



Electrical Information

XAP EShift 2

2017

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V 1.2

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Unit Model Information:

EShift 2

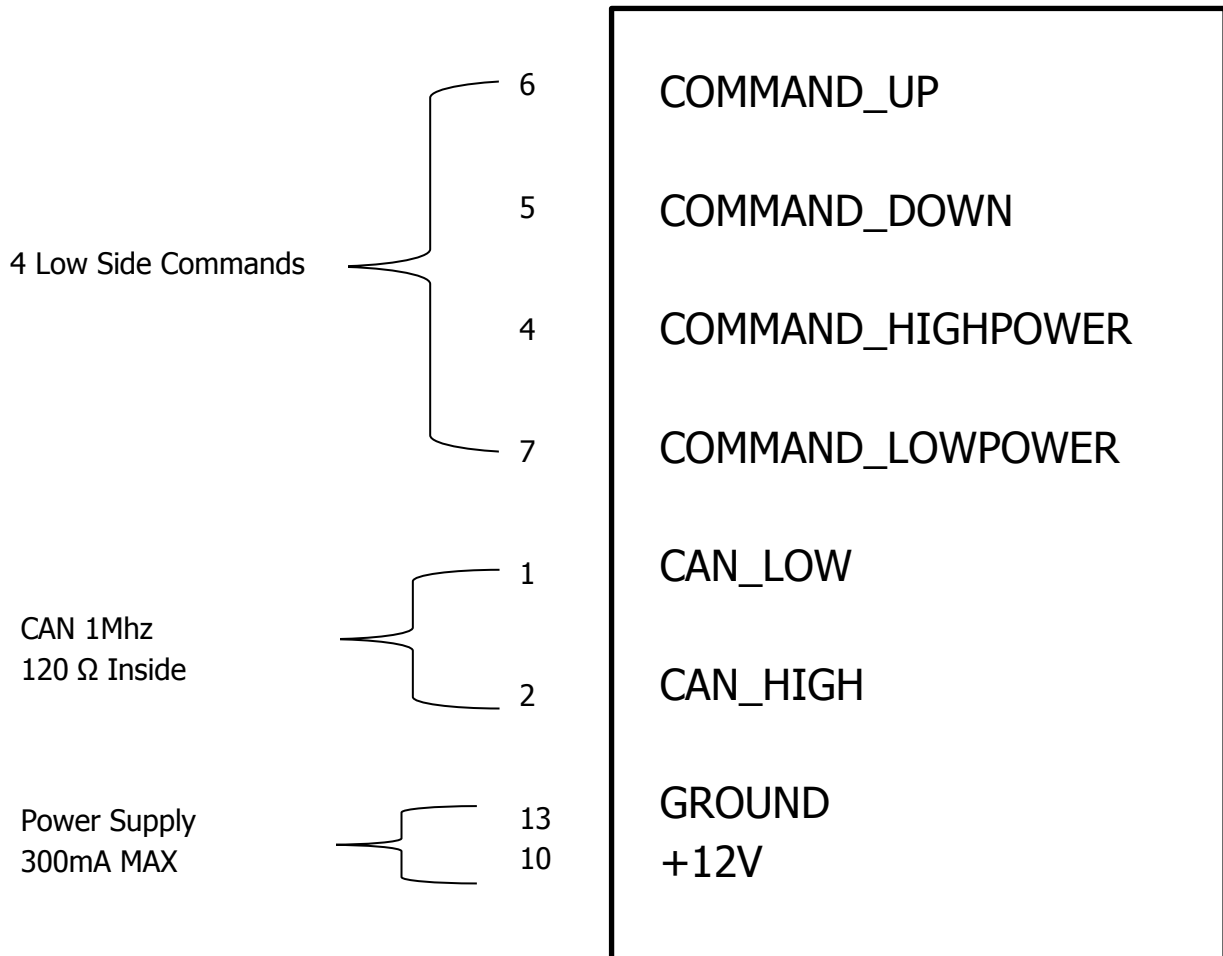
LV: Standard Actuator

RO: Optional Bearing Mount for fixation to chassis/gearbox

SP: Optional Non-Contact Position Sensor (only for data-logging, not closed-loop)

Command Connector

The connector for the loom is part number 8STA-6-10-35-SN and already fitted to the actuator is 8STA-2-10-35-PN.



COMMAND_UP: The unit pushes away from the body.

COMMAND_DOWN: The unit pulls into the body.

COMMAND_HIGHPOWER: High Power Mode – For use from 1st through all other forward gears.

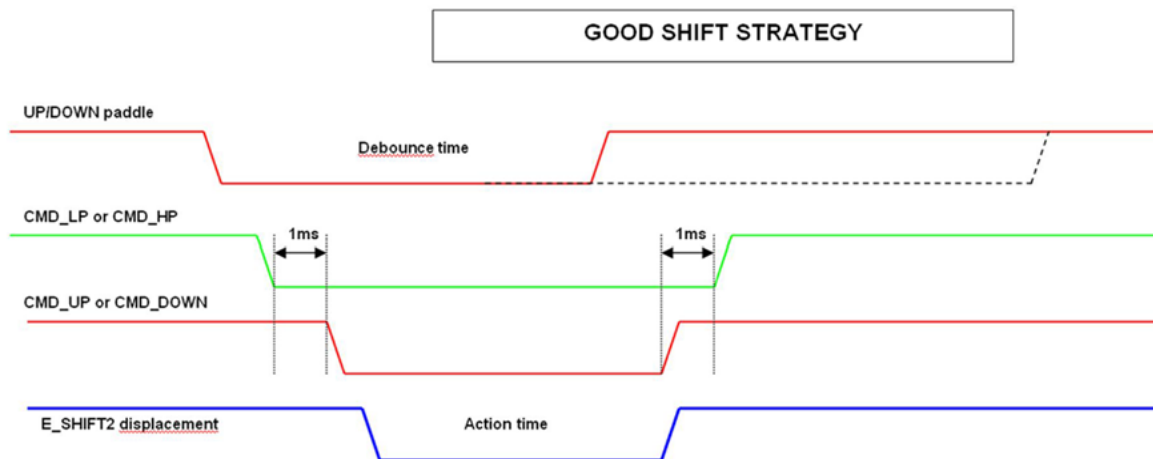
COMMAND_LOWPOWER: Low Power Mode – For use to move from Neutral to 1st or Reverse.

Shift Strategy

Timing:

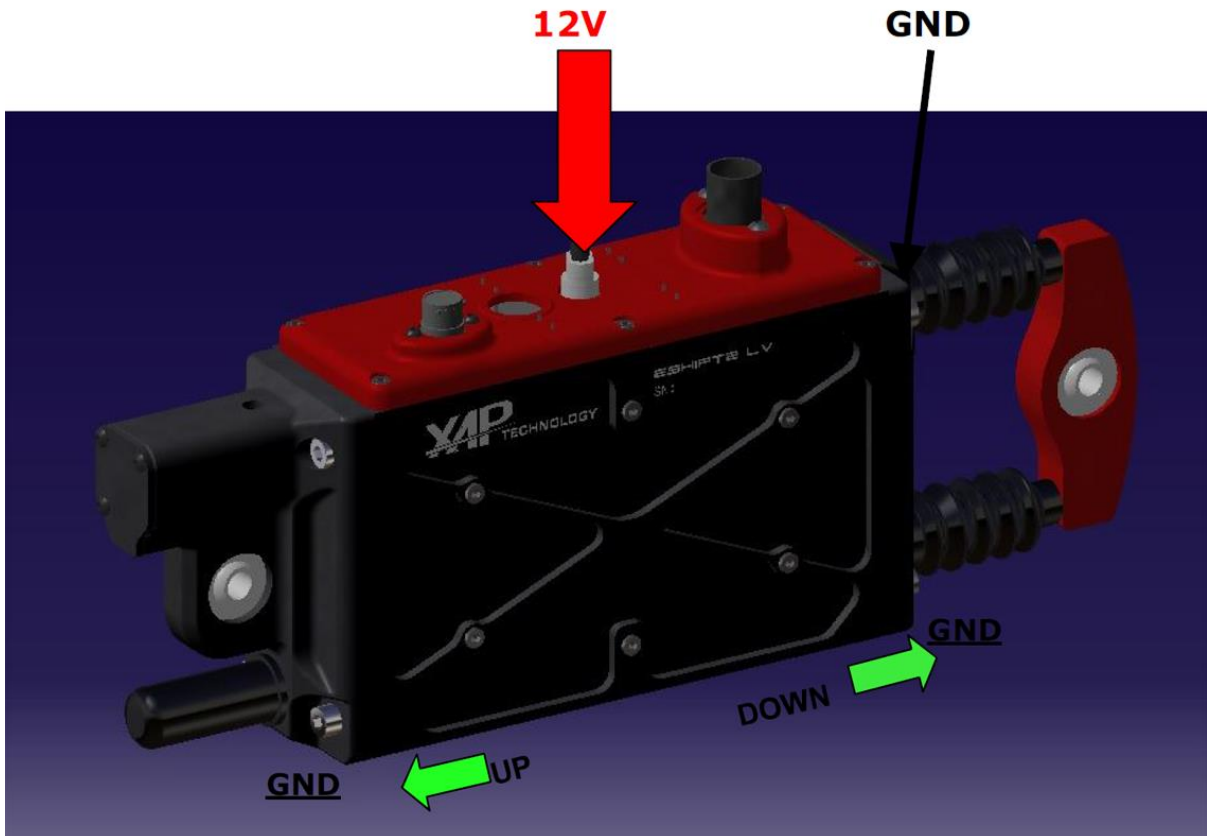
- Activate Low or High Power Mode.
- Wait 1mS (This can be included in the paddle de-bounce time).
- Activate Command Up or Command Down to activate the actuator in one way.
- Release Command Up or Command Down when the gear has changed.
- Wait 1mS.
- Release Low or High Power Mode.

Example:



Power Supply

- Always check you have the best possible Ground as a bad contact can damage the unit's board.
- Use +12v supply wiring capable of 100 Amps (Min. 12mm²).
- Bearing Option Mount units should be Ground to the unit body using the areas marked below.
- Standard units are Ground through the mounting feet.



CAN Protocol

- CAN 2.0B
- 1,000 Kbit/s Rate
- 11 Bit Identifiers
- Big Endian
- 120 Ohm Resistor Termination Included

Frame 0x400: Actuator Measure

ID Hex (Dec)	Rate
0x440 (1088)	200Hz

Detailed Payload Description

Byte	Name	External Name	Calibration	Notes
0	Position Sensor	XAP_ACT_POS	U16	
1				
2	Position Sensor Filters	XAP_ACT_POS_FIL	U16	
3				
4	12v Power Supply	XAP_ACT_12VMEAS	U16 (0.0163V/bit)	
5				
6	Coil Current	XAP_ACT_CSOUT	U16 (1mA/bit)	
7				

Continued...

Frame 0x401: Actuator State

ID Hex (Dec)	Rate
0x441 (1089)	200Hz

Detailed Payload Description

Byte	Name	External Name	Calibration	Notes
0	Actuator State	XAP_ACT_ST	U8 (bitmap)	See Below
1	Command Diag	XAP_ACT_CMD_DIAG	U8 (bitmap)	See Below
2	Running Counter	XAP_ACT_CNT	U16 (1/bit)	
3				
4	Internal Temperature	XAP_ACT_TPCARTE	U8 (1°/bit)	
5	Position Sensor Diag	XAP_ACT_POS_DIAG	U8 (bitmap)	0: OK, 1: Fault
6	Software Version	XAP_ACT_VERSION	U8 (1/bit)	
7				

XAP_ACT_ST bitmap

Bit	Description	Notes
0	Return UP	
1	Return DW	
2	Ready	
3	Active	
4	Rest	
5	Return	

Continued...

XAP_CMD_DIAG bitmap

Bit	Description	Notes
0	CMD_21UP	
1	CMD_21DW	
2	CMD_14UP	
3	CMD_14DW	
4	CMD_14UP_R	
5	CMD_14DW_R	
6	Diag FF1	
7	Diag FF2	

Recommendations

- Over-current of the unit (>150 Amps) will trigger shut down. The unit will reset. You can also power OFF then ON to re-activate.
- Shift times over 50mS will trigger shut down. The unit will reset. You can also power OFF then ON to re-activate.
- For the long life of your actuator we recommend to check for any abnormal wear on the unit.
- Clean the moving shafts with WD40 to remove any debris or loose dirt.
- If the unit is misaligned or twisted this can cause significant damage and premature wear.
- The end of the stroke is done by the gearbox or lever and NOT the actuator. The magnet may break internally.
- Always check you have the best possible Ground as a bad contact can damage the unit's board.

Technical

- IP68 Rated (1.5m water for 30 minutes)
- 96kg Initial Force tapering to 25kg
- Optional Non-Contact Position Sensor
- Optional Bearing Mount
- 35-40mS Typical Shift Time
- Maintenance Free
- Isolated Power and CAN
- Diagnostic & Command on CAN
- No seals or fluid
- Stroke/Displacement: +/- 18mm
- Peak Current: 100A
- Supply Voltage: 9-18v
- Operating Temp: 100°C Max
- Weight: 4.2-5kg

1.3 Force Curve

Displacement (mm)	Force (kg)
0	96
1	93,5
2	90,5
3	86
4	82
5	77,5
6	74,5
7	70,5
8	67,5
9	62,5
10	59,5
11	53
12	50
13	46
14	42,5
15	38,5
16	34,5
17	29
18	25

