

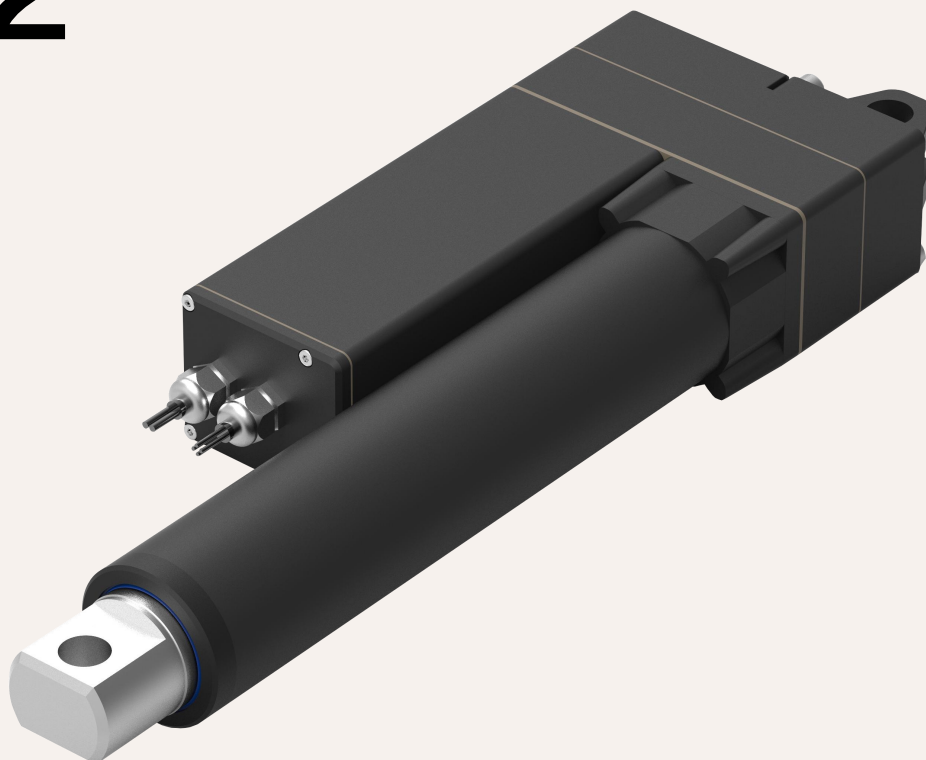
HTL2

Series
Actuators



HTL2

Series
Linear Actuators



Product Category

- 1、 Industrial application
- 2、 Military application
- 3、 Agricultural machinery

HTL2 is a push rod designed specifically for harsh industrial environments, especially for some mechanical equipment with high wear and tear, such as agricultural machinery and industrial application equipment. If you are looking for a push rod that can be used in harsh industrial environments and must meet strict specifications and standards, the smart electromechanical actuator is equipped with onboard electronic components and does not require a separate control system. With higher power up to 35 kN, it opens up more possibilities for hydraulic steering electric applications. HTL will be the best choice!

Functional Overview

Voltage:	12V, 24V, 36V, 48V DC, 220V AC
Motor options:	DC motor, brushless DC motor
Maximum thrust (pull force):	40,000N / 40,000N
Slowest speed under load:	2.0mm/s (load 40,000N)
Maximum speed under load:	83 mm/s (load 1,000N)
Minimum installation size:	Stroke + 250mm
Dynamic lateral moment:	1,000Nm
Static lateral moment:	800Nm
color:	Silver gray, black
Voice:	60~68 DB
Adaptable temperature range:	-45°C ~ +75°C
Protection level:	IP66
Screw selection:	I ball screw, trapezoidal screw
Switch type:	Built-in limit switch,
Signal options:	Potentiometer, Hall sensor, endpoint signal
Control options:	Synchronous control, independent control,
safety certificate:	integrated control, CAN bus control,
	Comply with ISO9001-2008,
	CE and RoHS regulations,
High-strength metal zinc alloy gearbox and housing,	

Electrical conversion trend accelerates

Easier installation, better control and less complexity

Installation is simpler, smaller and faster

Easier control and greater precision

Electric execution requires fewer components and is faster and easier

to install than hydraulic or pneumatic systems

- Component costs are lower than comparable cost hydraulic or pneumatic systems
- Smaller footprint simplifies and speeds design

Easier control and greater precision

- Fully electrical components mean easier integration, fewer control components and less complexity
- Electric actuators react faster, more predictably, and won't drift when power is turned off

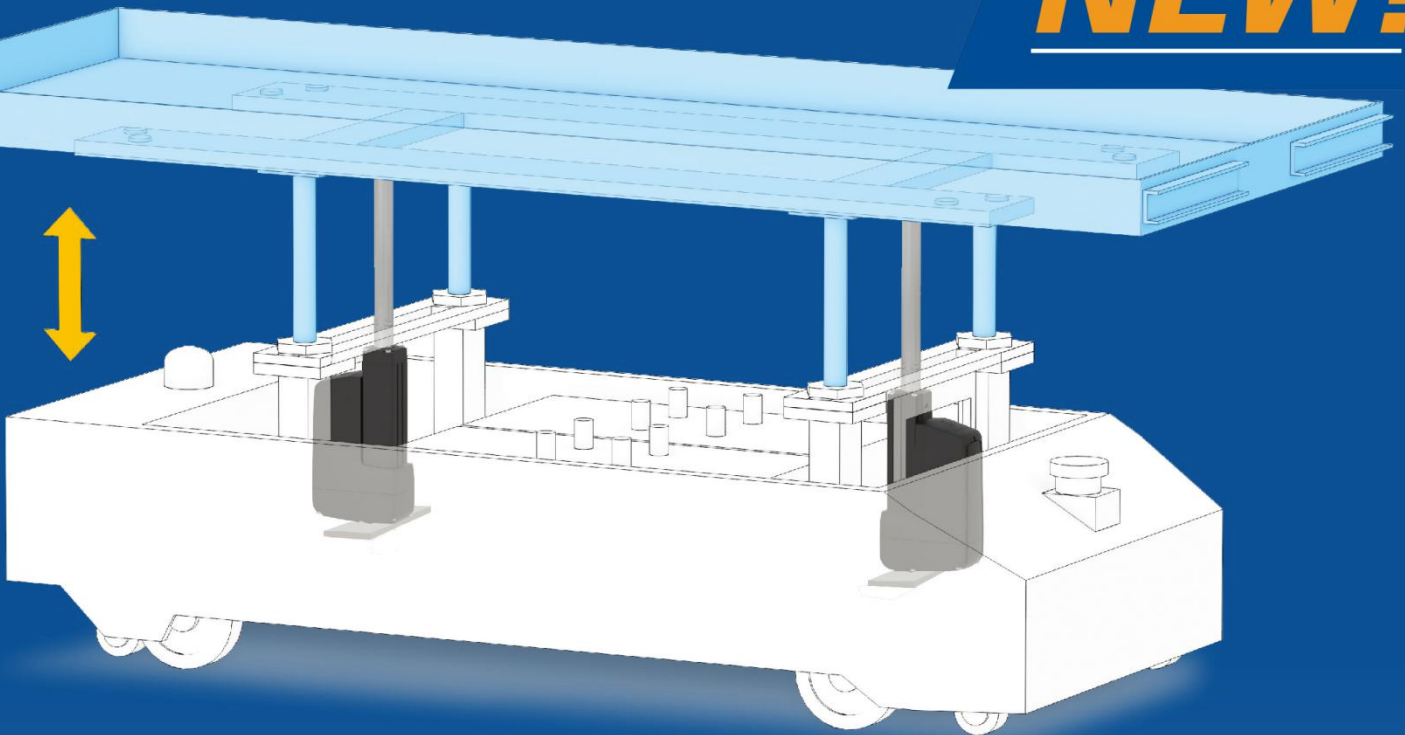
Reduce energy costs

- Electric motors are inherently more efficient than pneumatic or hydraulic motors
- Consider potential parasitic power consumption without scaling up existing systems
- No need for any power supply to maintain load reducing power consumption

Reduce maintenance

- No use of hydraulic pumps, valves or hoses to reduce downtime, repair parts and replacement
- Stand-alone device electronics with smart onboard equipment requiring zero maintenance and increasing design flexibility for component placement
- Electric execution eliminates the cost and hassle associated with fluid maintenance

NEW!



Rear installation can be retrofitted with flange installation

Electric linear actuators for automated guided vehicles, mobile equipment and industrial automation

height adjustment

Positioning adjustment

More compact design,

making it easier to install in small spaces,

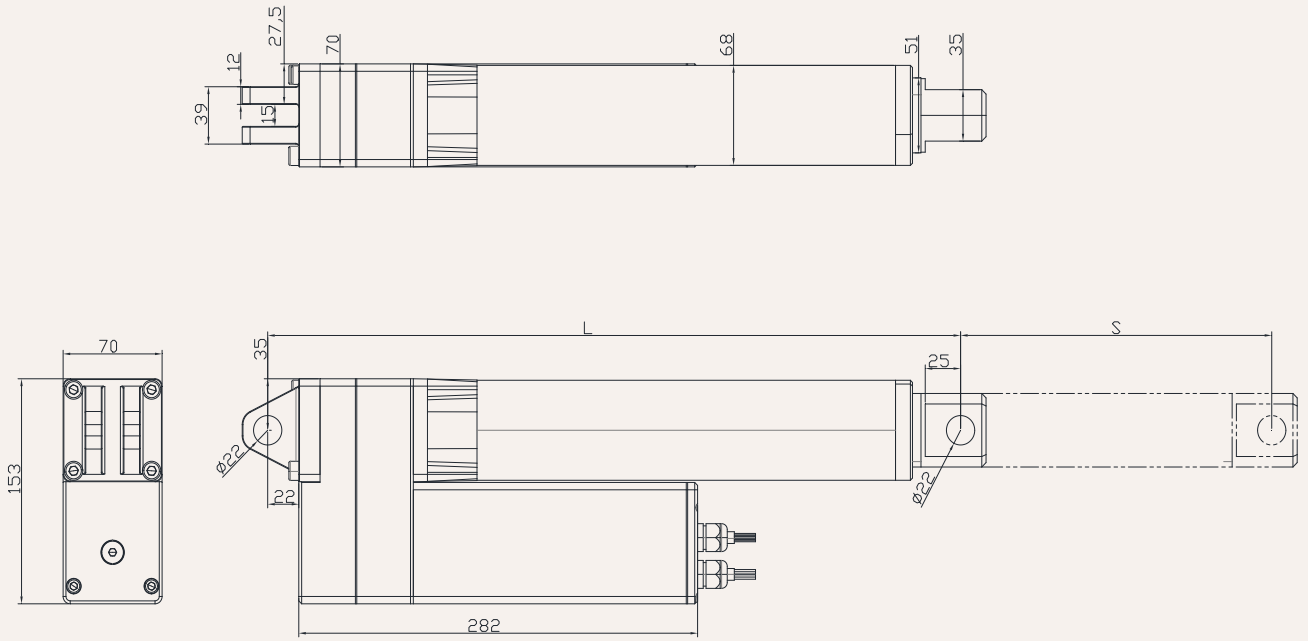
Very suitable for designing different types of automation equipment,

unmanned trucks and lifting equipment,

All while retaining many of the benefits that make it so popular!

Drawings

Standard size
MM



S: Stroke

L: Retracted length

L = Stroke + 250mm

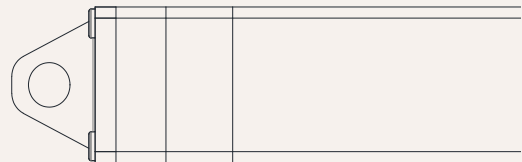
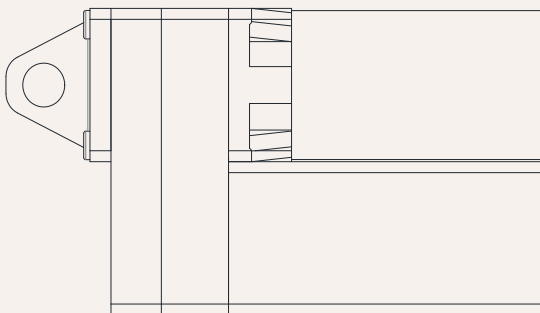
Greater than 600MM stroke, installation dimensions L = Stroke + 300MM

Installation angle (counterclockwise):

0 = 0 Degrees

9 = 90 Degrees

G = Adjust at will



load and speed

Code	Rated load Thrust N	Pull N	Self-locking force static conditions static N	Rated load current A	Output speed no load 24V DC mm/s	Rated load 24V DC mm/s
Motor voltage (24V DC)						
P	32,000	32,000	30,000	17.5	2.8	2.2
A	25,000	25,000	30,000	17.5	5.0	4.0
B	16,000	16,000	20,000	17.5	7.0	6.0
C	14,000	14,000	16,000	17.5	9.0	7.1
D	9,000	9,000	10,000	17.5	14.0	11.0
E	7,000	7,000	8,000	17.5	18.0	14.3
F	4,500	4,500	6,000	17.5	27.8	22.2
G	4,000	4,000	5,000	17.5	31.3	25.0
H	2,000	2,000	3,000	17.5	62.5	50.0
I	1,100	1,100	3,000	17.5	125.0	100.0

Remark

1. The speed and current on the upper side are the materials that extend when pushed.
2. For 12V motor, the speed is about the same and the current is about 2 times higher.
3. The current & speed in the table are the test average values in the extension direction under thrust application.
4. The current & speed in the table and graph are the test average values of the GeMinG control box configuration, and there is an error of about 10% depending on the control box model.
(The voltage is about 29V DC at no load, and drops to about 24V DC at rated load)

Stroke: minimum value $\geq 20\text{mm}$, please refer to the table below for the maximum value of load and stroke

load (N)	Maximum stroke (mm)
16,000	50-200
15,000	201-300
12,000	301-400
7,000	401-600
6,000	601-900

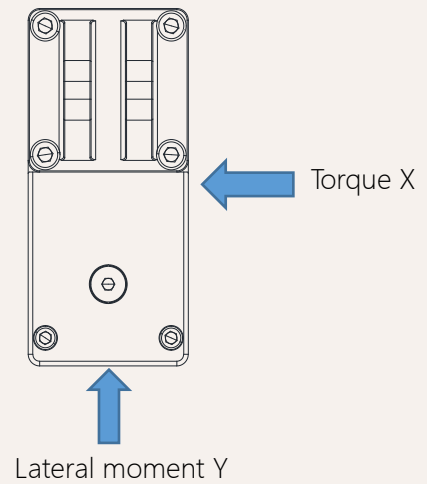
Remark:

Lateral moment Y direction = $X \times 0.8$

Static lateral moment = dynamic $\times 2$

Dynamic lateral moment (Nm)-X direction

stroke	S+250	S+300
100-200	200	300
300-500	150	250
500-700	100	200
700-900	80	100



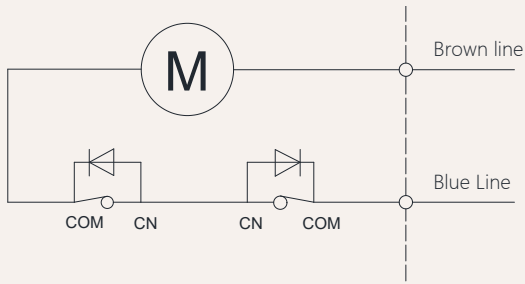
Stroke installation size reference chart

HTL2 Series	stroke ± 2 (mm)					Install ± 2 (mm)				
strokeMM	100	150	200	250	300	350	400	450	500	
Install MM	350	400	450	500	550	600	650	700	750	
weight KG	8.5	8.8	9.1	9.4	9.7	10.1	10.5	10.9	11.5	

Actuator wiring diagram

No signal feedback wiring diagram

Code: N



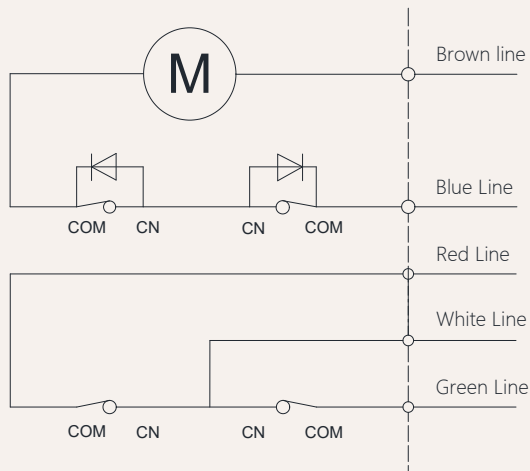
Wiring Instructions:

- 1] Brown lead: motor positive +
- 2] Blue lead: motor negative pole -
- 3] When the push rod is extended: the brown wire is positive +, the blue wire is negative -
- 4] When the push rod is retracted: the blue line is positive +, the brown line is negative -

Actuator wiring diagram Built-in control module

Built-in controller wiring diagram

Code: NY



Wiring Instructions:

- 1] Brown lead: motor positive +
- 2] Blue lead: motor negative pole -
- 3] When the push rod is extended: white line + red line
- 4] When the push rod retracts: white line + green line
- 5] White line: control output common line.
- 6] White and red lines: stretch out,
- 7] White and green lines: retract,
- 8] Wireless remote control, use wired control simultaneously.

Other signal descriptions

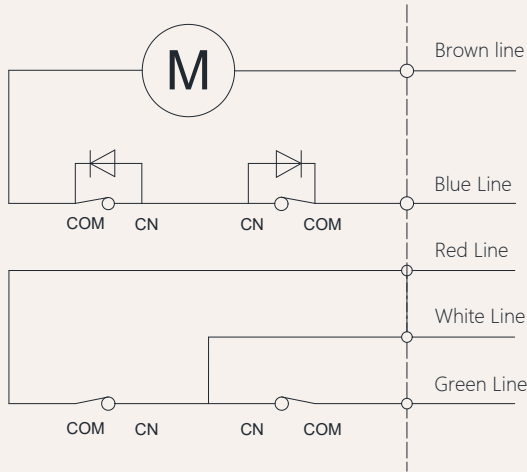
Feedback signal	Description	Function
Active endpoint feedback signal	Voltage with this model	When the push rod reaches the end point, a signal will be fed back. This signal will always exist and will disappear during the operation of the push rod., When the push rod reaches the end point, it will feedback a signal. This signal always exists when the input power is not turned off. When the input power is turned off, the signal disappears. The signal will also disappear during the operation.
Passive endpoint feedback signal	No voltage	

Note: For other needs, please contact the GeMinG team

Signal feedback **Passive or active**

Passive or active endpoint signal wiring diagram

Code: N passive signal, Code: Y active signal



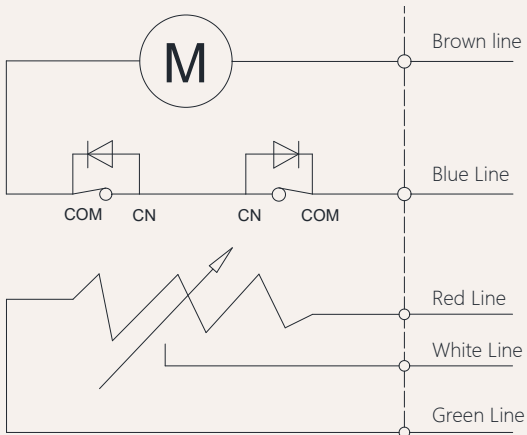
Wiring Instructions:

- 1] Brown lead: positive pole of motor +
- 2] Blue lead: negative pole of motor -
- 3] When the push rod is extended: brown wire positive pole +, blue wire negative pole -
- 4] When the push rod is retracted: blue wire positive pole +, brown wire negative pole -
- 5] White wire: signal output common line.
- 6] White and red wire: extension end signal,
- 7] White and green wire: retraction end signal,

Signal feedback **Potentiometer**

Potentiometer wiring diagram

Code: K



Wiring Instructions:

- 1] Brown lead: positive pole of motor +
- 2] Blue lead: negative pole of motor -
- 3] When the push rod is extended: brown wire positive pole +, blue wire negative pole -
- 4] When the push rod is retracted: blue wire positive pole +, brown wire negative pole -
- 5] White and yellow leads: variable resistance signal output.
- 6] When the push rod is extended: red and white leads-resistance value gradually increases,
-----red and yellow leads-resistance value gradually decreases.
- 7] When the push rod is retracted: red and white leads-resistance value gradually decreases,
-----red and yellow leads-resistance value gradually increases.

Potentiometer Configuration Form

Transmission Code

Limit travel range

Resistance range unit (KΩ)

(See page 5)

A,C,E,G

50-350MM

50-200Stroke range5.0

50-300Stroke range7.5

B,D,F

50-550MM

50-200Stroke range3.17

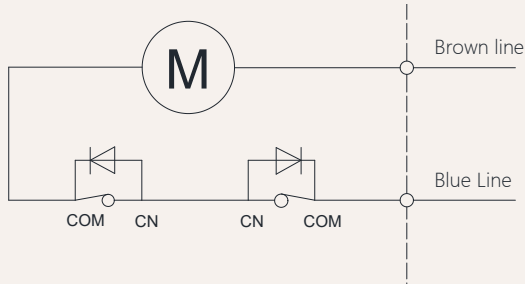
50-400Stroke range6.35

Note: Potentiometer resistance is 10KΩ, actual output resistance depends on specific stroke

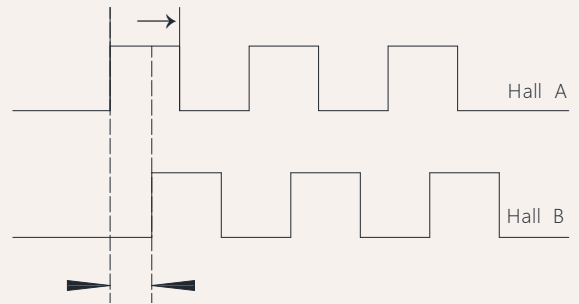
Signal feedback **Hall sensor**

Hall signal motor circuit diagram

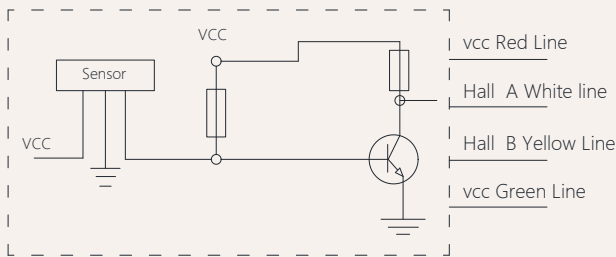
Code: H



Hall signal output waveform diagram



Schematic diagram of the internal circuit of the Hall signal



Wiring Instructions:

- 1] Brown lead: positive pole of motor +
- 2] Blue lead: negative pole of motor -
- 3] Red lead: VCC 5V voltage input +
- 4] Green lead: GND 5V voltage input -
- 5] White lead: Hall signal output A
- 6] Yellow lead: Hall signal output B

Notes:

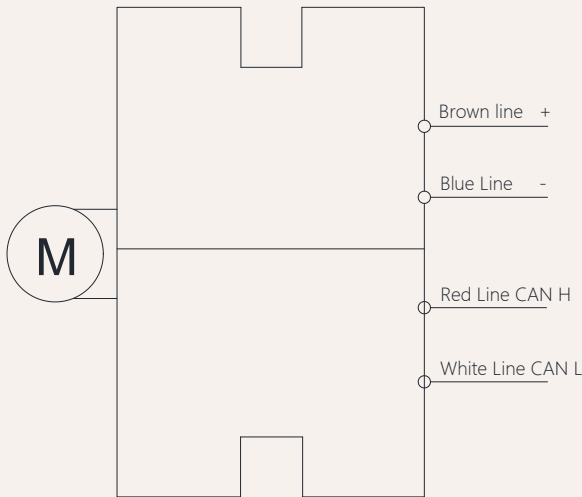
- 1) Support dual-channel/single-channel Hall encoder
- 2) Current-consuming digital output
- 3) High-speed response frequency from: 0 KHz-100 KHz
- 4) Applicable temperature range:-40 °C~+125 °C

Characteristics	Symbol	Test conditions	MI	RE	M	Unit
Supply voltage	Vcc	----	3.5	---	24	V
Output saturation voltage	Vce/sat	Vcc=14V ; Ic=20mA	---	300	700	MV
Output leakage current	1 cex	Vce=14V ; Vcc=14V	---	<0	10	UA
Input voltage	1 ce	Vcc=20V ; Output open	---	1	10	M
Output fall time	R	Vcc=14V ; RL=820Ω ; CL=20pF	---	0.3	1.5	US

Signal feedback CAN bus

CAN Communication motor circuit diagram

Code: CN



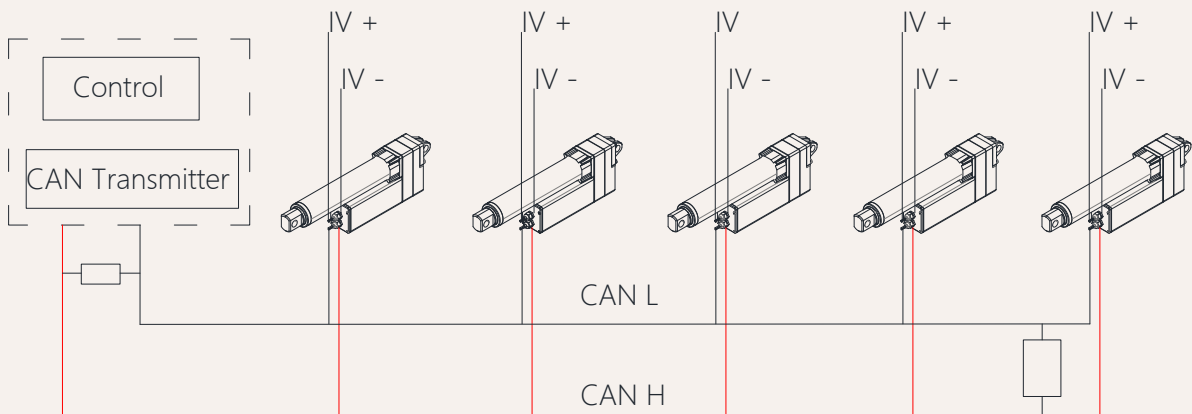
Wiring Instructions:

- 1] Brown lead: positive pole of motor +
- 2] Blue lead: negative pole of motor -
- 3] Red lead: CAN H
- 5] White lead: CAN L

Note:

1. The brown and blue power cables cannot be reversed, otherwise the driver may be burned.
2. With CAN bus, excluding Terminal resistor: in compliance with J1939
3. Speed: Baud rate: 500kbps
4. Wiring shielded twisted pair

CAN Control instructions



HTL2 Model Description Selection Code Table

HTL2 - 24 - A - 100 - 205 - O2 - O2 - 0 - 1 - G - A - N - 07
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

①	Product number	HTL2			
②	Voltage	12=12V DC, 24=24V DC, 36=36V DC, 48=48V DC, 220=220V AC			
③	Load(n)@Speed (mm/s)	See page 06			
④	Stroke(mm)	See page 06			
⑤	Installation size(mm)	Note: Before selecting a size, please refer to the valid data sheet! See page 05			
⑥	Upper type See page 13	O1 = Conventional ordinary type, hole diameter 20.5mm U1 = U-shaped, groove width 15.5mm, hole diameter 20.5mm M1 = Type M, M25 thread, depth 20 mm T1 = T-type, M25 thread, length 20mm L1 = L shape, width 25mm, aperture 20.5mm G1 = Spherical bearing, bore 25mm, model GS25	O2 = Conventional ordinary type, hole diameter 22.5mm U2 = UU-shaped, groove width 1.5mm, hole diameter 22.5mm M2 = Type M, M30 thread, depth 20 mm T2 = T-type, M30 thread, length 20mm L2 = L shape, width 30mm, aperture 22.5mm G2 = Spherical bearing, bore 30mm, model GS30		
⑦	lower type See page 14	O1 = Conventional ordinary type, hole diameter 20.5mm U1 = U-shaped, groove width 15.5mm, hole diameter 20.5mm M1 = Type M, M25 thread, depth 20 mm T1 = T-type, M25 thread, length 20mm L1 = L shape, width 25mm, aperture 20.5mm G1 = Spherical bearing, bore 25mm, model GS25	O2 = Conventional ordinary type, hole diameter 22.5mm U2 = U-shaped, groove width 15.5mm, hole diameter 2.5mm M2 = Type M, M30 thread, depth 20 mm T2 = T-type, M30 thread, length 20mm L2 = L shape, width 30mm, aperture 22.5mm G2 = Spherical bearing, bore 30mm, model GS30		
⑧	Installation angle (counterclockwise)	0 = 0°, Degree		9 = 90°, Degree	
⑨	Please refer to the outlet type	1 = Dare wire 4 = Four-pin straight plug 7 = Waterproof plug		2 = 01 Straight plug 6 = Six-pin straight plug	
⑩	Lead screw options	G=Ball screw (default preferred)		T = Trapezoidal screw	
⑪	Control method	A = No Control	NY =Integrated wired control NW=Integrated wireless control	NT = Synchronous control NC = CAN bus	D= Customized
⑫	Signal output options	N = No	H =Hall sensor	D = Potentiometer	W=passive signal U=active signal
⑬	Cable length	07 = 700mm 30 = 300mm	10 = 1000mm 40 = 4000mm	15 = 1500mm 70 = 7000mm	20= 2000mm 00 =Customized

HTL2 Attachment Description Selection Code Table

Extended upper form:

O1=No slot, aperture 20.5MM

O2=No slot, aperture 22.5MM

U1 = U-shaped, groove width 15.5mm, hole diameter 20.5mm

U2 = U-shaped, groove width 15.5mm, hole diameter 22.5mm

M1 = Type M, M25 thread, depth 20 mm

M2 = Type M, M30 thread, depth 20 mm

T1 = T-type, M25 thread, length 20mm

T2 = T-type, M30 thread, length 20mm

L1 = L shape, width 20mm, aperture 20.5mm

L2 = L shape, width 20mm, aperture 22.5mm

G1 = Spherical bearing, bore 25mm, model GS25

G2 = Spherical bearing, bore 30mm, model GS30

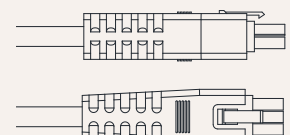
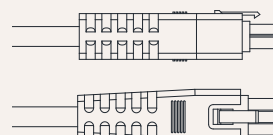
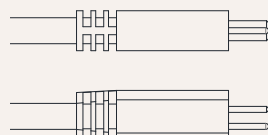
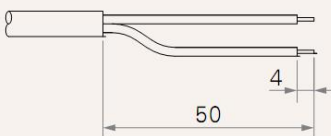
Power cord type:

1 =Dare wire

2 = 01 Straight plug

4 =Four-pin straight plug

6 = Six-pin straight plug



HTL2 Attachment Description Selection Code Table

Tail lower end form:

O1 = No slot, aperture
20.5mm

O2= No slot, aperture
22.5mm

U1 = U-shaped, groove
width 15.5mm, hole
diameter 20.5mm

U1 = U-shaped, groove
width 15.5mm, hole
diameter 22.5mm

M1= Type M, M25 thread,
depth 20 mm

M2= Type M, M30 thread,
depth 20 mm

T1 = T-type, M25 thread,
length 20mm

T1 = T-type, M30 thread,
length 20mm

L1 = L shape, width 20mm,
aperture 20.5mm

L1 = L shape, width 20mm,
aperture 22.5mm

G4 = Spherical bearing,
bore 25mm, model GS25

G6 = Spherical bearing,
bore 30mm, model GS30