



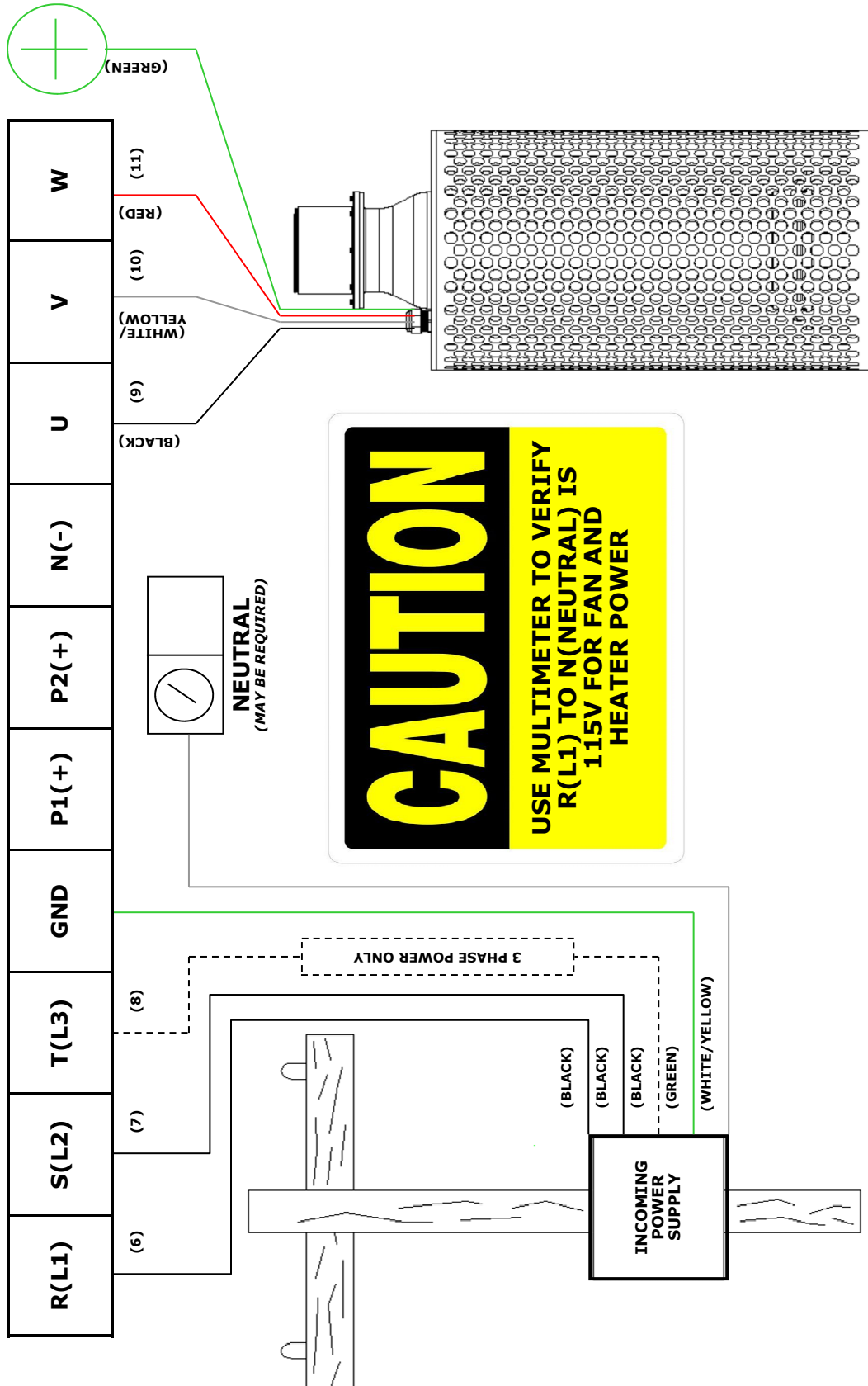
**OUTDOOR-RATED ENCLOSED
VARIABLE FREQUENCY DRIVE
200V—230V—460V—575V**



**Carry Pumps, Inc. · 1360 Prospect Ave. · Caro, MI 48723
www.carrypumps.com · 800-492-2779 · controls@carrypumps.com**

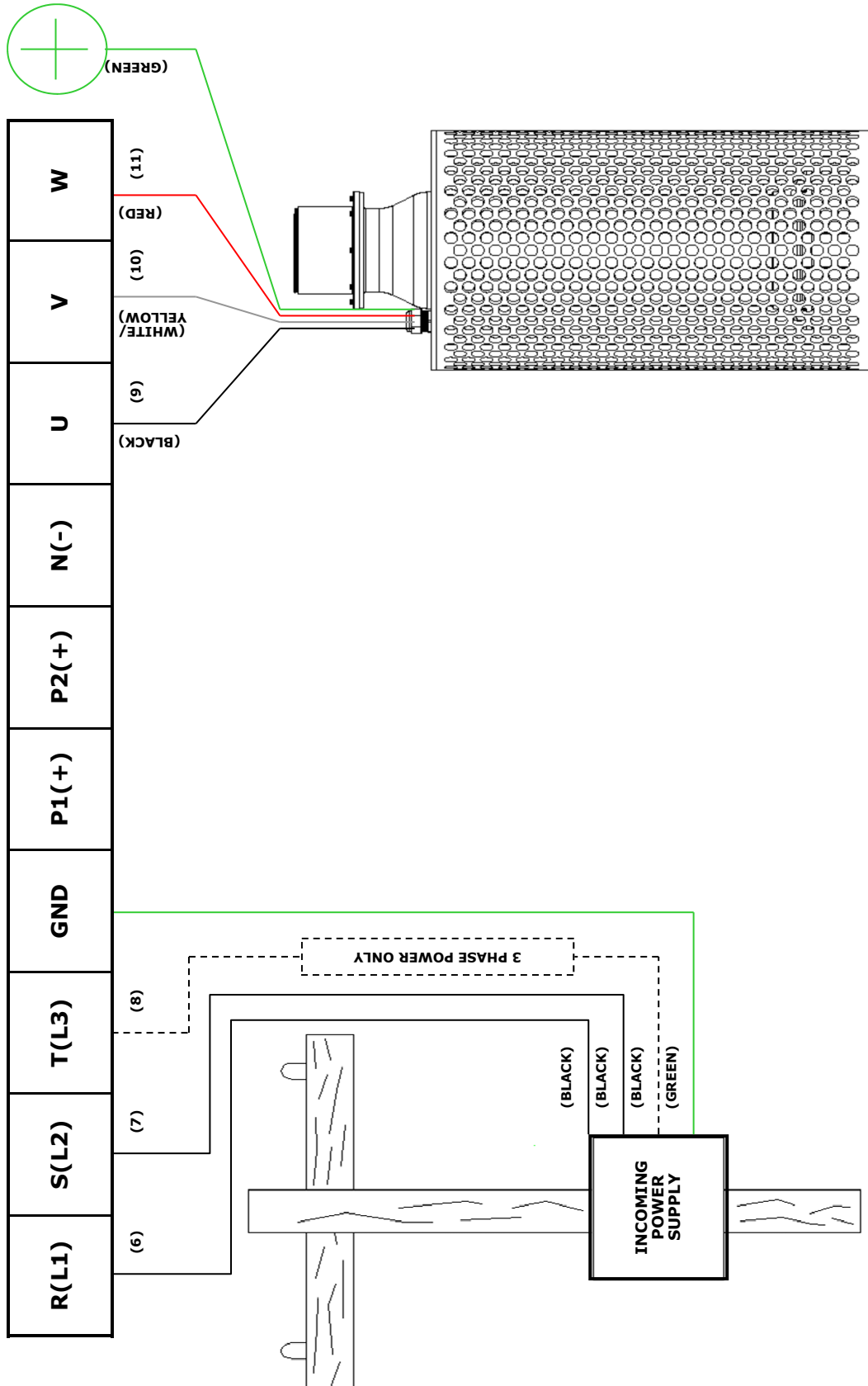


VARIABLE FREQUENCY DRIVE INSTALLATION WIRING 200V and 230V





VARIABLE FREQUENCY DRIVE INSTALLATION WIRING 460V and 575v





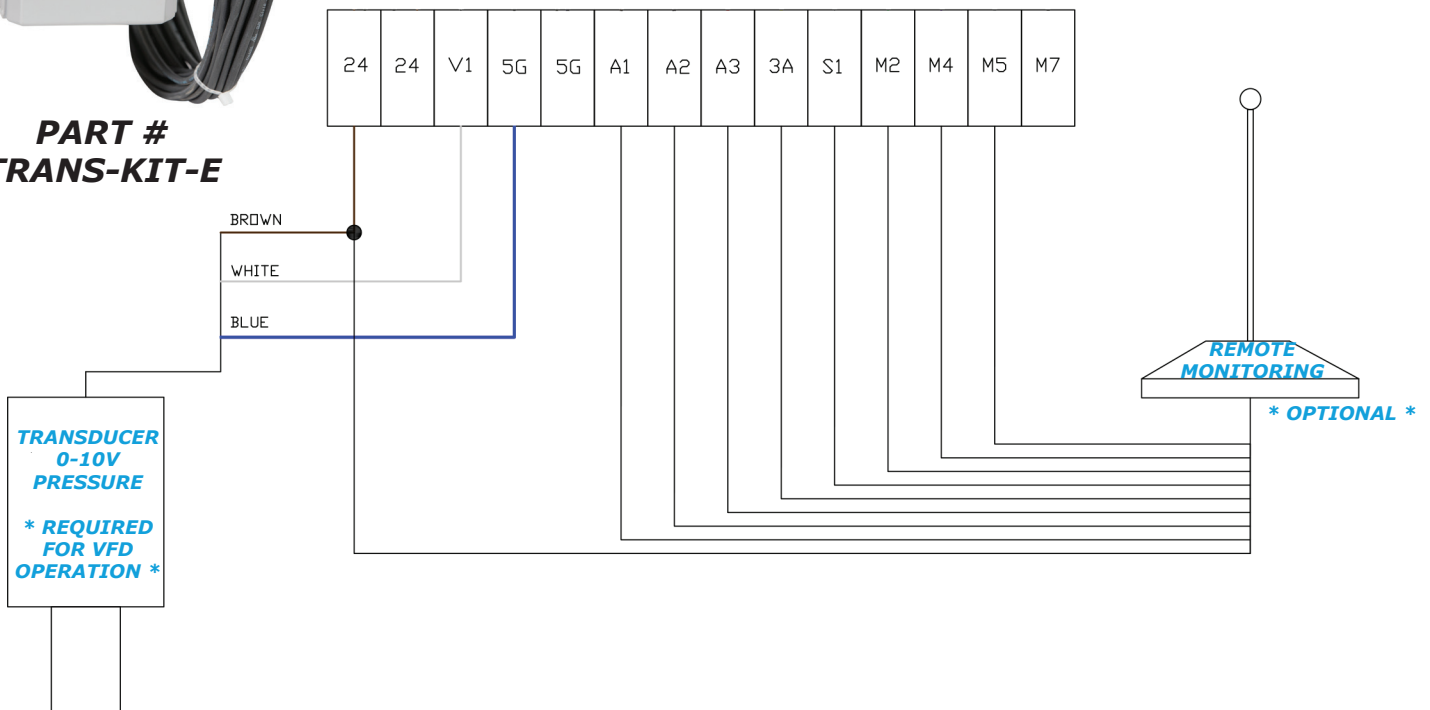
ENCLOSED VFD LEVEL TRANSDUCER & REMOTE MONITORING

TRANSDUCER KIT with HOUSING & 32 Ft. CABLE



**PART #
TRANS-KIT-E**

The transducer senses the water level in the sump to turn the Enclosed VFD Drive on and off. The transducer also increases and decreases the speed of the pump as the water level in the sump rises and falls.



Eagle I REMOTE MONITORING SYSTEMS

The Eagle I Remote Monitoring System keeps you informed by sending you a text message when certain preprogrammed conditions exist with your pumping system, such as, if there is a power failure, or if there is a low/high water situation in your sump.



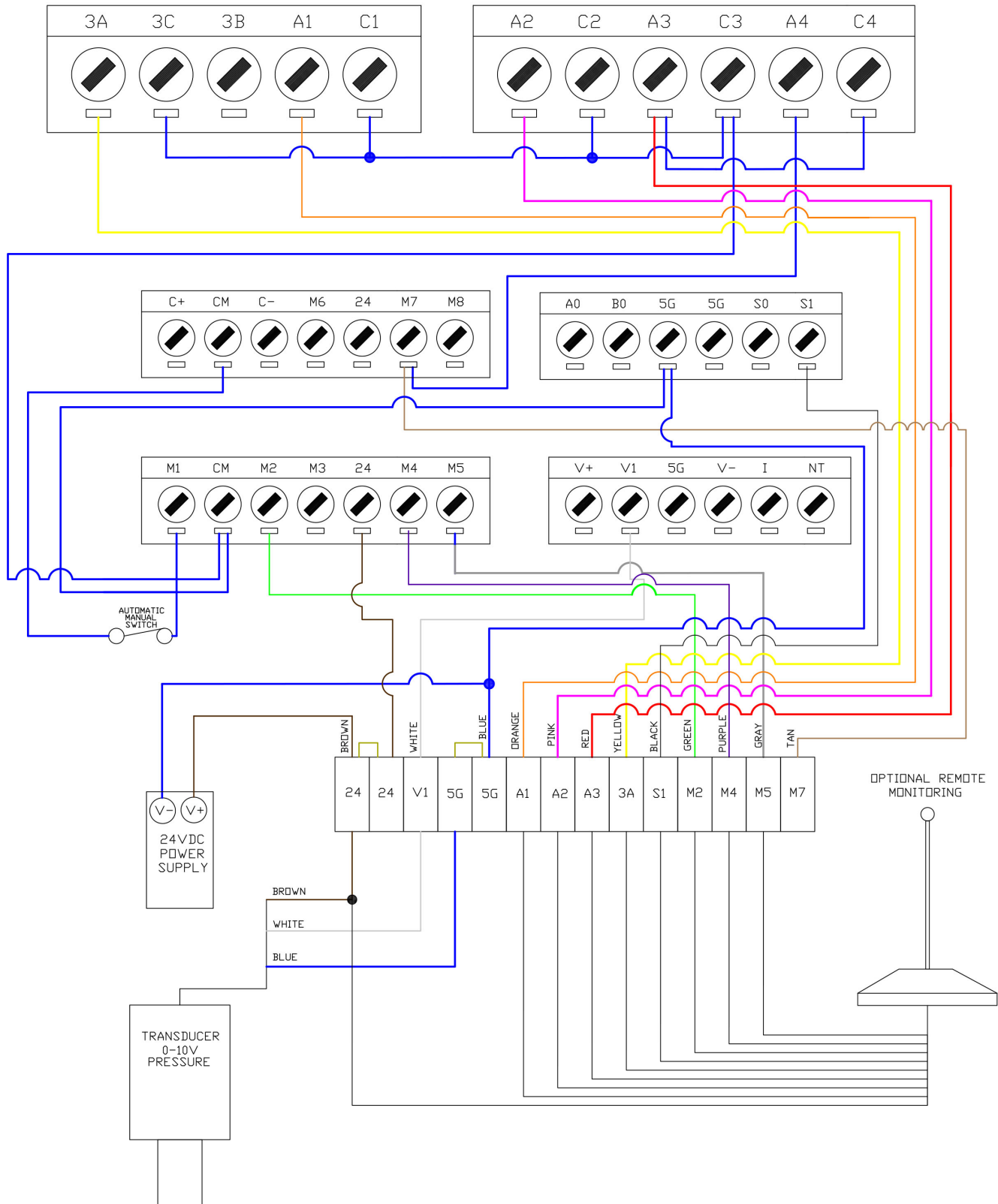
Requires Annual Service: Part #RMS-SERVICE

230V: PART #RMS-VFD-23E
460V: PART #RMS-VFD-46E

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VARIABLE FREQUENCY DRIVE TRANSDUCER SWITCH with (Optional) REMOTE MONITORING





ENCLOSED VFD ACCESSORIES

EXTERIOR 5-COLOR LED SIGNAL LIGHT



**PART #
LED-LIGHT-KIT-E**



FAULT



DISABLED



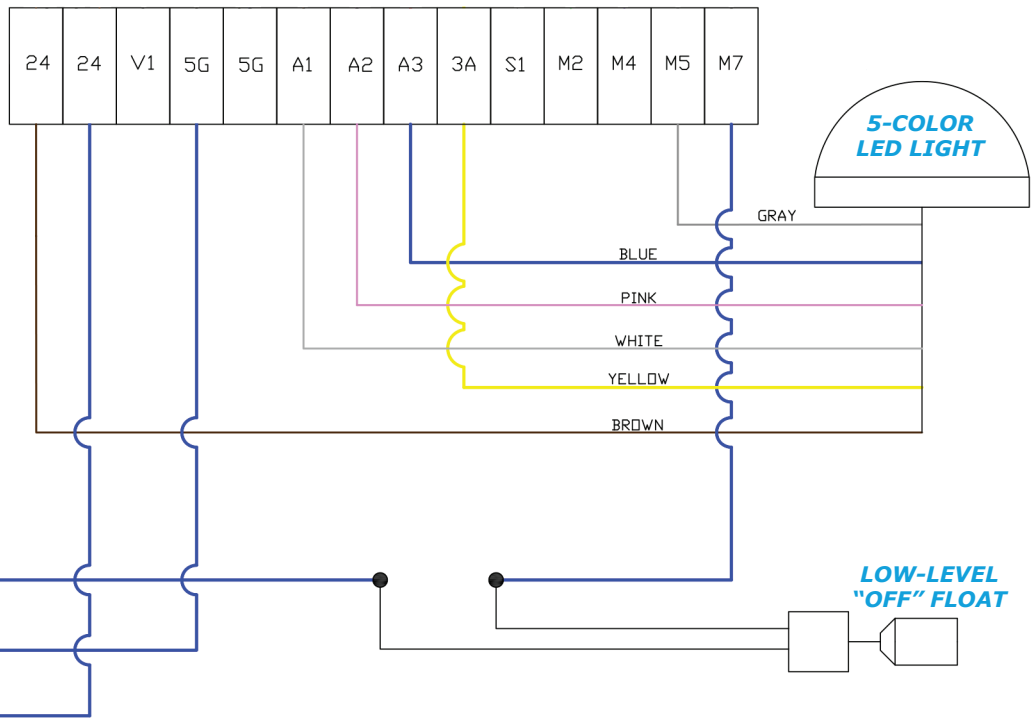
RUNNING



**AUTO
MODE**



**MANUAL
MODE**



24/7 TIMER

LOW-LEVEL "OFF" FLOAT



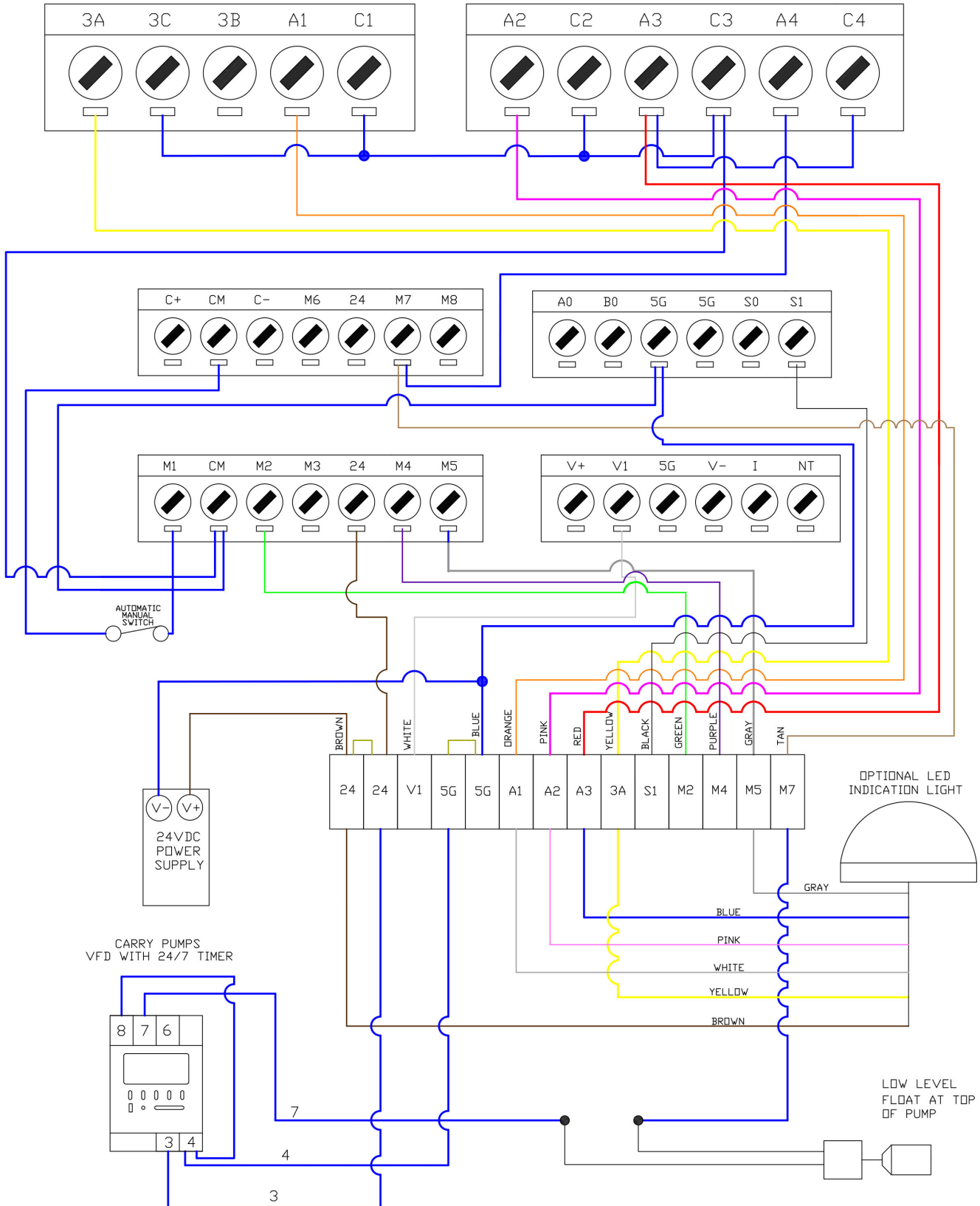
PART #TIMER-24/7-24V-DR



PART #100-21-35

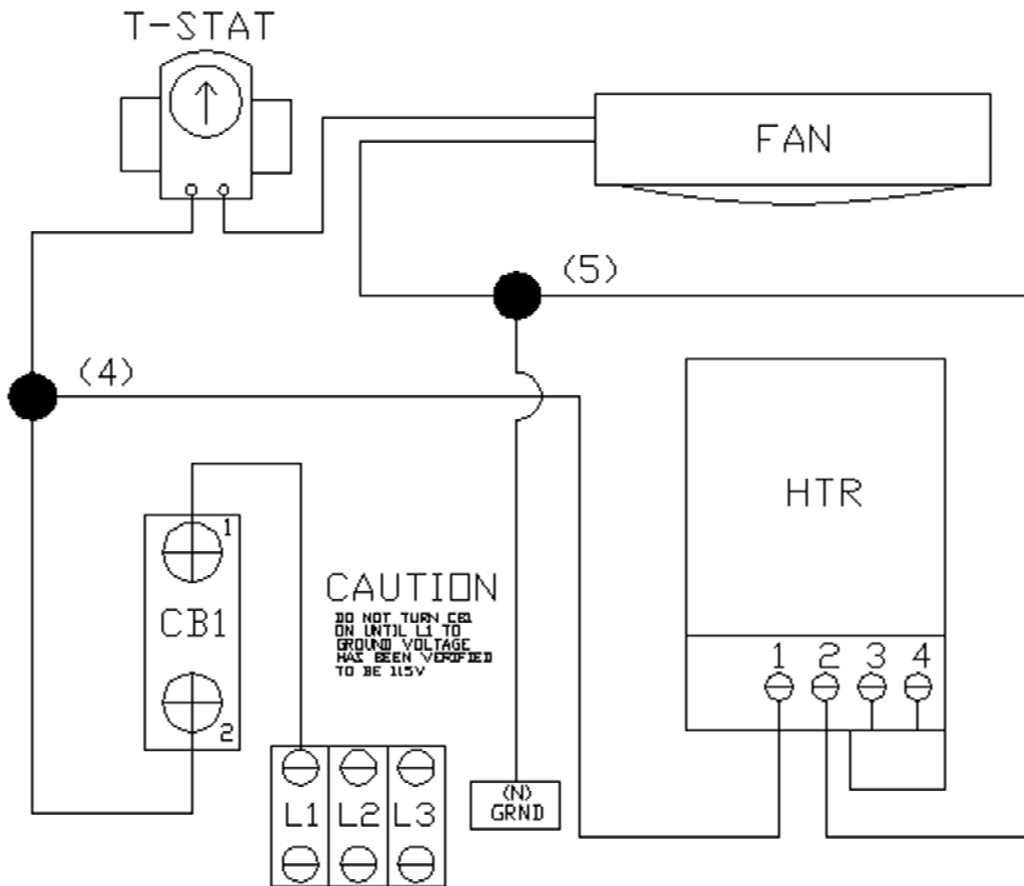


VARIABLE FREQUENCY DRIVE TRANSDUCER SWITCH with (Optional) LED INDICATOR LIGHT



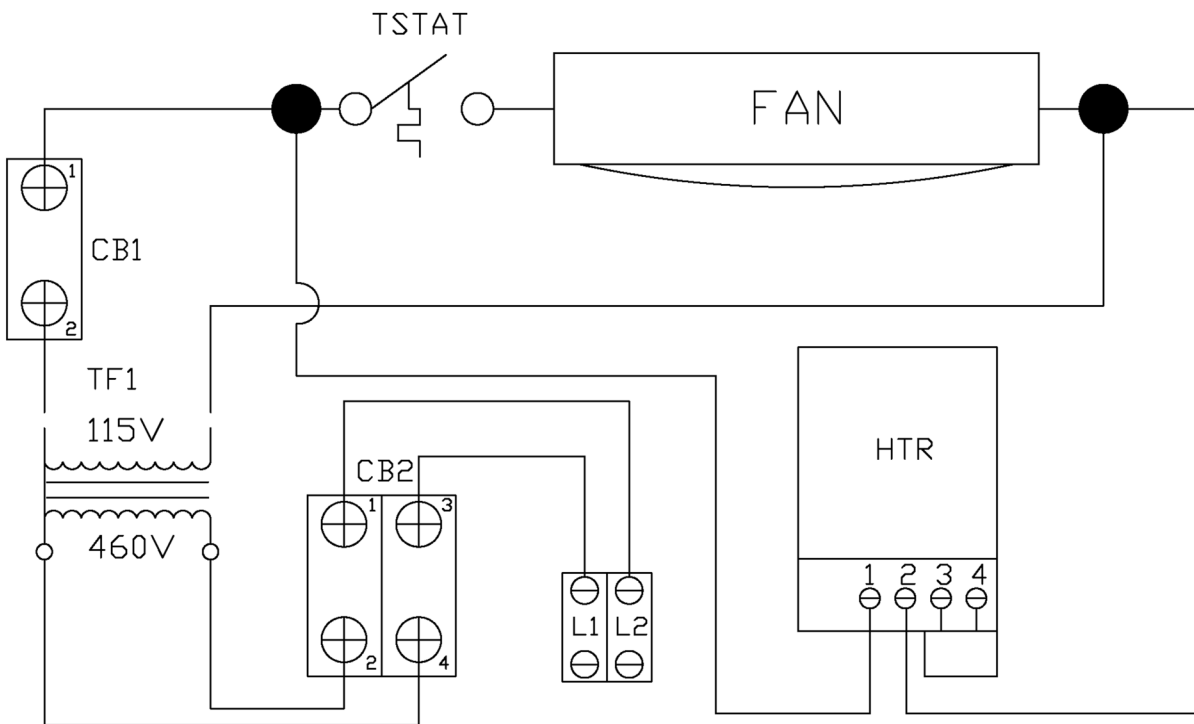


VARIABLE FREQUENCY DRIVE ENCLOSURE WIRING 200V and 230V



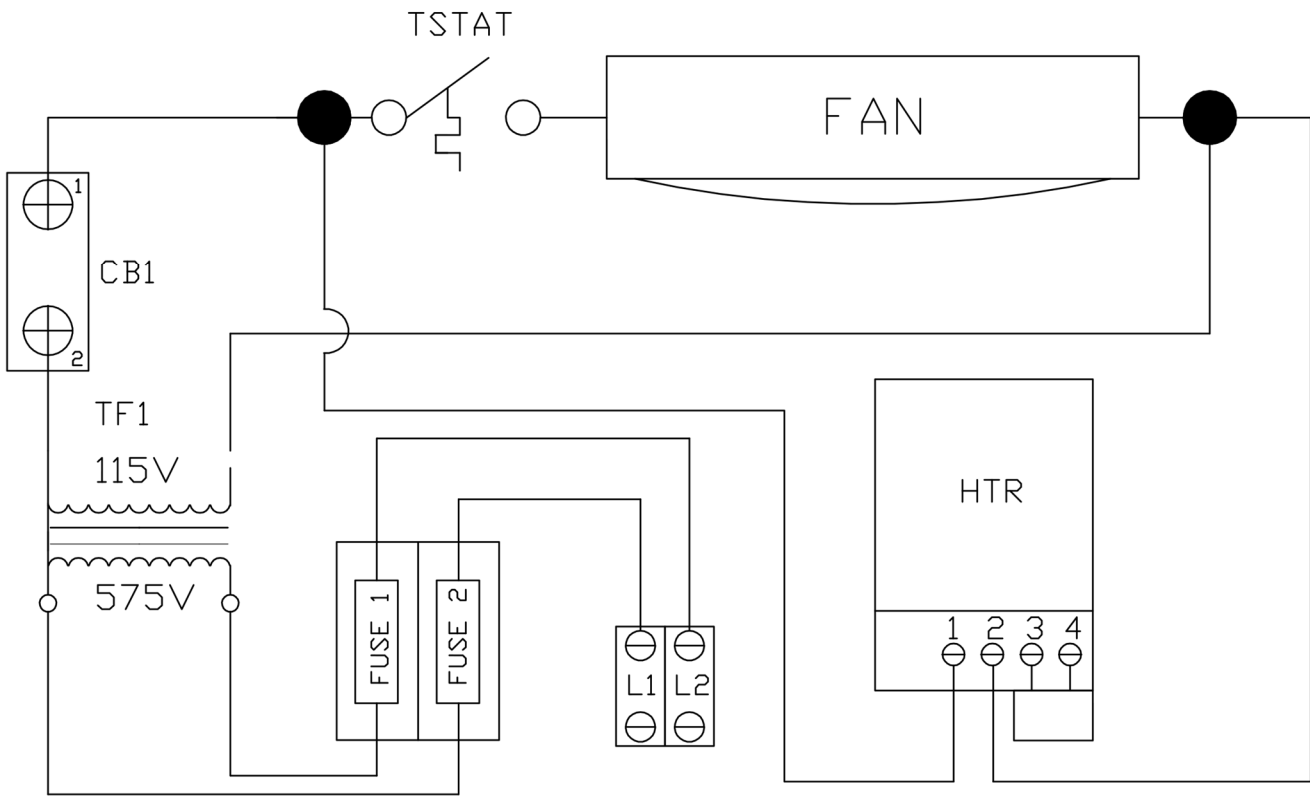


VARIABLE FREQUENCY DRIVE ENCLOSURE WIRING—460V





VARIABLE FREQUENCY DRIVE ENCLOSURE WIRING—575V





VFD PARAMETERS FOR USE WITH 0-10V STANDARD TRANSDUCERS

1 Mode: Use to cycle through parameter groups: SET ▶ DRV ▶ I/O ▶, FG1 ▶, FG2 ▶

2 Local Remote: Key not used; Use front-mounted auto/manual switch

3 Enter: Use to enter programming mode of any parameter as well as to submit a change. A flashing cursor will appear when VFD is in programming mode.

4 Up & Down: Use to cycle through parameters of the current group. Use to adjust parameters when in programming mode.

5 Shift: Use to cycle backwards through parameter groups. When in programming mode, use to shift cursor to the right (one position per press).

6 Rev, Stop/Reset & Fwd: Use to Start and stop VFD Forward or Reverse in Manual mode. Use Stop to reset VFD fault.









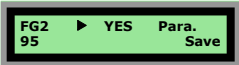



!! CAUTION !!

ALL VFDs ARE PROGRAMMED FOR CARRY SUBMERSIBLE PUMPS & FRANKLIN SUBMERSIBLE MOTORS. OTHER APPLICATIONS MAY REQUIRE PARAMETER CHANGES.

MODE	DESCRIPTION
Set 00	"Submersible Pump"
Set 01	"1 Phase" or "3 Phase" (VFD Incoming Power Phase)
Set 02	"_._." Motor "XX" Horsepower
Set 03	"_._." Motor FLA "XX" Amps (Full Load Amps)
Set 04	"3600 rpm" (Franklin Submersible Motor)
Set 09	"Remote 1" Controlled by separate forward input
Set 10	"V1" 0-10V signal
Set 11	"1.0 sec" Acceleration time
Set 12	"1.0 sec" Deceleration time
Set 13	"30.00 Hz" Low limit
Set 14	"65.00 Hz" High limit (FG1-30 must be set to 65.00 Hz)
Set 20	"No" PID Mode
Set 74	"Under Level" Relay output detection for signal under LDT Level
Set 76	"30.00 Hz" LDT frequency
Set 77	"10 sec" LDT trip delay
Set 78	"_._. A" LDT Level (40% of Motor FLA)
Set 80	"Yes" LDT Trip (Auto reset of low current fault)
Set 81	"0.5 min" Reset time for low current (Every failed attempt time doubles)
Set 90	"Cntl&Ref Run"
DRV 02	"30.00 Hz" Speed set from Remote
DRV 61	"2.00 V" On Level at 20" of water (Factory Setting)
DRV 62	"_._. V" Off Level "X.XX" (DRV 61 - DRV 62 = Off Level Setting) <i>Off Level must always be at least 1.00 V for 10" of water MINIMUM</i>
I/O 02	"2.00 V" Minimum Volts On/Low speed level at 20" of water (Must be the same value as DRV 61)
I/O 03	"30 Hz" Minimum Frequency
I/O 04	"3.00 V" Full Speed Level at 30" of water (Factory Setting)
I/O 05	"65 Hz" Maximum Frequency (FG1 30 must be set to 65.00 Hz)
I/O 17	"None"
I/O 18	"Decel Stop" Lost signal protection
I/O 20	"LOC/REM"
I/O 72	"Frequency" S1 Mode (Provides 0-10VDC signal corresponding to VFD speed output)
I/O 76	"Run" (Aux 1)
I/O 77	"Local" (Aux 2)
I/O 78	"Remote" (Aux 3)
I/O 79	"V Hi Level" (Aux 4)
I/O 80	"010" Fault relay is activated at every fault except Low Voltage trip
FG1 30	"65.00" Sets max speed to 65 Hz
FG1 70	"Yes" Motor Stall Protection works as a current limiter by lowering Hz
FG1 71	"100%" Stall Level
FG1 81	"0 Sec" Run Delay
FG2 26	"30 sec" Retry delay after trip
FG2 95	"Yes" Saves parameters (Will flash "Yes" momentarily, then return to "No" after save is completed)
DRV 00	Displays Amp draw and Frequency (speed)
DRV 97	Displays water level above the bottom of the transducer PVC pipe (1.50 V is 15" of water)



INSTRUCTIONS FOR CHANGING PARAMETERS

1. Move the Automatic/Manual switch on the front of the VFD from "AUTOMATIC" to "MANUAL".

2. Press the [MODE] key to scroll through each set of parameter groups (SET, DRV, I/O, FG1, FG2) until you reach the parameter group you need to change.

3. Press the UP [▲] or DOWN [▼] key to scroll to the specific parameter number you need to change. (Example: DRV 61)


4. Press [ENTER] to allow changes to the parameter. A flashing cursor indicates that the parameter can be changed. If there is not a flashing cursor, the parameter cannot be changed because there is a fault or the VFD is currently running.

5. Press the UP [▲] or DOWN [▼] key to change the value. The numerical value of the parameter will automatically change to the maximum value by pressing the UP [▲] key, or the minimum value by pressing the DOWN [▼] key.

6. **In order to change each digit in a numeric value**, use the [SHIFT] key to move the flashing cursor over to the digit you want to change, and then press the UP [▲] or DOWN [▼] keys to adjust the selected digit.

7. Press the [ENTER] key to accept the new value. The flashing cursor will then disappear. (Example: 2.50 V)

8. *Repeat Steps 2 through 7 to change other parameters as needed.*

9. **IMPORTANT!** After all parameter changes have been made, press the [MODE] key to scroll to Parameter FG2 95, change to "Yes" and press [ENTER] to save the new parameters. Screen flashes "Yes" briefly, then returns to "No."




*** Remember to switch back to "AUTOMATIC" when finished ***

**TECH SUPPORT
(800) 492-2779**

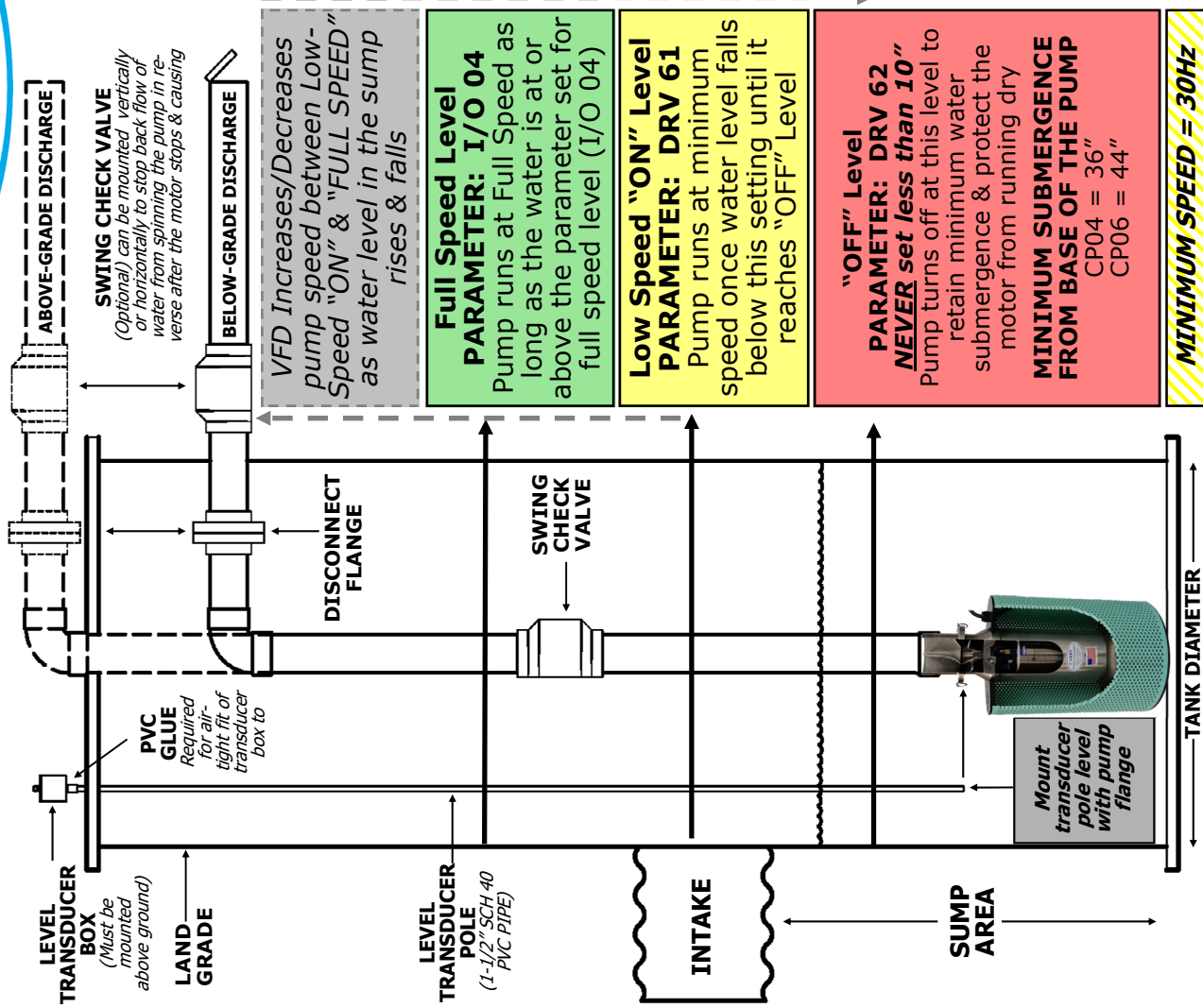
controls@carrypumps.com
www.carrypumps.com

**CHANGING SPEED
IN MANUAL MODE**
DRV 00 Press "Enter"
Then use UP [▲] or DOWN [▼] to
increase/decrease speed
PRESS ENTER TO SAVE CHANGES

PUMP STATION EXAMPLE WITH VARIABLE SPEED DRIVE (VFD)



ADJUSTING WATER LEVEL OFF, LOW AND FULL SPEED SETTINGS



WATER LEVELS ABOVE PUMP		PARAMETERS			FG2 95 Para. Save
FACTORY SETTING	SCREEN VIEW ON VFD	MODE	ENTER VALUE	SAVE CHANGES	
30" FULL SPEED	I/O 04 V Max 3.00 V	I/O 04	3.00 V	MODE: FG2 95 VALUE = YES	
20" ON LEVEL	DRV 61 Hi Level 2.00 V	DRV 61	2.00 V	MODE: FG2 95 VALUE = YES	
10" OFF LEVEL	I/O 02 V Min 2.00 V	I/O 02	2.00 V	MODE: FG2 95 VALUE = YES	
OPTION #1	DRV 62 Hi Hyst. 1.00 V	DRV 62	1.00 V	MODE: FG2 95 VALUE = YES	
35" FULL SPEED	I/O 04 V Max 3.50 V	I/O 04	3.50 V	MODE: FG2 95 VALUE = YES	
25" ON LEVEL	DRV 61 Hi Level 2.50 V	DRV 61	2.50 V	MODE: FG2 95 VALUE = YES	
10" OFF LEVEL	I/O 02 V Min 2.50 V	I/O 02	2.50 V	MODE: FG2 95 VALUE = YES	
OPTION #2	DRV 62 Hi Hyst. 1.50 V	DRV 62	1.50 V	MODE: FG2 95 VALUE = YES	
45" FULL SPEED	I/O 04 V Max 4.50 V	I/O 04	4.50 V	MODE: FG2 95 VALUE = YES	
25" ON LEVEL	DRV 61 Hi Level 2.50 V	DRV 61	2.50 V	MODE: FG2 95 VALUE = YES	
10" OFF LEVEL	I/O 02 V Min 2.50 V	I/O 02	2.50 V	MODE: FG2 95 VALUE = YES	
10" OFF LEVEL	DRV 62 Hi Hyst. 1.50 V	DRV 62	1.50 V	MODE: FG2 95 VALUE = YES	
IMPORTANT * FG2 95 SAVES SETTINGS to the drive; display will flash "Yes" momentarily, then return to "No."					

VFD Increases/Decreases pump speed between Low-Speed "ON" & "FULL SPEED" as water level in the sump rises & falls

**Full Speed Level
PARAMETER: I/O 04**
Pump runs at Full Speed as long as the water is at or above the parameter set for full speed level (I/O 04)

**Low Speed "ON" Level
PARAMETER: DRV 61**
Pump runs at minimum speed once water level falls below this setting until it reaches "OFF" Level

**"OFF" Level
PARAMETER: DRV 62**
NEVER set less than 10"
Pump turns off at this level to retain minimum water submergence & protect the motor from running dry
MINIMUM SUBMERGENCE FROM BASE OF THE PUMP
CP04 = 36"
CP06 = 44"

MINIMUM SPEED = 30Hz

TERMS, PAYMENT & INVOICING

Standard payment terms are NET 30 days from the date of invoice for approved accounts. Customers who do not have an approved account must prepay prior to order being shipped. Retaining a percentage of the contract sale amount is prohibited without prior, written agreement. Payment must be made in U.S. Funds. An invoice will be rendered as of the date product is ready for shipment. A service fee of 1-1/2% per month on all invoices over 30 days past due will be imposed. In the event of any default by the Purchaser, Carry Pumps, Inc. shall have the right to repossess the product as well as all other rights afforded to a conditional seller under the provisions of the Uniform Conditional Sales Act and any other applicable laws.

STANDARD WARRANTY AND CONDITIONS OF SALE

LIMITED WARRANTY: CARRY PUMPS, INC. warrants the product sold by it to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase.

WARRANTY DISCLAIMER: *This warranty does not apply to pumps sold without compatible Carry electrical controls, horizontal pumps, and/or if the product is used in saltwater, aquaculture (fish farming), water feature applications, or to pumps that have been subject to misuse (including use in a manner inconsistent with the design of the pump), abuse, neglect, accident or improper installation or maintenance, or to pumps that have been altered or repaired by anyone other than CARRY PUMPS, INC.* The warranties in this agreement are in lieu of all other warranties, express or implied, including without limitation, any warranties of merchantability or fitness for a particular purpose, said warranties being expressly disclaimed.

WARRANTY AMENDMENTS: Prior or subsequent courses of dealing, trade usage and verbal agreements not reduced to a writing signed by CARRY PUMPS, INC., to the extent they differ from, modify, add to or detract from this warranty shall not be binding upon CARRY PUMPS, INC.. There are no agreements, promises or understandings, either verbal or written, that are not fully expressed in this warranty. No statements, recommendations or assistance by either party have been relied upon by either party nor shall they be relied upon and shall not constitute a waiver by either party of any of the provisions hereof. This warranty may be amended or altered only if agreed to in writing signed by CARRY PUMPS, INC.

LIMITED REMEDY: CARRY PUMPS, INC. and Purchaser agree the repair or replacement of the pump at issue is a commercially reasonable allocation of risk and, therefore, Purchaser agrees that its sole and exclusive remedy against CARRY PUMPS, INC. shall be limited to the repair or replacement of the pump at issue. This exclusive remedy shall not be deemed to have failed of its essential purpose so long as CARRY PUMPS, INC. is willing and able to repair or replace the pump at issue. In the event CARRY PUMPS, INC. is unable to repair or replace the pump at issue in a manner acceptable to purchaser, or in the event it shall be determined by a court having jurisdiction thereof that any provisions of this warranty are unconscionable or fail in its essential purpose, then the maximum liability of CARRY PUMPS, INC. shall be that as set forth in the paragraph next following entitled "Limitation on Liability".

STANDARD WARRANTY AND CONDITIONS OF SALE

(Continued from Previous Page)

LIMITATION ON LIABILITY: CARRY PUMPS, INC. shall not be liable for any loss, damage or injury resulting from delay in delivery or installation of the pump or for any failure to perform which is due to circumstances beyond its control. CARRY PUMPS, INC. and Purchaser agree it is a commercially reasonable allocation of risk that the maximum liability, if any, of CARRY PUMPS, INC. for all damages, including without limitation contract damages and damages for injuries to persons or property, whether arising from CARRY PUMPS, INC.'s breach of this agreement, breach of warranty, negligence, strict liability or other tort, is limited to an amount not to exceed the purchase price of the pump at issue in the dispute and said liability is so limited. In no event shall CARRY PUMPS, INC. be liable to Purchaser for any incidental, consequential or special damages, including without limitation, lost revenues and profits, even if it has been advised of the possibility of such damages.

WARRANTY CLAIM PROCEDURE: This warranty is valid only if the following conditions are complied with by the Purchaser: Purchaser shall notify CARRY PUMPS, INC. in writing of the defect in the pump at issue within 30 days of discovery of the defect. The notice shall include with it copies of the proof of purchase and the return receipt signed by a representative of CARRY PUMPS, INC. as provided above. In the event repair or replacement of the pump at issue is approved by CARRY PUMPS, INC., Purchaser shall, upon written notice by CARRY PUMPS, INC. of the approval, return the pump to CARRY PUMPS, INC., freight pre-paid. CARRY PUMPS, INC. will return the repaired or replaced pump to Purchaser, freight prepaid. The repair or replacement of the pump shall not extend the duration of the one-year warranty term.

GOVERNING LAW: This warranty shall be governed and controlled by and enforced in accordance with the laws of the State of Michigan, U.S.A., in all respects.

FORUM: The parties agree they are of equal bargaining power and irrevocably submit to the jurisdiction and venue of the Circuit Court for the County of Tuscola, State of Michigan, or if original jurisdiction can be established, the United States District Court for the Eastern District of Michigan, Northern Division, with respect to any performance or breach of this agreement. The parties hereby stipulate that the venues referenced in this agreement are convenient to each of them.

RETURNS: Authorization and shipping instructions for the return of any product must first be obtained by the Purchaser from CARRY PUMPS, INC. or shipment will be refused. Only unused standard product or materials of current design by CARRY PUMPS, INC. purchased within a will be considered for return. Products are not eligible for return more than 6 months after the initial ship date of the product. Custom products cannot be returned for credit. If the returned product is in sellable condition, a credit memorandum will be issued for the original purchase price, less a minimum restocking charge of 20%. If there are any shipping charges that were paid by Carry Pumps, Inc., the amount of those shipping charges will also be deducted from the credit amount.

GENERAL: These terms and conditions shall constitute a part of any contract which may be entered into and shall not be altered, modified, or added to unless specifically and expressly agreed to in writing by CARRY PUMPS, INC. All oral agreements and representations of CARRY PUMPS, INC. or its representative to the Purchaser shall be embodied in any written contract of which CARRY PUMPS, INC. is a part.