

56-A328-02

Power Line Carrier System

DESCRIPTION

The 56-A328-02 power line carrier (PLC) uses frequency shift keying (FSK) technology to extend the accessory inputs of the Model 328V2 GenPulse over the existing high voltage line or low voltage line such as remote start. With the GenPulse installed at or near the transfer switch, critical connections to the utility and generator power are made more convenient but connecting signals from the generator such as common alarm or battery voltage may be costly and time consuming. Installing a PLC system will eliminate the need for running low voltage connections from the transfer switch to the generator.

MASTER OPERATION

M/S – OPEN

H/L _OPTIONAL

The 56-A328-02 set in the master position will sample digital inputs 1-4 and analog inputs 1-2. The data collected is packetized into a data stream and frequency shift keyed to the PLC IO connections. The PLC IO connections are completely isolated and include a high pass filter to only transmit and receive frequencies in the required bandwidth (132.5kHz). The PLC IO connection requires 1 pair of wires to make a complete circuit. For reliable communications this pair must be uninterrupted by breakers, switches, and transformers.

SLAVE OPERATION

M/S – CLOSED

H/L _CLOSED

In the slave position the PLC IO will receive data transmitted and convert the 132.5kHz signal back to a serial data stream and pass the collected data to the host processor. The host processor will decode the data stream and set digital outputs 1-4 and analog outputs 1-2 to match the master. Digital outputs 1-4 are open collector and can only apply ground while analog outputs 1 and 2 are pulse width modulated to recreate the voltage detected on the master.

SPECIFICATIONS

PLC I/O 0-400V AC/DC (power not required)

Transmitting - 2.0 - 2.5 VAC

Receiving Sensitivity – 50mV min.

DC Power 12-36 Vdc

Digital I/O

Master Configuration

Input 0-50 Vdc

Selectable high or low trigger

Logic high > 3.3 Vdc (5, 12, or 24V compatible)

Logic low < 1.0 Vdc

Slave Configuration

Output - Open collector

Collector Current Max. - 500 mA

Never connect direct voltage to a digital I/O pin when configured as slave!

Analog I/O

Master Configuration

Input 0-50 Vdc

Slave Configuration

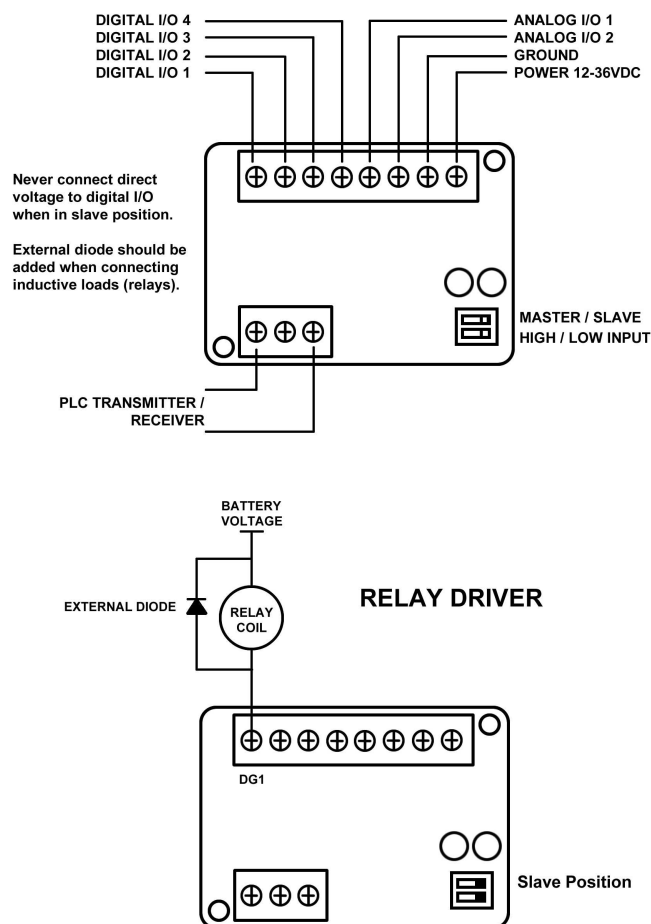
Output 0-30 Vdc (5, 12, or 24V compatible)

INSTALLATION

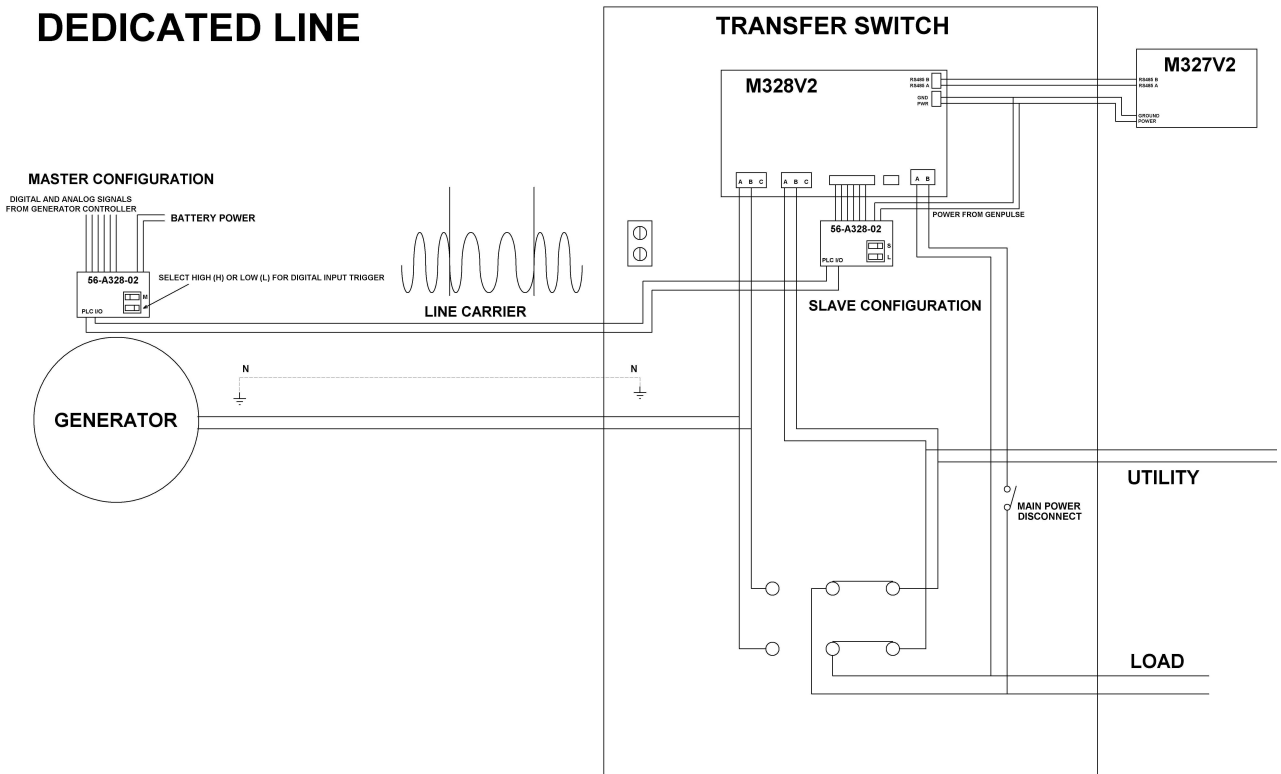
The 56-A328-02 requires a minimum of 2 units to work. There can only be 1 master on any PLC circuit. Install the master at the generator and set DSW1-1 to OPEN (M). For digital inputs 1-4 you must determine the fault condition by selecting the high or low option. If your fault outputs are grounded to activate you should set DSW1-2 to CLOSED (L). If your fault conditions produce a voltage to activate, set DSW1-2 to OPEN (H). The PLC IO terminals 1 and 3 need to be connected to a direct line running to the slave device. When using the generator high voltage line be sure to make the PLC IO connection after the generator breaker so communication can not be interrupted. The PLC IO connections 1 and 3 do not have polarity but you must be sure to use the same pair of wires on the slave. Do not exceed 400 VAC. For a 480 system, and in general, you should use line to neutral to prevent the voltage from exceeding 277 VAC. In a 3 phase application be sure to use the same phase for both the master and the slave. In some applications the signal may work across phases but for best performance connecting to the same phase is recommended. Consider using a low voltage line if available. The battery charger or remote start connections may be a safer alternative if you are uncomfortable working with high voltage wiring. LED DS1 will flash twice every second to indicate it is transmitting.

The slave device is pin for pin compatible with the M328V2 (GenPulse). Set DSW1-1 to CLOSED (S) and DSW1-2 to CLOSED (L). Connect digital inputs 1-4 and analog inputs 1-2 to the corresponding terminals on the GenPulse accessory port. The accessory power port on the GenPulse should be connected to the PWR and GND terminals on the 56-A328-02. Connect the PLC IO to the same connection as the PLC IO on the master side. The LED will flash twice every second to indicate it is receiving messages from the master.

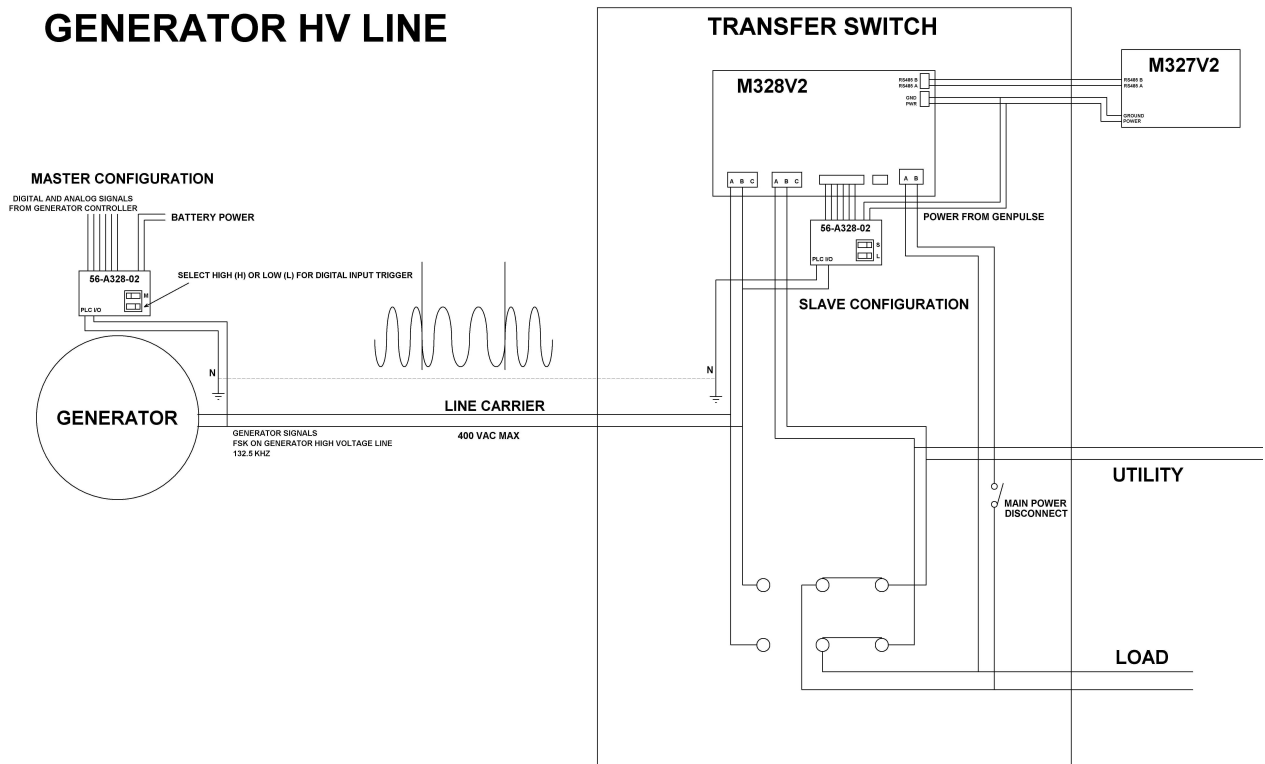
LAYOUT



DEDICATED LINE

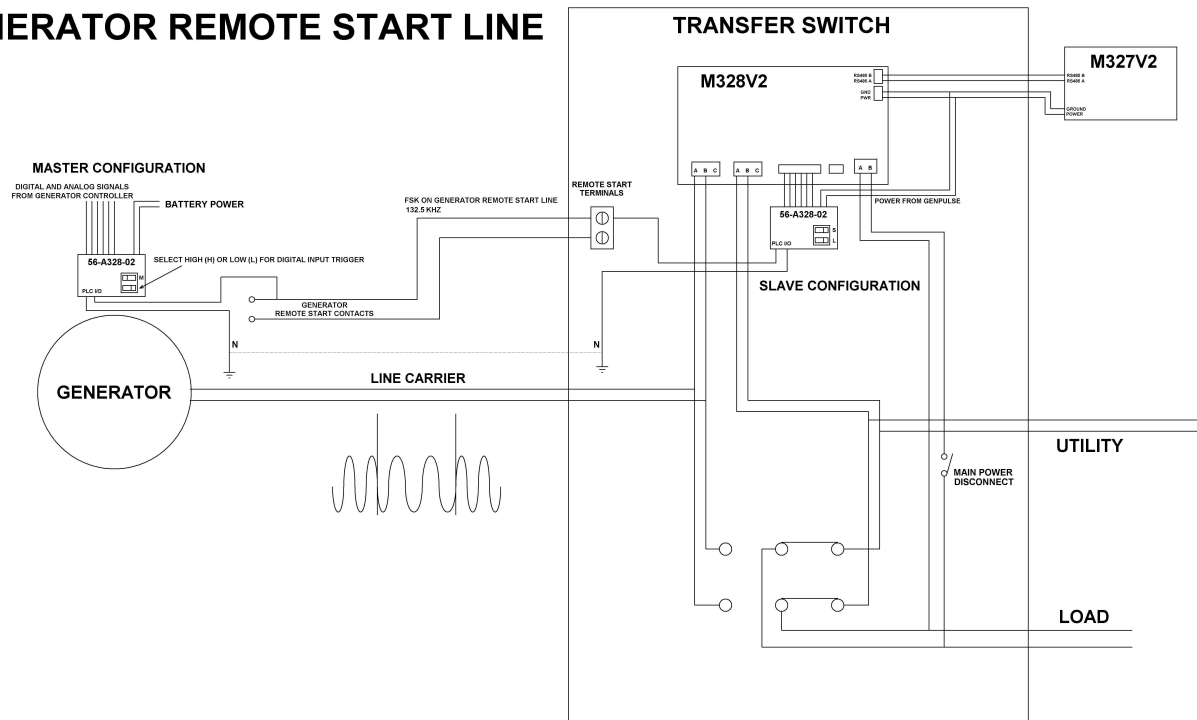


GENERATOR HV LINE



Installation using the generator high voltage line should never exceed 400 VAC. It is recommended that the PLC I/O be connected from line to neutral to prevent over-voltage or interference from external equipment. If the PLC I/O is installed line to line and you are experiencing communication issues, try moving one side of the PLC I/O to a neutral connection.

GENERATOR REMOTE START LINE



FIRMWARE VERSION 1.1

Updated firmware version 1.1 allows for flashing indicators. The time to activate a digital input is reduced to 300ms and the time to reset a digital input was increased to 3 seconds. Using a flashing indicator with a minimum on state of 300ms will result in a steady on condition for the slave device. If you are connecting a flashing indicator it is recommended that you use firmware version 1.1 for the master.