

Orscheln Electronic Solutions

*Whatever your motion control needs...
Orscheln delivers electronic solutions.*



Orscheln Electronic Solutions

Custom Products

Full Design Capability

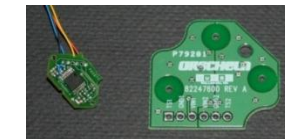
- Systems Engineering
- PCB Design
- Software
- Mechanical Design
- Molded Housings

Design Verification

- Environmental
 - ✦ Temperature
 - ✦ Vibration
 - ✦ Water Ingression
 - ✦ Salt Spray
- Electrical
 - ✦ EMI

Manufacturing

- Contract Assembly
- Electromechanical Assembly
- Automated Visual Inspection



Standard Products

- Non-Contact Sensors
- Electronic Throttle Controls
- Electronic Shift Controls
- Shift Sequence Sensing
- Electronic Interlocks
- Electronic Actuators
- Diagnostic Tools
- Remote Controls

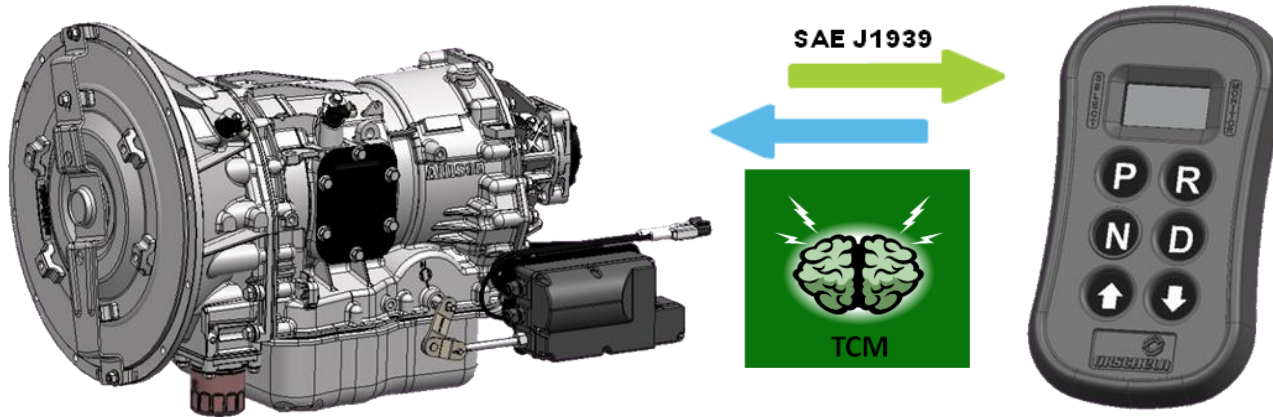


ESAS

Electronic Shift Actuator System

ESAS is designed for Electro-Mechanical transmissions to provide a shift-by-wire system that operates over CAN J1939. It can be programmed to communicate with the TCM to provide diagnostic feedback. It also provides for bump shifting in applications where needed.

Shift-by-Wire System Overview



The electric motor actuator has an integrated motor controller with J1939 control protocol. DC power and digital communications signal are only wires which must be connected. The 3 inch linear shaft output can be set-up for either direct mount or remote connection via a control cable and has a positioning accuracy of 0.050 inch.

The push button shift selector is configured to offer versatile solutions for electronic shift control requirements. Based on J1939 CAN communication. Programmable control and communication PCB. It has a bright OLED display and options are available on button labeling and configuration. Easy to install with U-bracket panel mount.

Transmission range:**Technical requirements:**

Power

Pin

Shaft

Size

EMI

CAN

Messages

Baud rate

Selector

Park Pawl

Fording capability

Failure mode

Bracket, Bolts & Nuts

Electro-Mechanical

- 12 / 24 volt

- Free pin in all ranges

- Shaft angles - multiple

- Compact

- Meet EU / US

- J1939-27 and J1939-15 "lite"

- Programmable

- 250 Kb/s and 500 Kb/s

- Push Button: (J1939)

- Other: custom

- Optional

- Meet IEC 60529 – IP69

- Never fail-to-neutral (only when in Neutral)

- No Hexavalent chromium coating

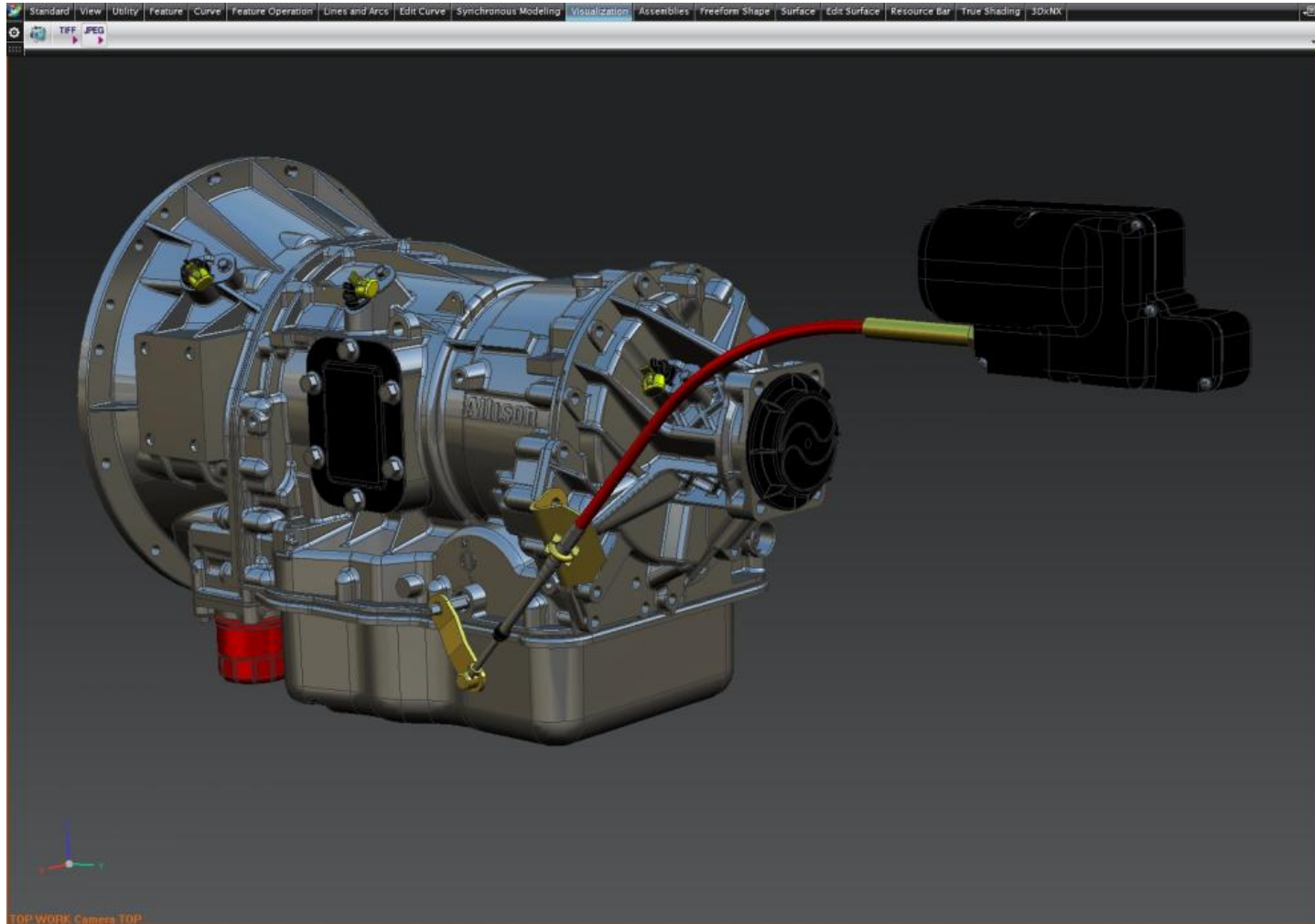


"Smart" Actuator Key Features / Benefits

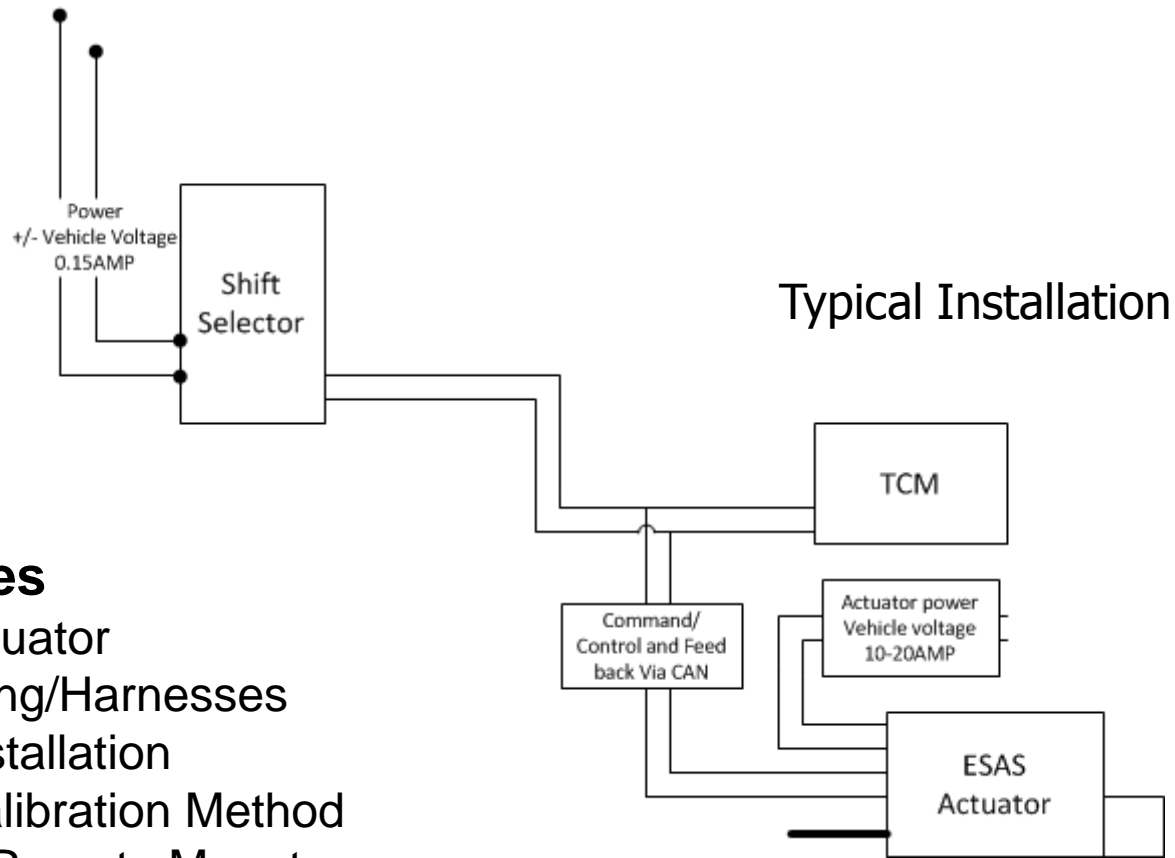
FEATURE	BENEFIT
"Smart " electric motor actuator with integrated motor controller	<ul style="list-style-type: none"> • Simplifies electrical connections – DC power and digital communications signal are only wires which must be connected • Integrated motor controller increases actuator reliability by eliminating motor feedback wire connections
Motor feedback uses Hall effect sensor	Increased actuator reliability due to non-contact technology feedback sensor
"High Output" actuator motor design	Provides sufficient strength to pull out of park position at temperature extremes
Linear shaft output	Actuator can be setup for either a direct connection or remote connection via control cable
Sealed actuator design with heavy duty metal enclosure	Actuator can be located anywhere and is suitable for heavy duty applications

Remote Mount Actuator

6



ESAS Schematic

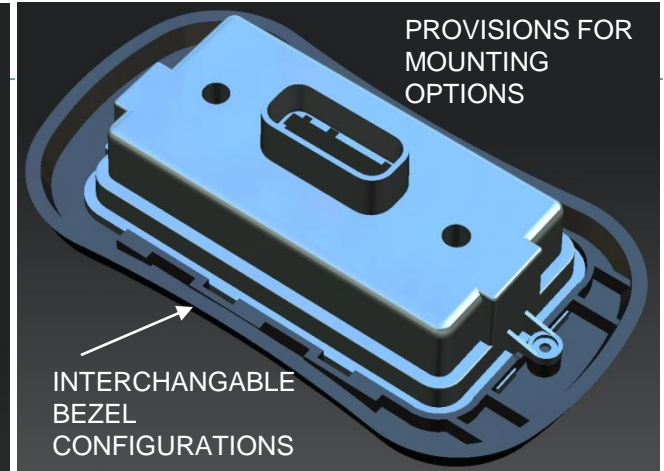


Advantages

- ◉ Smart Actuator
- ◉ Less Wiring/Harnesses
- ◉ Easier Installation
- ◉ Easier Calibration Method
- ◉ Direct or Remote Mount
- ◉ Less Time/Labor = Value



Push-Button Shift Selector

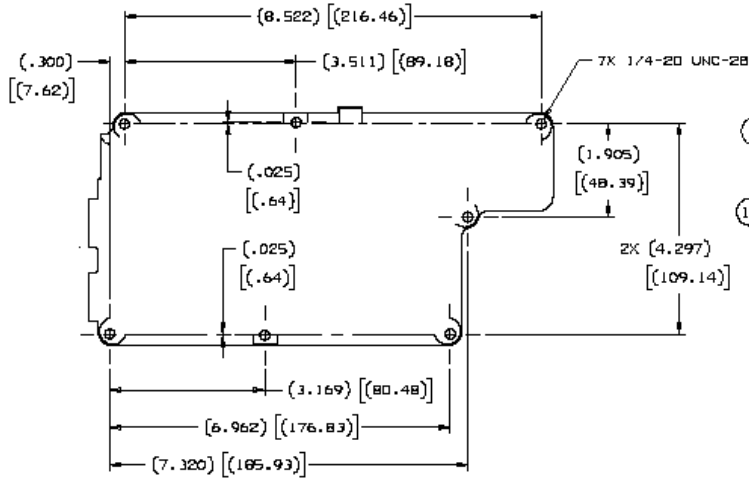


The push button shift selector is configured to offer versatile solutions for electronic shift control requirements. Based on J1939 CAN communication. Programmable control and communication PCB. It has a bright OLED display and options are available on button labeling and configuration. 12 and 24 volt. Easy to install with U-bracket panel mount.

Variable Button Configurations Available



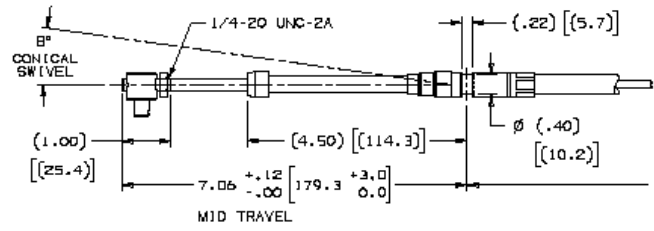
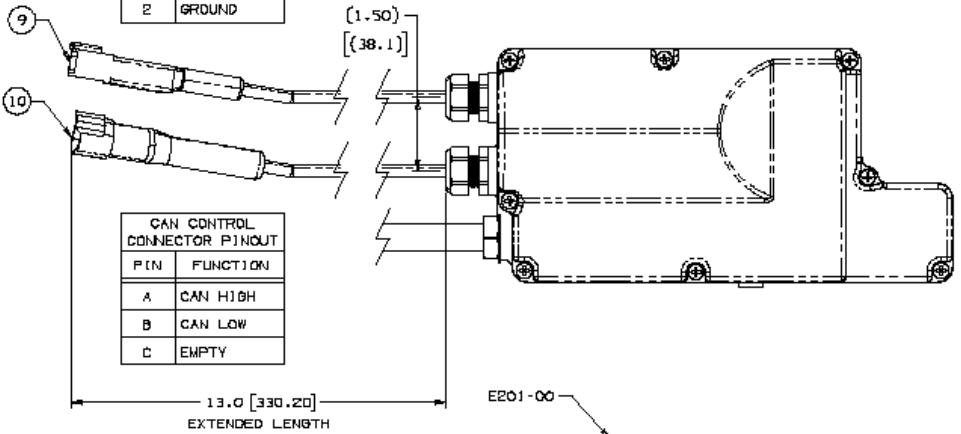




ACTUATOR MOUNTING HOLES

DC POWER CONNECTOR PINOUT	
PIN	FUNCTION
1	SUPPLY
2	GROUND

CAN CONTROL CONNECTOR PINOUT	
PIN	FUNCTION
A	CAN HIGH
B	CAN LOW
C	EMPTY



MID TRAVEL

- NOTES UNLESS OTHERWISE SPECIFIED:
1. MINIMUM CABLE BEND RADIUS (OPTIMUM LIFE): 7.09 [180.0]
 2. TEMPERATURE RANGE: -40° TO +225°F
 3. CABLE PERMANENTLY LUBRICATED
 4. ALL FITTINGS ARE CORROSION RESISTANT
 5. TOLERANCE ON CABLE LENGTH:
 - UP THRU 120 +.25/-0.00 [3048 +6.4/-0.0]
 - FROM 120 THRU 240 +.25 [3048 THRU 6096 +6.4]
 - FROM 240 THRU 360 +.3B/-0.25 [6096 THRU 9144 +9.7/-6.4]
 - FROM 360 THRU 600 +.5/-0.25 [9144 THRU 15240 +12.7/-6.4]
 6. RECOMMENDED FUSE: ZDA
 7. MAX MOUNTING TORQUE 70-93 IN-LBF [7.8-10.5 N-m]
 8. PREPROGRAMMED CABLE TRAVEL 2.5 IN.

- ⓑ 9 DC POWER (DEUTSCH DT04-2P-E004, TIN PLATED TERMINALS) MATES WITH DT06-26-P012
- ⓑ 10 CAN CONTROL (DEUTSCH DT04-3P-E00B, TIN PLATED TERMINALS) MATES WITH DT06-35-E00B

PROPRIETARY NOTICE THIS DOCUMENT AND ALL DATA CONTAINED HEREIN ARE PROPRIETARY INFORMATION OF ORSCHELN AND IS CLASSIFIED AS "CONFIDENTIAL". NO PART OF THIS DOCUMENT IS TO BE REPRODUCED, COPIED, OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF ORSCHELN. THIS NOTICE IS APPLICABLE TO ALL FORMS OF REPRODUCTION, INCLUDING ELECTRONIC AND MECHANICAL. THIS NOTICE IS APPLICABLE TO ALL FORMS OF REPRODUCTION, INCLUDING ELECTRONIC AND MECHANICAL. THIS NOTICE IS APPLICABLE TO ALL FORMS OF REPRODUCTION, INCLUDING ELECTRONIC AND MECHANICAL.		NOTES 9 & 10: RMY PRELIMINARY STAMP		RTSB		
		15070 012111	B 01	ADDED "TIN PLATED TERMINALS" TO	CA SB	
		15070 011211	A 01	ADDED CONNECTOR VIEW AND NOTES 7-10	RT SB	
		15070 121310	-- 00	ORIGINATED DRAWING, WAS 62221800	RT SB	
ECN		DATE	REV	LV	REVISION	DRCK
MATERIAL		---		---		---
WOBELLY, MO CASE CODE: 92867		DO NOT SCALE COPY THIRD ANGLE PROJECTION		RTHOMAS NAME	SBRUNER DATE 121310	ACTUATOR HYBRID
		SCALE: ANG ± 2 DIM ± .005 DEC ± .005				

For Discussion Only

Automatic Transmission Control Systems



- Over 30 years experience with Automatic Controls Systems
 - Mechanical and Electronic
- Systems – applications approach – Not just parts
- Global brand name recognition
- Designs for optimal performance
- Electronics integration
- Global support / distribution
- Over 1 million units in field



Orscheln Integrates Products for Powertrain and OEM Customers

Thank You!!

13

Company Profile

- Founded in 1946
- Private Family Owned
- Headquartered in Moberly, MO
- Member of the Orscheln Group
- Manufacturer for the OEM On-Highway, Off-highway, Marine, Military and Aviation Industries
- 4 Global Sales & Manufacturing Locations: North America, United Kingdom, India, China
- 110 Distributor Locations



For more information please contact us at:

www.orschelnproducts.com