Gen3 Electrical Wiring Schematics

Fuller AutoShift/UltraShift Transmissions
RRMT0010
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Vehicle Interface Legend
All OEM responsible wiring shown is “typical”. Consult specific application.
(33, 30, 87, 87a) = +12 volt switched from ignition switch
(28-87) = Latch into the ECU
(15-1, 16-8, 17-2, 10-5, 11-G) = Communication from and to the TECU
(23-3) = Signal returns, grounds, and general OEM wiring
(4-85, 21-85) = -12 volt relay source
(22-86, 32-86) = +12 volt relay source
(31-4) = +12 volt switched from TECU
(23-6) = Signal from TECU
(20-87) = Signal into TECU
UltraShift DM3 6-Speed Wiring Diagram with Push Button Shifter

Transmission ECU

30 AMP fuse

Battery power
(Non-switched power) run to starter or Battery

Vehicile Interface Legend

All OEM responsible wiring shown is "typical". Consult specific application.
(38) = +12 volt non-switched from battery
(35) = +12 volt switched from ignition switch
(26) = Latch into the ECU
(27, 28, 10, 11, 3, 2, 1) = Communication from and to the TECU
(36, 25) = Signal returns, grounds, and general OEM wiring
(4, 21) = -12 volt relay source
(22, 32) = +12 volt relay source
(31) = +12 volt switched from TECU
(20) = Signal into the TECU

For Transmission Diagnostics

B - Service Bat. +
C - Service Bat. -
A - Service Ignition +

Gear select sensor
Rail select sensor
Input shaft speed sensor
Output shaft speed sensor
Inertia brake
Rail select motor
Gear select motor
Electric shifter

Terminating resistor

OEM
UltraShift AW3 6-Speed Wiring Diagram with Analog Shifter

Vehicle Interface Legend

- All OEM responsible wiring shown is "typical". Consult specific application.
- (38) = +12 volt non-switched from battery
- (35) = +12 volt switched from ignition switch
- (26) = Latch into the ECU
- (15, 16, 17, 10, 11, 3, 2, 1) = Communication from and to the TECU
- (36, 25) = Signal returns, grounds, and general OEM wiring
- (4) = -12 volt relay source
- (32) = +12 volt relay source
- (31) = +12 volt switched from TECU
- (23) = Signal from TECU

For Transmission Diagnostics

B - Service Bat. +
A - Service Ignition +

Transmission ECU
UltraShift AW3 6-Speed Wiring Diagram with Analog Shifter

Transmission ECU Connector Pins

25 31 15 17 23 36 10 11 26 32 4

Bulkhead connector located at firewall

Transmission
ECU Connector Pins

Dimmer control input
Back side of gauges
Dash lights

10 AMP 12 volt only manual resetting circuit breaker

of 10 AMP fuse

Ignition Key Switch
Runs to main power lead that feeds the ignition bus (OEM responsible for overcurrent protection on this line)
J-1587 data link

J-1939 High
J-1939 Low

+12 volts Battery

Run to starter solenoid
Run to start signal from ignition switch

9-way

Transmission
Diagnostics per SAE Standard

Vehicle Interface Legend

All OEM responsible wiring shown is "typical". Consult specific application.

(35, 30, 87) = +12 volt switched from ignition switch
(25-87) = Latch into the ECU
(15-1, 16-8, 17-2, 10-F, 11-G) = Communication from and to the TECU
(25-3) = Signal returns, grounds, and general OEM wiring
(4-85) = -12 volt relay source
(32-88) = +12 volt relay source
(31-4) = +12 volt switched from TECU
(23-6) = Signal from TECU

J-1939/11 data link (OEM supplied)

Shield termination

Terminating resistor

Engine ECM
UltraShift AW3 6-Speed Wiring Diagram with Push Button Shifter

Vehicle Interface Legend
All OEM responsible wiring shown is "typical". Consult specific application.

- (38) = +12 volt non-switched from battery
- (35) = +12 volt switched from ignition switch
- (26) = Latch into the ECU
- (27, 28, 10, 11, 3, 2, 1) = Communication from and to the TECU
- (36, 25) = Signal returns, grounds, and general OEM wiring
- (4) = -12 volt relay source
- (32) = +12 volt relay source
- (31) = +12 volt switched from TECU

For Transmission Diagnostics
B - Service Bat. +
C - Service Bat. -
A - Service Ignition +

Battery power (Non-switched power) run to starter or Battery

30 AMP fuse

Bulkhead connector located at firewall

Transmission ECU

Hydraulic manifold Assembly

30 AMP fuse

Input shaft speed sensor

Rail select sensor

Gear select sensor

Output shaft speed sensor

Inertia brake

Terminating resistor

OEM

4-way

B - Service Bat. +
C - Service Bat. -
A - Service Ignition +
AutoShift 10-Speed Wiring Diagram with Analog Shifter

Transmission ECU

Vehicle Interface Legend
All OEM responsible wiring shown is "typical". Consult specific application.

- (38) = +12 volt non-switched from battery
- (35) = +12 volt switched from ignition switch
- (26) = Latch into the ECU
- (15, 17, 10, 11, 3, 2, 1) = Communication from and to the TECU
- (36, 25) = Signal returns, grounds, and general OEM wiring
- (4) = -12 volt relay source
- (32) = +12 volt relay source
- (31) = +12 volt switched from TECU
- (23) = Signal from TECU

Battery power
(Non-switched power) run to starter or Battery

30 AMP fuse

For Transmission Diagnostics
4-way

B - Service Bat. +
C - Service Bat. -
A - Service Ignition +
**AutoShift 10-Speed Wiring Diagram with Analog Shifter**

**Transmission ECU Connector Pins**
- 25
- 31
- 15
- 16
- 17
- 33
- 35
- 10
- 11
- 26
- 32
- 4

**Bulkhead connector located at firewall**

**Ignition Key Switch**
- Runs to main power lead that feeds the ignition bus (OEM responsible for overcurrent protection on this line)

**J-1587 data link**

**J-1939 High**

**J-1939 Low**

**+12 volts Battery**

**Run to starter solenoid**

**Run to start signal from ignition switch**

**Start enable relay**

**Vehicle Interface Legend**

All OEM responsible wiring shown is "typical". Consult specific application.

- (35, 30, 87) = +12 volt switched from ignition switch
- (26-87) = Latch into the ECU
- (15-1, 16-3, 17-2, 10-5, 11-6) = Communication from and to the TECU
- (25-3) = Signal returns, grounds, and general OEM wiring
- (4-85) = -12 volt relay source
- (32-86) = +12 volt relay source
- (31-4) = +12 volt switched from TECU
- (23-6) = Signal from TECU
AutoShift 10-Speed Wiring Diagram with Push Button Shifter

Transmission ECU

30 AMP fuse

Battery power
(Non-switched power)
run to starter or Battery

Vehicle Interface Legend
All OEM responsible wiring shown is “typical”. Consult specific application.

(38) = +12 volt non-switched from battery
(35) = +12 volt switched from ignition switch
(26) = Latch into the ECU
(27, 28, 10, 11, 3, 2, 1) = Communication from and to the TECU
(36, 25) = Signal returns, grounds, and general OEM wiring
(4) = -12 volt relay source
(32) = +12 volt relay source
(31) = +12 volt switched from TECU
AutoShift 10-Speed Wiring
Diagram with Push Button Shifter

Vehicle Interface Legend

All OEM responsible wiring shown is "typical". Consult specific application.

- (35, 30, 87) = +12 volt switched from ignition switch
- (26-87) = Latch into the ECU
- (27-F2, 28-F1, 10-F, 11-G) = Communication from and to the TECU
- (25-J3) = Signal returns, grounds, and general OEM wiring
- (4-85) = -12 volt relay source
- (32-86) = +12 volt relay source
- (31-C1) = +12 volt switched from TECU

For transmission Diagnostics per SAE Standard
10 AMP 12 volt only manual resetting circuit breaker
10 AMP fuse

Dimmer control input
Back side of gauges

J-1939 High
J-1939 Low

+12 volts
Battery

Run to
starter solenoid
Run to start
signal from
ignition switch
Start enable
relay

J-1587 data link

Engine ECM

J-1939/11 data link
(OEM supplied)

Shield termination
Terminating
resistor

Bulkhead connector located at firewall

Push Button Control 30-way connector

Push Button Shift Control

Transmission ECU Connector Pins

Diag
UltraShift 10-Speed Wiring Diagram with Analog Shifter

Transmission ECU

Battery power (Non-switched power) run to starter or Battery

30 AMP fuse

Vehicle Interface Legend

All OEM responsible wiring shown is "typical". Consult specific application.

(38) = +12 volt non-switched from battery
(35) = +12 volt switched from ignition switch
(26) = Latch into the ECU
(15, 16, 17, 10, 11, 3, 2, 1) = Communication from and to the TECU
(36, 25) = Signal returns, grounds, and general OEM wiring
(4, 21) = -12 volt relay source
(22, 32) = +12 volt relay source
(31) = +12 volt switched from TECU
(23) = Signal from TECU
(20) = Signal into the TECU

For Transmission Diagnostics

4-way

B - Service Bat. +
C - Service Bat. -
A - Service Ignition +

Inertia brake (Optional)

Rail select motor

Gear select motor

Rail select sensor

Input shaft speed sensor

Main shaft speed sensor

Output shaft speed sensor

Range valve

OEM

Terminate resistor

(38) = +12 volt non-switched from battery
(35) = +12 volt switched from ignition switch
(26) = Latch into the ECU
(15, 16, 17, 10, 11, 3, 2, 1) = Communication from and to the TECU
(36, 25) = Signal returns, grounds, and general OEM wiring
(4, 21) = -12 volt relay source
(22, 32) = +12 volt relay source
(31) = +12 volt switched from TECU
(23) = Signal from TECU
(20) = Signal into the TECU
UltraShift 10-Speed Wiring Diagram with Analog Shifter

**For Transmission Diagnostics per SAE Standard**

- J-1939 High
- J-1939 Low
- +12 volt battery
- J-1587 data link

**Vehicle Interface Legend**

All OEM responsible wiring shown is "typical". Consult specific application.

- (35, 30, 87, 87a) = +12 volt switched from ignition switch
- (26-87) = Latch into the ECU
- (15-1, 16-8, 17-2, 10-F, 11-G) = Communication from and to the TECU
- (25-3) = Signal returns, grounds, and general OEM wiring
- (4-85, 21-85) = -12 volt relay source
- (22-86, 32-86) = +12 volt relay source
- (31-4) = +12 volt switched from TECU
- (23-6) = Signal from TECU
- (20-87) = Signal into TECU

**Illuminating Key Switch**

Runs to main power lead that feeds the ignition bus (OEM responsible for overcurrent protection on this line)

- Bulkhead connector located at firewall
- Elevator control input
- Back side of gauges
- Dash lights
- 10 AMP 12 volt only manual resetting circuit breaker
- or 10 AMP fuse
- Ignition Key Switch
- Engine Power Relay
- Fused 10 AMP 12 volt manual resetting circuit breaker
- or 10 AMP fuse
- Engine ECM
- Run to main power lead that feeds the ignition bus (OEM responsible for overcurrent protection on this line)
- Ignition Interrupt relay
- + Run to ignition input on Engine ECM
- Run to starter solenoid
- Vehicle Interface Legend
- Start enable relay
- Run to start signal from ignition switch
- J-1939/11 data link (OEM supplied)
UltraShift 10-Speed Wiring Diagram with Push Button Shifter

Transmission ECU

Vehicle Interface Legend

All OEM responsible wiring shown is "typical". Consult specific application.

(38) = +12 volt non-switched from battery
(35) = +12 volt switched from ignition switch
(26) = Latch into the ECU
(27, 28, 10, 11, 3, 2, 1) = Communication from and to the TECU
(36, 25) = Signal returns, grounds, and general OEM wiring
(4, 21) = +12 volt relay source
(22, 32) = +12 volt relay source
(31) = +12 volt switched from TECU
(20) = Signal into the TECU
UltraShift 10-Speed Wiring Diagram with Push Button Shifter

**Push Button Shift Control**

**Push Button Control**
30-way connector

**Dimmer control input**
Back side of gauges
Dash lights

**10 AMP 12 volt only manual resetting circuit breaker**

**10 AMP fuse**

**Ignition Key Switch**
Runs to main power lead that feeds the ignition bus (OEM responsible for overcurrent protection on this line)

**J-1939/11 data link** (OEM supplied)

For Transmission Diagnostics per SAE Standard

**J-1939 High**
**J-1939 Low**
+12 volts battery

**J-1587 data link**

Run to
- starter solenoid
- Run to start signal from ignition switch
- 9-way

**Bulkhead connector located at firewall**

**Engine ECM**

**Engine Power Relay**
Fused 10 AMP 12 volt manual resetting circuit breaker

**10 AMP fuse**

* Run to ignition input on Engine ECM

**Ignition Interrupt relay**

**Vehicle Interface Legend**

All OEM responsible wiring shown is "typical". Consult specific application.

(35, 30, 87, 87a) = +12 volt switched from ignition switch
(26-87) = Latch into the ECU
(27-F2, 28-F1, 10-F, 11-G) = Communication from and to the TECU
(25-J3) = Signal returns, grounds, and general OEM wiring
(4-85, 21-85) = -12 volt relay source
(22-86, 32-86) = +12 volt relay source
(31-C1) = +12 volt switched from TECU
(20-87) = Signal into TECU
UltraShift 13-Speed Wiring Diagram with Analog Shifter

Transmission ECU

OEM

30 AMP fuse

Battery power (Non-switched power) run to starter or Battery

Vehicle Interface Legend

All OEM responsible wiring shown is "typical". Consult specific application.

- (38) = +12 volt non-switched from battery
- (35) = +12 volt switched from ignition switch
- (26) = Latch into the ECU
- (15, 16, 17, 10, 11, 3, 2, 1) = Communication from and to the TECU
- (36, 25) = Signal returns, grounds, and general OEM wiring
- (4, 21) = -12 volt relay source
- (22, 32) = +12 volt relay source
- (31) = +12 volt switched from TECU
- (23) = Signal from TECU
- (20) = Signal into the TECU

For Transmission Diagnostics

4-way

B - Service Bat. +
C - Service Bat. -
A - Service Ignition +

Rail select sensor

Gear select sensor

Input shaft speed sensor

Output shaft speed sensor

Main shaft speed sensor

Range valve

Splitter valve

Inertia brake

Rail select motor

Electric shifter

Gear select motor

B - Service Bat. +
C - Service Bat. -
A - Service Ignition +
UltraShift 13-Speed Wiring Diagram with Analog Shifter

- **J-1939/11 data link** (OEM supplied)
- **GND**
- **Shield termination**
- **Terminating resistor**

**UltraShift 13-Speed Wiring Diagram with Analog Shifter**

- **Engine ECM**
- **Engine Power Relay**
- **Fused 10 AMP 12 volt manual resetting circuit breaker**
- **Dimmer control input**
- **Back side of gauges Dash lights**
- **10 AMP 12 volt only manual resetting circuit breaker or 10 AMP fuse**
- **Ignition Key Switch**
  - Runs to main power lead that feeds the ignition bus (OEM responsible for overcurrent protection on this line)
- **J-1587 data link**
- **J-1939 High**
- **J-1939 Low**
- **+12 volts battery**
- **Run to starter solenoid**
- **Run to start signal from ignition switch**
- **Start enable relay**
- **9-way**

**For Transmission Diagnostics per SAE Standard**

**Vehicle Interface Legend**

All OEM responsible wiring shown is "typical." Consult specific application.

- (35, 30, 87, 87a) = +12 volt switched from ignition switch
- (26-87) = Latch into the ECU
- (15-1, 16-8, 17-2, 10-F, 11-G) = Communication from and to the TECU
- (25-3) = Signal returns, grounds, and general OEM wiring
- (4-85, 21-85) = -12 volt relay source
- (22-86, 32-86) = +12 volt relay source
- (31-4) = +12 volt switched from TECU
- (23-6) = Signal from TECU
- (20-87) = Signal into TECU

- **Run to ignition input on Engine ECM**
- **+12 volt switched from ignition switch**
- **Latch into the ECU**
- **Communication from and to the TECU**
- **Signal returns, grounds, and general OEM wiring**
- **-12 volt relay source**
- **+12 volt relay source**
- **+12 volt switched from TECU**
- **Signal from TECU**
- **Signal into TECU**
UltraShift 13-Speed Wiring Diagram with Push Button Shifter

Transmission ECU

Battery power
(Non-switched power)
run to starter or Battery

Vehicle Interface Legend
All OEM responsible wiring shown is "typical". Consult specific application.
(38) = +12 volt non-switched from battery
(35) = +12 volt switched from ignition switch
(26) = Latch into the ECU
(27, 28, 10, 11, 3, 2, 1) = Communication from and to the TECU
(36, 25) = Signal returns, grounds, and general OEM wiring
(4, 21) = -12 volt relay source
(22, 32) = +12 volt relay source
(31) = +12 volt switched from TECU
(20) = Signal into the TECU

For Transmission Diagnostics

B - Service Bat. +
C - Service Bat. -
A - Service Ignition +
AutoShift 18-Speed Wiring Diagram with Analog Shifter

Transmission ECU

Vehicle Interface Legend
All OEM responsible wiring shown is "typical". Consult specific application.

- (38) = +12 volt non-switched from battery
- (35) = +12 volt switched from ignition switch
- (26) = Latch into the ECU
- (15, 16, 17, 10, 11, 3, 2, 1) = Communication from and to the TECU
- (36, 25) = Signal returns, grounds, and general OEM wiring
- (4) = -12 volt relay source
- (32) = +12 volt relay source
- (31) = +12 volt switched from TECU
- (23) = Signal from TECU

Battery power
(Non-switched power)
run to starter or Battery
AutoShift 18-Speed Wiring Diagram with Analog Shifter

**Ignition Key Switch**
- Runs to main power lead that feeds the ignition bus (OEM responsible for overcurrent protection on this line)

**Transmission ECU Connector Pins**
- Back side of gauges
- Dash lights
- 10 AMP 12 volt only manual resetting circuit breaker
- or 10 AMP fuse

**Vehicle Interface Legend**

All OEM responsible wiring shown is "typical". Consult specific application.

- \((35, 30, 87) = +12\) volt switched from ignition switch
- \((26-87) = \text{Latch into the ECU}\)
- \((15-1, 16-8, 17-2, 10-F, 11-G) = \text{Communication from and to the TECU}\)
- \((25-3) = \text{Signal returns, grounds, and general OEM wiring}\)
- \((4-85) = -12\) volt relay source
- \((32-86) = +12\) volt relay source
- \((31-4) = +12\) volt switched from TECU
- \((23-6) = \text{Signal from TECU}\)
AutoShift 18-Speed Wiring Diagram with Push Button Shifter

Transmission ECU

For Transmission Diagnostics

4-way

B - Service Bat. +
C - Service Bat. -
A - Service Ignition +

30 AMP fuse

Battery power
(Non-switched power)
run to starter or Battery

Vehicle Interface Legend

All OEM responsible wiring shown is "typical". Consult specific application.

(38) = +12 volt non-switched from battery
(33) = +12 volt switched from ignition switch
(26) = Latch into the ECU
(27, 28, 10, 11, 3, 2, 1) = Communication from and to the TECU
(36, 25) = Signal returns, grounds, and general OEM wiring
(4) = -12 volt relay source
(31) = +12 volt switched from TECU
AutoShift 18-Speed Wiring Diagram with Push Button Shifter

Push Button Shift Control

Transmission ECU Connector Pins

Dimmer control input Back side of gauges

10 AMP 12 volt only manual resetting circuit breaker or

10 AMP fuse

Ignition Key Switch Runs to main power lead that feeds the ignition bus (OEM responsible for overcurrent protection on this line)

J-1939/11 data link (OEM supplied)

Vehicle Interface Legend

All OEM responsible wiring shown is "typical". Consult specific application.

- (35, 30, 87) = +12 volt switched from ignition switch
- (26-87) = Latch into the ECU
- (27-F2, 28-F1, 10-F, 11-G) = Communication from and to the TECU
- (25-JS) = Signal returns, grounds, and general OEM wiring
- (4-85) = -12 volt relay source
- (32-96) = +12 volt relay source
- (31-C1) = +12 volt switched from TECU

For transmission Diagnostics per SAE Standard

- +12 volts Battery
- Run to Starter solenoid
- Run to start signal from ignition switch
- Start enable relay