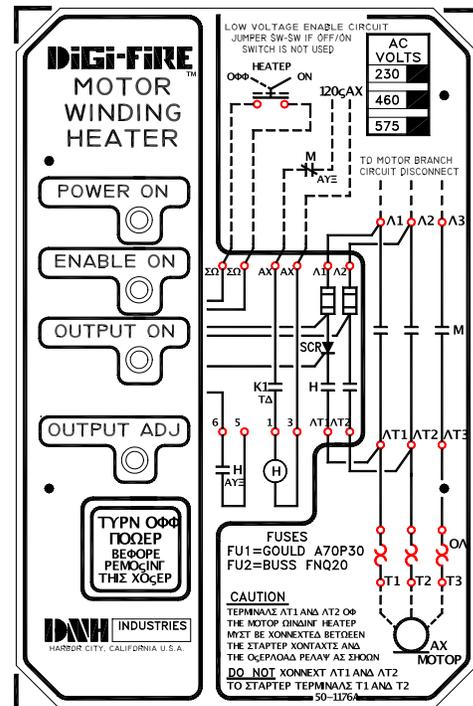


DIGI-FIRE SOLID STATE MOTOR WINDING HEATER

- ***** COMPACT
- ***** EASY TO INSTALL
- ***** STATUS INDICATORS
- ***** DUAL LINE FUSING
- ***** INSULATED FRONT COVER
- ***** ADJUSTABLE OUTPUT
- ***** LOW VOLTAGE CONTROL CIRCUIT
- ***** OPTIONAL BUILT-IN ISOLATING CONTACTOR



FRONT VIEW
MODEL MWC

DESCRIPTION

The DIGI-FIRE SOLID STATE MOTOR WINDING HEATER is designed to prevent condensation buildup in the windings of an AC MOTOR. MOTOR WINDINGS are susceptible to condensation formation each time the motor is stopped and the temperature of the windings drops below the dew point. Over a period of time this condensation buildup can degrade the insulation of the windings and cause a short circuit when the motor is started. The same problem can occur when motors are not operated for an extended period of time. This is especially true for damp and humid locations.

FEATURES

The DIGI-FIRE MWH is supplied in a compact aluminum chassis suitable for mounting within the customer's starter enclosure. Optional enclosures for the MWH are also available. The front cover of the unit is manufactured out of a fiberglass insulator material which shields against accidental contact with electrically live parts.

The DIGI-FIRE MWH IS AVAILABLE WITH AN INTEGRAL ISOLATING CONTACTOR This compact control is designed for Reduced Voltage or Reversing Starter applications. The Isolating Contactor drops out immediately with a motor start signal and delays pulling back in for approximately one minute after the motor is turned off.

The DIGI-FIRE MWH IS DESIGNED FOR FULLY AUTOMATIC OPERATION. It turns on in approximately one minute after power is applied to the system. When the motor is started the MWH is instantly turned off. The MWH turns back on approximately two minutes after the motor is turned off.

INDICATOR LIGHTS on the MWH inform the operator on the status of the unit. The POWER ON indicator shows that the power is on and both of the MWH fuses are good. The ENABLE indicator shows that the motor is off and the MWH control interlock is closed. The OUTPUT ON indicator shows that the MWH is supplying power to the windings of the motor.

THE OUTPUT ADJUST is factory set to provide sufficient power to the motor to maintain a 5-10°C differential above the ambient temperature. This adjustment is available to the operator to trim the control for a particular installation.

TWO FUSES protect the MWH. A fast acting semiconductor fuse (FU1) guards the power control device (SCR) and a time delay fuse (FU2) provides protection for the wiring between the MWH and the starter.

THE SCR utilized in the Digi-Fire Motor Winding Heater is encapsulated in a module with an electrically isolated base. This allows the heatsink of the MWH to be grounded for additional safety.

SPECIFICATIONS

STAND ALONE UNIT WITHOUT ISOLATING CONTACTOR

MOTOR VOLTAGE ± 10% 3PH 60HZ	MOTOR HORSEPOWER RANGE	MAXIMUM MWH AMPERES	CATALOG NUMBER	
			OPEN CHASSIS	NEMA 12 ENCL.
208/230	5-50	10	MWO3	MWG3
	50-125	25	MWO4	MWG4
	125-250	50	MWO5	MWG5
	250-400	80	MWO6	MWG6
460	10-100	10	MWO9	MWG9
	100-250	25	MWO10	MWG10
	250-500	50	MWO11	MWG11
	500-800	80	MWO12	MWG12

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SPECIFICATIONS

COMBINATION UNIT WITH ISOLATING CONTACTOR

MOTOR VOLTAGE ± 10% 3PH 60HZ	MOTOR HORSEPOWER RANGE	MAXIMUM MWH AMPERES	CATALOG NUMBER	
			OPEN CHASSIS	NEMA 12 ENCL.

208/230	5-50	10	MWCO3	MWCG3
	50-125	25	MWCO4	MWCG4
	125-250	50	MWCO5	MWCG5
	250-400	80	MWCO6	MWCG6
460	10-100	10	MWCO9	MWCG9
	100-250	25	MWCO10	MWCG10
	250-500	50	MWCO11	MWCG11
	500-800	80	MWCO12	MWCG12

SPECIFICATIONS: ALL UNITS

50HZ APPLICATIONS: 230V devices can be used at 220V and 460V devices can be used at 400V, 50HZ.

OUTPUT VOLTAGE REGULATION: $\pm 2\%$ for line voltage variations of $\pm 10\%$.

OPERATING TEMPERATURE: -20°C TO 50°C

FUSING: FU1-Type 101 fast acting semiconductor fuse.
FU2-Dual element time delay fuse

TRANSIENT PROTECTION: An RC SNUBBER circuit across the SCR protects it from rapid rate of change in the system voltage. A metal oxide varistor (MOV) protects the unit against voltage spikes on the line.

INSTALLATION

- 1.1 Mount the Digi-Fire Winding Heater on a vertical panel with the line connections (L1,L2) at the top. Proper orientation is required to achieve proper convection cooling of the Solid State Power Device (SCR).
- 1.2 Remove the front cover of the winding heater for access to the power and control connections. The cover is held by 4 or 5 plastic keepers. Press each keeper tab to the center and lift up on the cover to remove.
- 1.3 Recommended Power Wire and Fuse Chart for Digi-Fire MOTOR WINDING HEATERS.

MAXIMUM MWH AMPS	WIRE SIZE TYPE THHN	REPLACEMENT FUSES			
		FU1(230/460VAC)	FU2	(230VAC)	(460VAC)
10	14	GOULD A70P30	BUSS	FNQ20	FNQ20
25	8	GOULD A50P100	GOULD	TRS60R	TRS60R
50	4	GOULD A50P150	GOULD	TRS100R	TRS100R
80	2	GOULD A50P200	GOULD	TR150R	TRS150R

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1.4 STAND ALONE UNITS

- 1.4.1 Connect L1 and L2 on the MWH to L1 and L2 on the magnetic motor starter using the wire size recommended for your unit. (see 1.3)

- 1.4.2 Connect LT1 and LT2 on the MWH to the load side of the motor starter before the overload relay heater elements. DO NOT connect to starter terminals T1 and T2. Use the wire size recommended for your unit. (see 1.3)
- 1.4.3 If your system utilizes a Heater off-on switch, connect it in series with a normally closed auxiliary contact on the motor starter to the terminals labeled 'SW'. Use AWG 16 wire for this circuit.
- 1.4.4 If your system does not utilize a Heater off-on switch, connect the auxiliary contact directly to the terminals labeled 'SW'.

1.5 COMBINATION UNITS

- 1.5.1 Connect L1 and L2 on the MWH to L1 and L2 on the magnetic motor starter using the wire size recommended for your unit. (see 1.3)
 - 1.5.2 Connect LT1 and LT2, located at the bottom of the isolating contactor, to the load side of the motor starter before the overload heater elements. DO NOT connect to starter terminals T1 and T2. Use the wire size recommended for your unit. (see 1.3)
 - 1.5.3 If your system utilizes a Heater off-on switch, connect it to the terminals labeled 'SW'. Jumper the 'SW' terminals if a switch is not required. Use AWG 16 wire for this circuit.
 - 1.5.4 Connect a 120 VAC control source to the terminals labeled 'AC'. Route the high side of the circuit thru a normally closed auxiliary contact on the motor starter. Use AWG 16 wire for this circuit.
- 1.6 The insulating cover on the Motor Winding Heater depicts a typical connection diagram for your unit.
 - 1.7 Replace the cover when all connections have been completed and checked.
 - 1.8 **ATTENTION:** Included with each unit are two self-adhesive Warning Labels. Attach one Warning Label in a conspicuous place on the Motor junction box and the other on the outside of the Starter enclosure.

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OPERATION: STAND ALONE UNITS

- 2.1 Apply Line Voltage to the system. The 'Power On' led on the Digi-Fire Heater Control should light. If the 'Power On' led does not light, it is an indication of a blown fuse or improper connections. Do not proceed until this is corrected.
- 2.2 If the Motor Starter is off and the 'SW' circuit is closed, then the 'Enable On'

led will be on. The Heater Control will turn on automatically in approximately 1 minute.

- 2.3 The 'Output On' led will turn on when the Digi-Fire begins to apply power to the motor.
- 2.4 The Output Voltage, to the motor, is factory set for 8-9% of Line Voltage. (Measured with an RMS AC Voltmeter) maximum range of this adjustment is approximately 15% of Line Voltage.
 Note: CAUTION must be used when adjusting the output.
 Too high a setting may cause excessive heating in the motor
- 2.5 During initial start-up monitor the output current to the motor. Use a standard AC clamp-on ammeter. Output current must not exceed the rating of the motor winding heater unit.
- 2.6 When the motor is started, the winding heater will automatically turn off. It will stay off for approximately 2 minutes after the motor has been turned off.

OPERATION: COMBINATION UNITS

- 3.1 Apply Line Voltage to the system. The 'Power On' led on the Digi-Fire Heater Control should light. If the 'Power On' led does not light, it is an indication of a blown fuse or improper connections. Do not proceed until this is corrected.
- 3.2 If the Motor Starter is off and the 'SW' circuit is closed, then the Isolating contactor will pull in about 1 minute. The 'Enable On' led will turn on at the same time. The Heater Control will turn on automatically approximately 1 minute later.
- 3.3 The 'Output On' led will turn on when the Digi-Fire begins to apply power to the motor.
- 3.4 The Output Voltage, to the motor, is factory set for 8-9% of Line Voltage. (Measured with an RMS AC Voltmeter) maximum range of this adjustment is approximately 15% of Line Voltage.
 Note: CAUTION must be used when adjusting the output.
 Too high a setting may cause excessive heating in the motor
- 3.5 During initial start-up monitor the output current to the motor. Use a standard AC clamp-on ammeter. Output current must not exceed the rating of the motor winding heater unit.
- 3.6 When the motor is started, the Isolating Contactor will drop out and the Heater Control will automatically turn off. It will stay off for approximately 2 minutes after the motor has been turned off.

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