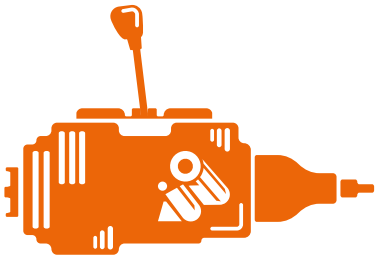
PARK LOCK
ACTUATOR



TRANSMISSION EFFICIENCY

Improving the performance of transmissions and the drive train

GREENSHIFT
BY EFI AUTOMOTIVE

Description of functionality:

The Park Lock function is required for vehicles with automatic transmissions, in particular for electric or highly hybridized vehicles, in order to immobilize the vehicle during the parking phase and guarantee the safety of nearby people and property.

The strong growth in the electrification of drive chains, reinforced by the growth in the automation of vehicles, has led to the implementation of electric actuators, whose action consists of activating a trigger in a toothed wheel in order to create positive locking of the transmission and immobilize the vehicle.

Electrical technology with on-board electronics allows for better integration with future automotive electronic architectures, and contributes to extended battery life, advanced diagnostic requirements, and the creation of data related to the use of the function.

EFI's Park Lock actuator benefits from the latest advances in the Greenshift product line, combining high power density and advanced control law to provide a product with unmatched compactness and an ease of integration which is compatible with approaches.

Technical characteristics

- Wide range of output torque
- Highly compact
- Precise position measurement of the output shaft which is immune to electromagnetic interference
- Very fast response time
- Compatible with ISO26262 ASIL B and ASIL C
- Proven watertightness
- Option with and without on-board electronics
- Broad diagnostic options (for actuators with electronics)
- Cybersecurity protected (for actuators with electronics)

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SPEED
SENSOR

	Monodirectional Speed Sensor				
	Minimum	Typ.	Maximum	Units	
Number of pins		2			
Direction detection		No			
Temperature	-40		150	°C	
Supply voltage	4,5	9	20	V	
Max voltage		24		V	
Low current value	6	7	8	mA	
High current value	12	14	16	mA	
Airgap	0,5	1	1,5	mm	To be confirmed with implementation stack up
Reverse supply voltage			18	V	30 min
Speed	0		12000	Hz	Depends on number of teeth
Power-on time			1	ms	
Initial calibration			3	Front	
Repeatability		±1		%	Depends on target profile and airgap stack up.

	Bidirectional Speed Sensor				
	Minimum	Typ.	Maximum	Units	
Number of pins		2			
Direction detection		**Yes**			
Temperature	-40		150	°C	
Supply voltage	4,5	9	20	V	
Max voltage		24		V	
Pulse width in forward direction	38	45	52		
Pulse width in reverse direction	76	90	104		
Non-directional pulse	153	180	207		Occurs in case of vibration
Low current value	6	7	8	mA	
High current value	12	14	16	mA	
Airgap	0,5	1	1,5	mm	To be confirmed with implementation stack up
Reverse supply voltage			-18	V	30 min
Speed (forward)	0		12000	Hz	Depends on number of teeth
Speed (reverse)	0		12000		Depends on number of teeth
Power-on time			1	ms	
Initial calibration			8	Front	
Repeatability		±1		%	Depends on target profile and airgap stack up

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