Speed Sensing (Max 50VAC)

Speed 1
Speed 2
Shield

Shield
High
Low
CAN Bus (J1939)
Shield
High
120Ω
Low

Generator

+BAT
Emergency Stop

Battery (5.5-36V)
10A Fuse
(-) (+)

J6
10 9 8 7 6
5 4 3 2 1
120Ω

J7
1
2
3
4

+Battery
Ground

Fuel

J4
8 1
9 2
10 3
11 4
12 5
13 6
14 7

Crank

+BAT

Glow

+BAT

J1
USB Connection

Switch Input B
Switch Input C
Switch Input D
Switch Input E
Switch Output D
Switch Output E

Max 575VAC

J3
1 2 3 4
5 6 7 8

J5
1 A
2 B
3 C
4 N

1A Fuses
A B C N

Sensor Input A (0 - 7,500Ω)
Sensor Input B (0 - 750Ω)
Sensor Input C (0 - 750Ω)

Switch Output F
Sensor Ground
Sensor Input D (Universal)

Autostart Contact
+BAT
Use relay on all switched input runs greater than 20ft.

Load

Engine Temperature
Oil Pressure
Fuel Level
DC Load (Max 1A)
Sensor Input
DC Load (Max 1A)
DC Load (Max 1A)
Switched Inputs can be configured to detect battery, ground, or open.

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 impedence 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	
J3-7	Sensor Ground
J3-8	Sensor Input D

Communication Connector	
J6-1	
J6-2	
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	

Generator Connector (V)	
J5-1	Gen. Phase A
J5-2	Gen. Phase B
J5-3	Gen. Phase C
J5-4	Neutral

J7-1	
J7-2	
J7-3	
J7-4	

TG350 Example
DWG-1551-1R2.0