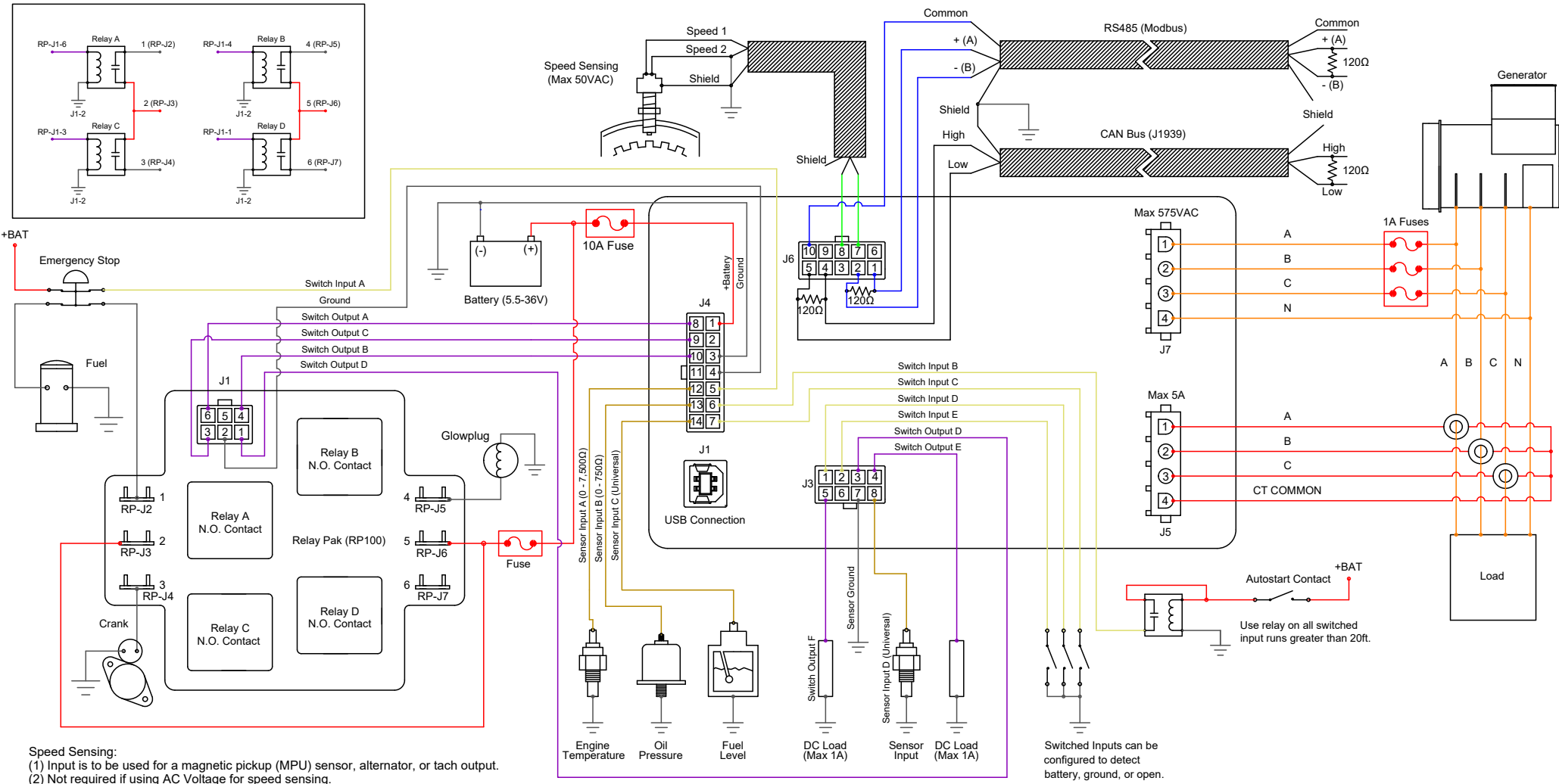
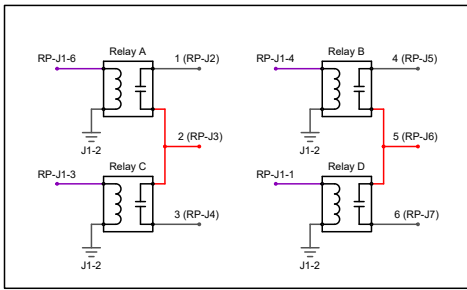


RelayPak (RP100) Schematic Representation



Speed Sensing:

- (1) Input is to be used for a magnetic pickup (MPU) sensor, alternator, or tach output.
- (2) Not required if using AC Voltage for speed sensing.
- (3) The polarity of the inputs does not matter.
- (4) Use twisted pair shielded cable. Leave one side of shield unterminated.
- (5) If using a MPU:
 - (a) A shielded MPU is recommended.
 - (b) One side of the mag. pickup also has to be connected to ground in addition to the controller.

CAN (TG350/TG410) and RS485 (TG410):

- (1) A 120 Ohm impedance twisted pair cable is required.
 - (a) Examples are Belden 9841 (single twisted pair) and Belden 7895A (two twisted pair).
- (2) RS485 requires an extra wire or twisted pair in the cable for RS485 common.
- (3) To prevent noise affecting controller operations bring the shielded cable within at least 6 inches of the terminal. Closer to 3 inches is better.
- (4) Terminate the bus on each end with a 120Ohm resistor.
- (5) Ground the shield on one end. Leave the other end unconnected.

AC Current (CTs): If current readings are unstable try connecting the CT Common's to ground. Ensure the connecting wire is as short as possible.

Sensors: For hardware revisions below 2.0, if using non-isolated (one-wire) sensors connect sensor common to battery negative. Make connection at the same point the main ground connection is made.

Switched Inputs: For runs longer than 20 feet or in noisy environments place a relay in circuit close to controller to prevent false triggering due to noise. See the autostart example in this drawing.

Switched Outputs: Relay drivers. When using to trigger logic a 2.2 kOhm, 1 W resistor is required to be installed from output to ground to ensure the output goes to 0 VDC in off state.

| Main Connector | |
|----------------|-----------------|
| J4-1 | +Battery |
| J4-2 | +Battery |
| J4-3 | Ground |
| J4-4 | Ground |
| J4-5 | Switch Input A |
| J4-6 | Switch Input B |
| J4-7 | Switch Input C |
| J4-8 | Switch Output A |
| J4-9 | Switch Output C |
| J4-10 | Switch Output B |
| J4-11 | Sensor Ground |
| J4-12 | Sensor Input A |
| J4-13 | Sensor Input B |
| J4-14 | Sensor Input C |

| Expansion Connector | |
|---------------------|-------------------|
| J3-1 | Switch Input D |
| J3-2 | Switch Input E |
| J3-3 | Switch Output D |
| J3-4 | Switch Output E |
| J3-5 | Switch Output F |
| J3-6 | Sensor Power (5V) |
| J3-7 | Sensor Ground |
| J3-8 | Sensor Input D |

| Communication Connector | |
|-------------------------|-----------------|
| J6-1 | RS485-A |
| J6-2 | RS485-B |
| J6-3 | Reserved |
| J6-4 | CAN High |
| J6-5 | CAN Low |
| J6-6 | CAN Ground |
| J6-7 | SPEED Input |
| J6-8 | SPEED Reference |
| J6-9 | Reserved |
| J6-10 | RS485 Ground |

| Generator Connector (A) | |
|-------------------------|------------------|
| J5-1 | Gen. Current (A) |
| J5-2 | Gen. Current (B) |
| J5-3 | Gen. Current (C) |
| J5-4 | CT Common |

| Generator Connector (V) | |
|-------------------------|--------------|
| J7-1 | Gen. Phase A |
| J7-2 | Gen. Phase B |
| J7-3 | Gen. Phase C |
| J7-4 | Neutral |