FD30 Full Voltage - Full Service - Across The Line

Product Description

The FD30, type LMR Controller operates Across-The-Line where full voltage is applied to the motor for starting by the use of a single motor contactor.
Starting inrush current is approximately 600% of rated full load amperes. The FD30 can be programmed for either fully automatic or semi-automatic operation.

Product Features

Microprocessor Control

EATON Cutler-Hammer LMR Fire Pump Controllers are microprocessor based. All events surrounding the operation of the controller are stored within the memory, thus giving the ability to diagnose and troubleshoot problems based on an actual history of events. Events are time and date stamped.

A main display unit provides a read-out of parameters such as current pressure, volts and amps and will display error messages as well as provide alarm indication. A status report is available which provides a record of the state of the controller as it was left after commissioning. The report can be printed locally via the printer / recorder.

Alarm & Status Indication

The display panel is equipped with nine red Alarm LED's and nine green Status LED's which indicate various functions and operations of the controller. The membrane keypad has curved dome windows which allow viewing from a wide angle.

LCD Message Retrieval

The 2 line liquid crystal display allows viewing of all messages and event information without opening the front door of the controller. Messages can also be downloaded to a laptop computer via the communications port located on the top of the main microprocessor board.

Printer / Recorder

The industrial grade thermal printer is housed in a rugged steel enclosure within the controller. The on/off switch, feed and reset buttons are front accessible. A bi-color status LED is also visible on the front of the printer. Green indicates - "Printer Operational' while yellow indicates - "Out of Paper".

Last 2048 Messages

The internal microprocessor stores the most recent 2048 messages in it's memory. The messages can be printed, viewed on the LCD screen or downloaded to a laptop. Each message is time and date stamped. The LCD display acts as a paperless chart recorder.

Elapsed Time Meter

The LMR monitors and records the run time of the motor, in hours, whenever the pump is running. The actual run time can be viewed on the LCD display in 1 hour increments.

Number of Operations Counter

The LMR controller monitors and records the number of times the pump has started. The actual count can be viewed on the LCD display.

Volts and Amps Display

The LCD display located on the main display panel, simultaneously indicates the voltage and amps on all three phases of power coming into the controller.

Sequential Start Timer

The sequential start timer is used to program a start delay after an automatic start request. This function is used for staging the start of pumps in a multiple pump application and also in Diesel backup applications.

Weekly Test Timer

The weekly test timer allows the user to set the controller to automatically start and stop the controller once per week. The number of weeks between tests is set via the front keypad. The weekly test date and time can be viewed on the LCD display.

Pressure Transducer: 0 - 600 psi

Each LMR controller is equipped with a stainless steel, 0-600 psi pressure switch capable of withstanding a momentary surge pressure of 1000 psi.

NEMA 2 Enclosures

All LMR controllers come standard with NEMA 2 enclosures unless otherwise ordered. Available options include: NEMA 3R, 4, 4X, 12.

NEMA Rated Contactors

NEMA rated Freedom or A200 Series EATON Cutler-Hammer contactors are used in all LMR fire pump controllers. A wide variety of coil voltages are available for domestic and international use.

Emergency Start Operator

A mechanically operated emergency start handle activates the motor contactor independent of any electrical control circuits or pressure switch input.

Extra Set of Form-C Contacts for Phase Reversal and Phase Failure

The phase reversal and phase failure relays come standard with an extra set of contacts that can be used for remote alarm indication.

Run Period Timer

The run period timer is built into the LMR microprocessor and can be accessed via the membrane / keypad. It is programmable from 0-45 minutes and should be reset to ten (10) minutes when the controller is placed in service.

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Product Features

Additional Output Relay

An additional output relay labeled Future #1, can be user programmed to operate for nine (9) different functions. Programming is done in the LMR menu using the membrane / keypad.

Common Alarm Relay and Contacts

The LMR controller has a common alarm relay which energizes whenever there are any alarm conditions present. This relay is energized under normal conditions and has LED status indication on the main relay board.

Status & Alarm Indication

Status LED's

Power On
Pump Running
RPT Timer
Sequence Timer
Local Start
Remote Start
Deluge Valve
Interlock On
Low Pressure

Alarm LED's

Phase Reversal
Phase Failure
Fail To Start
Undervoltage
Overvoltage
Relief Valve Discharge
Locked Rotor Trip
Low Suction Pressure
Emergency Start

Technical Data and Specifications

Line Terminals (Incoming Cables)

	Line Terminals on Main Isolation Switch (Incoming Cables)						
	LINE VOLTAGE					Qty. & Cable Sizes	Service Entrance GND.LUG Qty. & Cable Sizes
	200 - 208	220 - 240	* 380 - 415	440 - 480	550 - 600		
Max. Hp	30	30	60	75	100	(1)#14-1/0 PER ⌀ (CU/AL)	(1)#14-2/0 (CU/AL)
	40	40	100	100	-	(1)#4-4/0 PER ⌀ (CU/AL)	(1)#14-2/0 (CU/AL)
	75	75	150	200	200	(1)#3-350MCM ⌀ (CU/AL)	(1)#4-350MCM (CU/AL)
	100	125	200	250	300	(2)3/0-250MCM ⌀ (CU/AL)	(2)#4-350MCM (CU/AL)
	150	200	350	400	400	(2)250-350MCM ⌀ (CU/AL)	(2)#2-600MCM (CU/AL)

* Coils available: 380V-50Hz, 380V-60Hz, 415V-50Hz, 415-60Hz.

Load Terminals (To Motor)

	Load Terminals (To Motor)					
	LINE VOLTAGE					Qty. & Cable Sizes
	200 - 208	220 - 240	380 - 415	440 - 480	550 - 600	
Max. Hp	10	15	25	25	25	(1)#14-#3 PER ⌀ (CU/AL)
	25	30	50	50	50	(1)#14-1/0 PER ⌀ (CU/AL)
	40	50	75	100	100	(1)#6-250MCM ⌀ (CU/AL)
	75	100	150	200	200	(2)1/0-250MCM ⌀ (CU/AL)
	150	200	300	400	400	(2)2/0-500MCM ⌀ (CU/AL)

For Proper Cable Size Refer to National Electrical Code NFPA-70

Standards & Certification

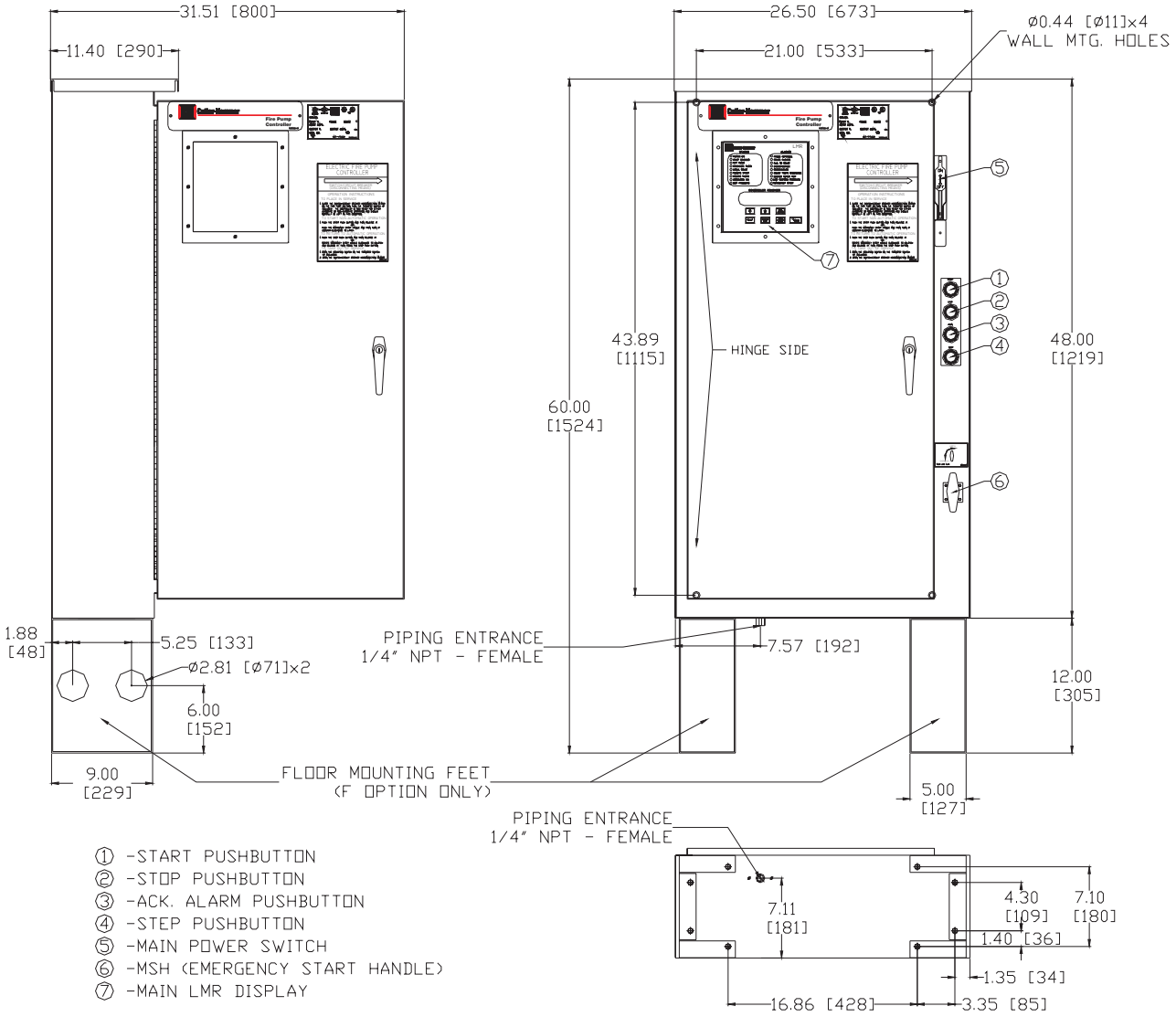
The LMR Electric Fire Pump Controllers meet or exceed the requirements of Underwriters Laboratories, Underwriters Laboratories Canada, Factory Mutual, the Canadian Standards Association, New York City building code, CE mark requirements and are built to NFPA 20 standards.

FM APPROVED

N. Y. C. APPROVED

Dimensions

Standard Enclosure - Type NEMA 2, 3R, 4, 4X, 12



Motor Hp	Line Voltage	Withstand Rating			Approx. Weight Lbs. (Kg)
		Standard	Intermediate	High	
5 - 40	200 - 208V	100,000	150,000	200,000	305
5 - 50	220 - 240V				(138)
5 - 75	* 380 - 415V				
5 - 100	440 - 480V				
5 - 100	550 - 600V	25,000	100,000		

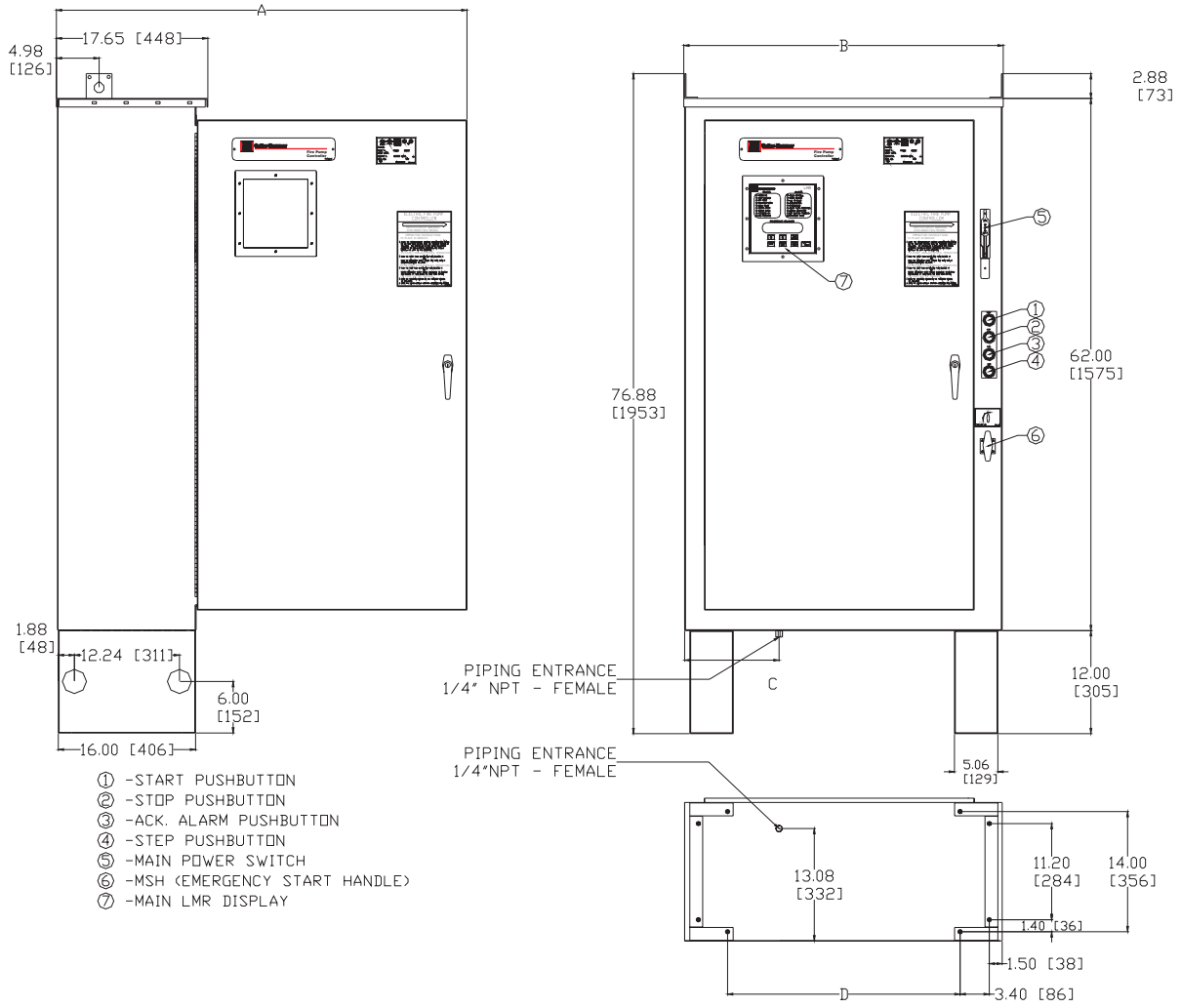
* Coils available: 380V-50Hz, 380V-60Hz, 415V-50Hz, 415V-60Hz.

N. Y. C. APPROVED

NOTES:
1. All enclosures finished in FirePump red.
2. Cable Entrance either top or bottom.
3. Standard Enclosure type NEMA 2.

Dimensions

Standard Enclosure - Type NEMA 2, 3R, 4, 4X, 12



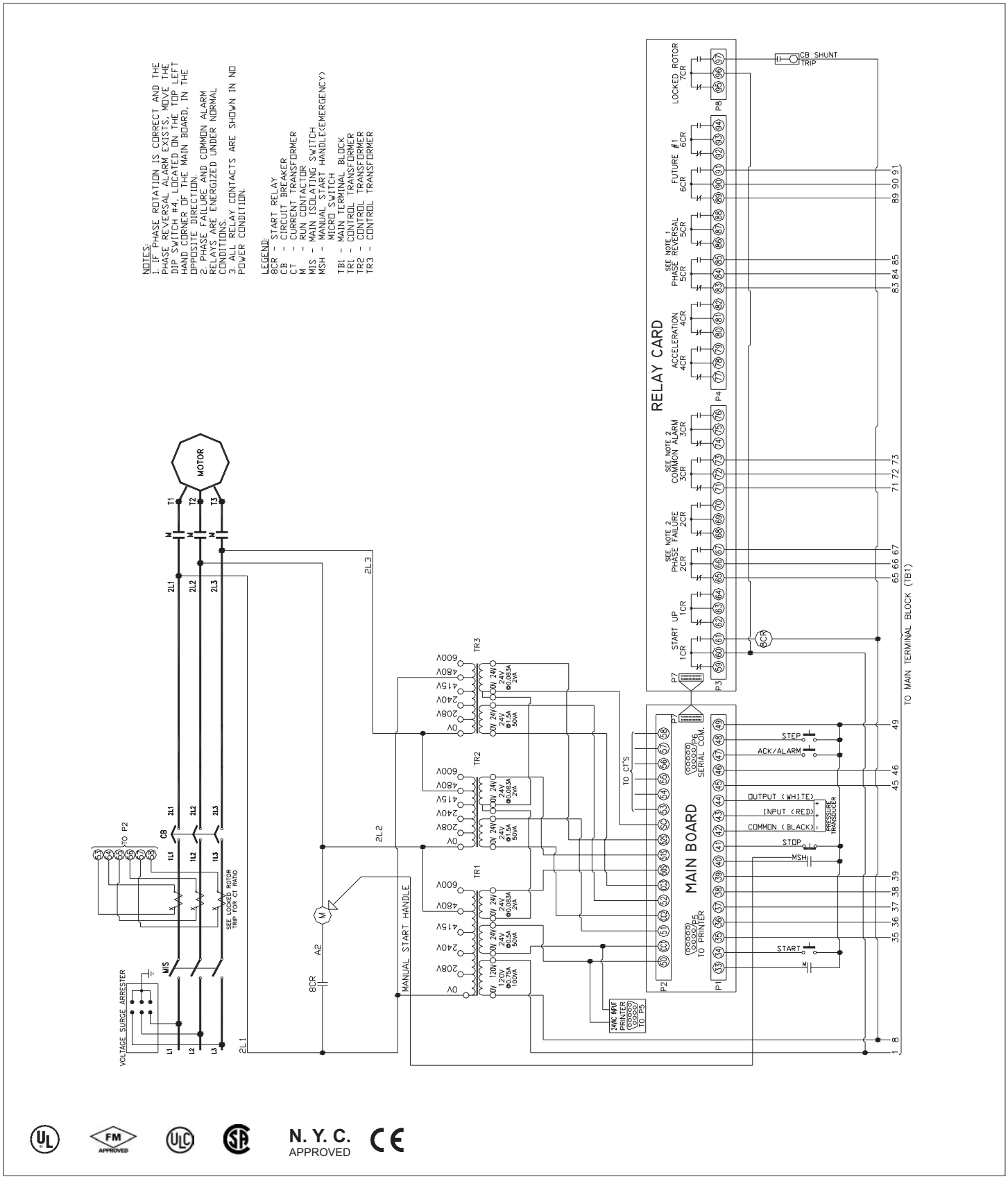
Motor Hp	Line Voltage	Withstand Rating			Approx. Weight Lbs. (Kg)	A	B	C	D
		Standard	Intermediate	High					
50 - 100	200 - 208V	100,000	Consult Factory	Consult Factory	565 (256)	47.85 (1215)	37.23 (946)	11.00 (279)	27.10 (688)
60 - 125	220 - 240V								
100 - 200	* 380 - 415V								
125 - 250	440 - 480V								
125 - 300	550 - 600V	25,000	35,000						
125 - 150	200 - 208V	100,000	Consult Factory		660 (299)	53.85 (1368)	43.23 (1098)	21.74 (552)	33.10 (841)
150 - 200	220 - 240V								
250 - 300	* 380 - 415V								
300 - 400	440 - 480V								
350 - 400	550 - 600V	25,000	35,000						

* Coils available: 380V-50Hz, 380V-60Hz, 415V-50Hz, 415V-60Hz.

N. Y. C. APPROVED

NOTES:
1. All enclosures finished in FirePump red.
2. Cable Entrance either top or bottom.
3. Standard Enclosure type NEMA 2.

Electrical Wiring Schematic



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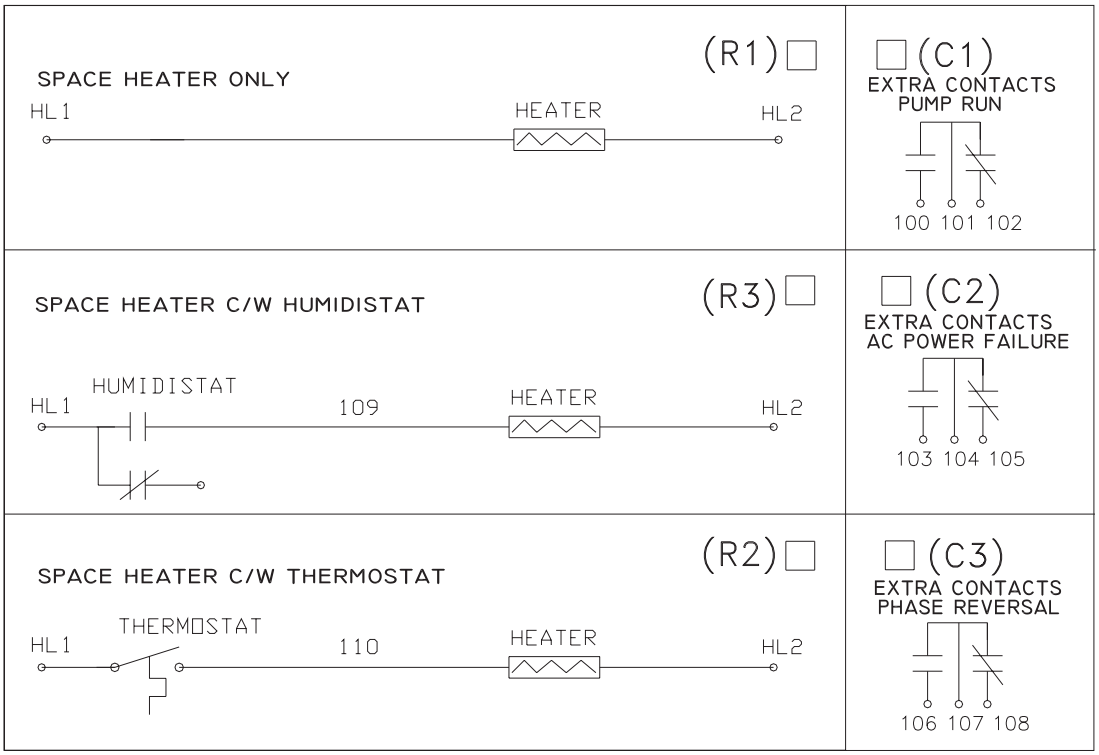
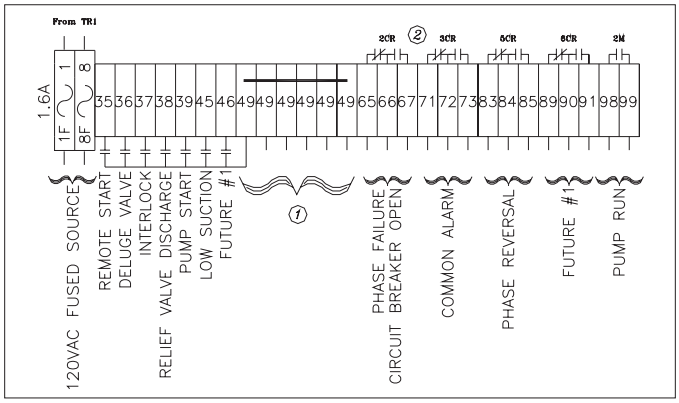
Options - Wiring Diagram

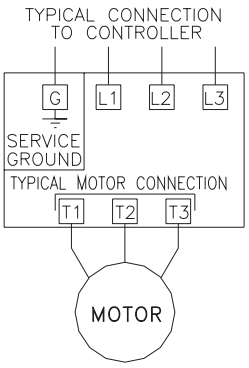


Main Terminal Block: TB1



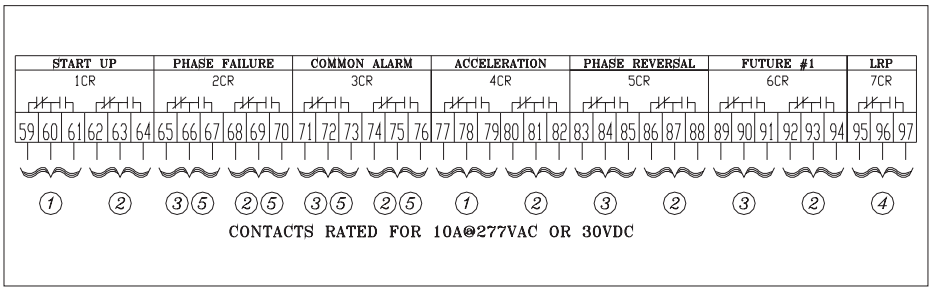
NOTES:
1. Terminal 49 is common to all dry contact inputs.
DO NOT APPLY A VOLTAGE ON THESE TERMINALS
2. Contacts shown in de-energized state (Fail Safe).

Typical Controller Connection



NOTE:
1. MOTOR CONNECTIONS VARY, PLEASE REFER TO SPECIFIC MOTOR CONNECTION DIAGRAM.
2. PLEASE OBSERVE PROPER PHASE ROTATION, A,B,C-L1,L2,L3 AS CONTROLLER IS PHASE SENSITIVE.
3. CABLE SIZE TO BE 125% OF FULL LOAD CURRENT. REFER TO WIRE SIZE TABLE IN NFPA 70.

Relay Card



NOTES:
1. To Control Circuit
2. Spare for Customer Connections
3. To TB1
4. To Shunt Trip
5. Contacts Shown in De-Energized State - (Fail Safe)

Product Selection

FD30 ACROSS-THE-LINE Controller Catalog Numbering System

FD **LMR**

Starting Type
30 = Across the Line

Horsepower

15	40	100	250	450
20	50	125	300	500
25	60	150	350	
30	75	200	400	

Voltage

A =	200 - 208V 60 HZ
B =	220 - 240V 60 HZ
C =	380 - 415V 50/60 HZ
D =	440 - 480V 60 HZ
E =	550 - 600V 60 HZ

LMR Series
Microprocessor Control

Language
L1 = English
L2 = French
L5 = Spanish

Options

A	-	Built-in Alarm System
B	-	Alarm Bell
C1	-	Extra Contacts "Pump Run" (one N.O. std.)
C2	-	Extra Contacts "AC Power Failure" (two sets std.)
C3	-	Extra Contacts "Phase Rev." (two sets std.)
C4	-	Remote Contacts (2 Form C) Low Reservoir
C5	-	Remote Contacts (2 Form C) High Reservoir
E1	-	NEMA 3R - Raintight Enclosure
E2	-	NEMA 4 - Watertight Enclosure (Ref Dwg. Page 1-3)
		NEMA 4 - Watertight Enclosure (Ref Dwg. Page 1-4)
E3	-	NEMA 12 - Industrial Dust Tight Enclosure
E5	-	NEMA 4X - Stainless Steel Enclosure (Ref Dwg. Page 1-3)
		NEMA 4X - Stainless Steel Enclosure (Ref Dwg. Page 1-4)
E8	-	Tropicalization
E9	-	NEMA 4X - Painted Steel (Ref. Dwg. Page 1-3)
		NEMA 4X - Painted Steel (Ref. Dwg. Page 1-4)
E10	-	NEMA 4X - 316 Stainless Steel Enclosure (Ref. Dwg. Page 1-3)
		NEMA 4X - 316 Stainless Steel Enclosure (Ref. Dwg Page 1-4)
EX	-	Export Crating
F	-	Floor Stand (Standard c/w floor mounted enclosures)
F2	-	Floor Stand - 2 Inch Height
H	-	High Withstand Rating (refer to tables)
I	-	Intermediate Withstand Rating (refer to tables)
P7	-	Low Suction Pressure Switch c/w Pilot Light
P8	-	Low Suction Shutdown (Requires P7)
P10	-	Pressure Transducer - Sea Water Rated
P13	-	Externally Mounted Pressure Transducer
R1	-	Space Heater (120 / 220V)
R2	-	Space Heater c/w Thermostat
R3	-	Space Heater c/w Humidistat
R4	-	Low Pump Room Temperature Switch and Pilot Light
X1	-	Printer/Pressure Recorder (Standard on LMR FM Units)
X2	-	4 - Inch Chart Recorder (10 - 300 psi fresh water)