. E.g. if we say that 200 Hz is the fixed point and over speed is to be monitored, then the moment the speed exceeds 200 Hz, there should be relay activated which will trip the motor. In the case of under speed, there is slight deviation, i.e. a timer is built in to de-activate the unit to permit the motor to build up its speed at the time it starts. If the timer is not built in, then the motor will keep tripping. Once the timer time span (over ride time) is over, the motor should trip the moment there is a fall below the 200 Hz level.

There are two models in this application :

Where the accuracy is 1 %, however, where a better accuracy required say 0.1 % the model is:

WE EX M DWT which is  $\mu$ P based and is field settable.

MODEL **WE M Ex-DW-T** 60mm Width



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## DIRECTION ROTATION :

In this application, there is a monitoring if the motor begins to rotate in the reverse direction. This could happen for any reason, a reversal of phases, a tearing of a belt, if this happens then the motor should trip.

Even a rotating drum or a kiln which is not a motor can be monitored, by allowing 2 contact less sensors be dampened through the motion of the drum, by mounting a bolt or a toothed wheel on the shaft of the drum and allowing both the sensors be connected to the 'Direction of Rotation Monitor' called:

Model :	<b>OS DRM</b>	22,5 mm Width ,	MODEL:	<b>WE DRM</b>	60mm Width
	<b>Power supply24 V DC</b>			<b>Power supply110/220V AC</b>	

## MOTOR SYNCHORISATION :

In this application, where two motors are running and are supposed to run at the same speed, then the Osna unit would monitor the two motors, and if they do not run at the same speed, then both motors will trip.

MODEL : **WE 77 GLU** 60mm Width

