

# MOTOR PROTECTORS

## 3433 (MP33) GARD-PAK® II SOLID STATE MOTOR PROTECTOR KITS

The 3433 Gard-Pak II Motor Protector Kits are designed to replace the MP13, MP23 (3423) or MP33 (3433) motor protectors which may have failed, been damaged, or are not operating correctly. The 3433 module is the latest in a series of functionally similar controls and utilizes the most advanced state of the art internal circuitry to rapidly and accurately recognize and react to temperature changes in the stator windings of a motor. The 3433 module utilizes a vibration-resistant enclosed relay which mechanically isolates the solid-state sensing network from the equipment control circuit. This mechanical relay has been used to replace the Triac circuit used in the earlier MP23 (3423) Series. The larger size of this relay necessitates a slightly higher profile on the 3433 than on the MP23. Caution should be exercised to ensure adequate clearance if the 3433 is being used to replace a MP23 module. The 3433 also has a second capacitor to prevent contactor chattering problems. This capacitor also provides protection against momentary "opens" or chatter caused by voltage spikes. The module assembly is bonded in epoxy to ensure that the unit is unaffected by vibration, moisture or other contaminants. The application of a 3433 module requires embedded sensors in the stator windings of a motor. Therefore, these kits can only be used in applications where a Robertshaw motor protector was part of the original equipment, unless the stator is rewound with new sensors in place.



ELECTRICAL RATING		
<b>CONTROL LOAD RATING</b>		
<b>AT 50/60 HZ</b>		
	<b>120 VAC</b>	<b>208/240 VAC</b>
VA RATING	300	375
STEADY STATE (INDUCTIVE)	2.5 Amps	1.56 Amps
TERMINALS M1, M2		
INRUSH CURRENT	25 Amps	15.6 Amps
VOLTAGE TOLERANCE	102 VAC Min. 132 VAC Max.	170 VAC Min. 264 VAC Max.
DIELECTRIC STRENGTH	3,000 VOLTS/60 HZ LIVE METAL PARTS TO MOUNTING HARDWARE	

### ORDERING DATA

UNI-LINE ORDER NO.	DIVISION NUMBER	RESET		CALIBRATION °F		
		VOLTAGE	AUTO	MANUAL	CUT-OUT	CUT-IN
3433-036	MP33-1209	208/240	•		200	170
3433-037	MP33-1007	120	•		200	170
3433-038	MP33-1210	208/240	•		175	155
3433-039*	MP33-2006	120		•*	230	180
3433-043	MP33-1010	120	•		220	190
3433-046	MP33-1213	208/240	•		230	180
3433-047*	MP33-2007	120		•*	260	240

\* Manual reset models require use of a remote momentary "on" switch (provided by customer) to reset module in the event of an over-temperature condition. Note: The contact resistance and lead resistance of this switch must not exceed 0.15 ohms.

## 30 (ES11) THERMAL SENSORS

Thermal sensors are simple devices which merely change their resistance in a linear pattern when there is a change in their ambient temperature. See "Sensor Resistance" chart on previous page. These sensors may be used with all Robertshaw motor protection devices, except the MP50/3450. Sometimes referred to as an "RTD" (resistance temperature detector), these sensors monitor the temperature in the motor windings and will track temperature in a linear pattern as rapid as 50°F per second.

The 30-101 and 30-102 sensor material is Dupont Kapton plastic film, and the leads are insulated with teflon, suitable for applications up to 600 volts maximum. These sensors are compatible with water, oil, refrigerant and refrigerant oils, and may be used in ambients up to 400°F. The sensors are installed in the stator windings during the assembly of the motor, or may be installed when rewinding an existing motor. Installation should be in the most critical hot spot within the windings.



### ORDERING DATA

UNI-LINE ORDER NO.	DIVISION NUMBER	SENSOR TYPE	LEAD LENGTH
30-101	ES11-1166	RTD	45"
30-102	ES11-1152		18"

### CROSS-REFERENCE

DIVISION NUMBER	UNI-LINE ORDER NO.								
ES11-1101	30-102	ES11-1117	30-101	ES11-1156	30-102	ES11-1172	30-102		
ES11-1102	30-102	ES11-1119	30-101	ES11-1157	30-102	ES11-1174	30-101		
ES11-1103	30-102	ES11-1120	30-101	ES11-1158	30-101	ES11-1175	30-101		
ES11-1104	30-102	ES11-1121	30-102	ES11-1159	30-102	ES11-1177	30-101		
ES11-1105	30-101	ES11-1122	30-102	ES11-1160	30-102	ES11-1178	30-101		
ES11-1106	30-101	ES11-1123	30-102	ES11-1161	30-101	ES11-1181	30-102		
ES11-1107	30-101	ES11-1124	30-102	ES11-1162	30-102	ES11-1182	30-101		
ES11-1108	30-101	ES11-1125	30-101	ES11-1163	30-102	ES11-2051	30-101		
ES11-1109	30-101	ES11-1127	30-102	ES11-1166	30-101	ES11-2052	30-102		
ES11-1110	30-101	ES11-1151	30-102	ES11-1167	30-102	ES11-2053	30-102		
ES11-1111	30-101	ES11-1152	30-102	ES11-1168	30-101	ES11-2056	30-101		
ES11-1112	30-101	ES11-1153	30-101	ES11-1169	30-101	ES11-2057	30-102		
ES11-1113	30-101	ES11-1154	30-102	ES11-1170	30-101	422B557AK-3	30-102		
ES11-1115	30-101	ES11-1155	30-102	ES11-1171	30-101	422B557AK-4	30-102		