

HYBRID STEPPING MOTORS

Step degrees 0.9 °
Cable types

Transmotec sell a broad range of high quality hybrid stepping motors in standard and customized configurations. Transmotec is the ideal supplier source especially to instrument and apparatus builders. We keep a high number of motors in stock for immediate delivery.

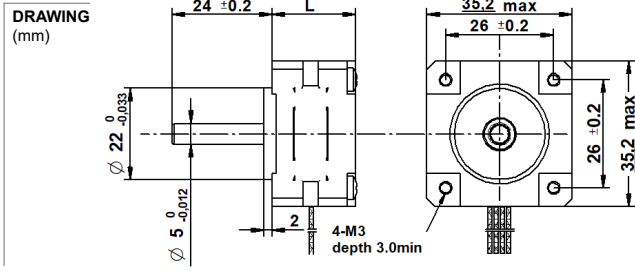
Customizations include:

- ✓ Customized harness
- ✓ Shaft configuration
- ✓ Winding configuration
- ✓ And more...

TABLE OF CONTENTS

Transmotec part name	Step degrees	Flange mm	Length mm	Holding torque Nm	Current phase A	Page
SHW3520-09-100	0.9	35	20.0	0.05	1.00	1.
SHW3526-09-050	0.9	35	26.0	0.09	0.50	1.
SHW3620-09-080	0.9	36	20.5	0.09	0.80	2.
SHW3944-09-028	0.9	39	44.5	0.30	0.28	3.
SHW4234-09-133	0.9	42	33.5	0.220	1.33	4.
SHW4240-09-168	0.9	42	39.5	0.33	1.68	4.
SHW4247-09-168	0.9	42	47.5	0.44	1.68	4.
SHW5741-09-280	0.9	57	41.0	0.55	2.80	5.
SHW5756-09-280	0.9	57	56.0	1.20	2.80	5.
SHW5776-09-280	0.9	57	76.0	1.80	2.80	5.
DSH-200	Stepper motor driver				2.00	6.
DSH-300	Stepper motor driver				2.00	7.
DSH-600	Stepper motor driver				2.00	8.
LRS	Power supplies AC-DC					External link

SHW35-09 Series 35 mm



PHOTO



MODEL NAME DESIGNATION

SHW3520 - STEP ANGLE - CURRENT

Example: SHW35-09-100



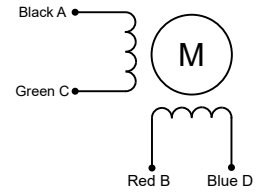
OPTIONS MOTOR DRIVERS AND POWER SUPPLIES



MOTOR FEATURES	
Step angle	0.9
Step angle accuracy	± 5% full step no load
Shaft material	X8CrNiS18-9 303
Bearing type	Ball bearing
Radial play	0.02 mm 400 g
Axial play	0.08 mm 400 g
Max. radial force	26N 20 mm from shaft
Max. axial force	10N
Dielectric strength	600VAC 1 sec.
Insulation resistance	100MΩ 500VDC
Ambient temperature	-20° - (+50°)
Insulation class	Class B
IP rating	IP30
Connection leads	UL 1061 AWG26 300 mm
Connector	Not in standard version

CUSTOMIZATION EXAMPLES	
Shaft configurations	
Bearing type and preload	
Temperature range	
IP rating	
Winding and performance optimization	
Cabling and harness	
Gear box to motor combinations	
Encoder to motor combinations	
OPTIONS	
Stepper motor drivers Transmotec DS series	
Power supplies Transmotec LRS series	

EXCITATION SEQUENCE TABLE

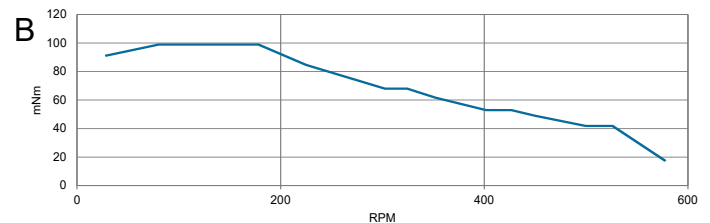
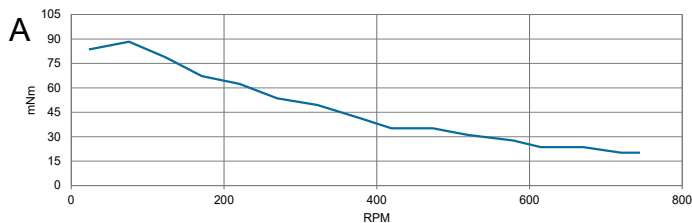


CW	A	C	B	D
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2		●	●	
3		●		●
4	●			●
1	●		●	

● = + Polarity

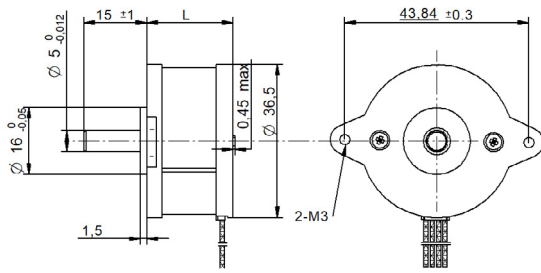
MOTOR DATA		
Graph	A	B
Motor model	SHW3520-09-100	SHW3526-09-050
Holding torque mNm	50	90
Detent torque mNm	5.0	8.0
Rotor inertia gcm ²	8	11
Current phase A	1.00	0.50
Resistance phase Ω	10.00	6.10
Inductance mH	8.5	6.9
Length mm	20.0	26.0
Weight Kg	0.10	0.15

SPEED TORQUE PERFORMANCE GRAPH PULL OUT		
Graph	A	B
Supply voltage VDC	24	24
Current phase A	1.0	0.5



SHW36-09 Series Ø 36 mm

DRAWING (mm)



MODEL NAME DESIGNATION

SHW3520 - STEP ANGLE - CURRENT

Example: SHW35-09-100



PHOTO



OPTIONS MOTOR DRIVERS AND POWER SUPPLIES



MOTOR FEATURES

Step angle	0.9
Step angle accuracy	± 5% full step no load
Shaft material	X8CrNiS18-9 303
Bearing type	Ball bearing
Radial play	0.02 mm 450 g
Axial play	0.08 mm 450 g
Max. radial force	5.5N 20 mm from shaft
Max. axial force	2.5N
Dielectric strength	500VAC 1 sec.
Insulation resistance	100MΩ 500VDC
Ambient temperature	-20° - (+50°)
Insulation class	Class B
IP rating	IP30
Connection leads	UL 1061 AWG28 300 mm
Connector	Not in standard version

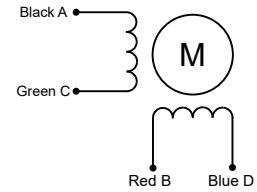
CUSTOMIZATION EXAMPLES

- Shaft configurations
- Bearing type and preload
- Temperature range
- IP rating
- Winding and performance optimization
- Cabling and harness
- Gear box to motor combinations
- Encoder to motor combinations

OPTIONS

- Stepper motor drivers Transmotec DS series
- Power supplies Transmotec LRS series

EXCITATION SEQUENCE TABLE



CW	A	C	B	D
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2		●	●	
3		●		●
4	●			●
1	●		●	

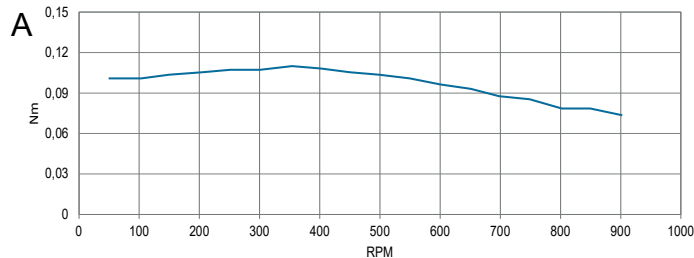
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MOTOR DATA

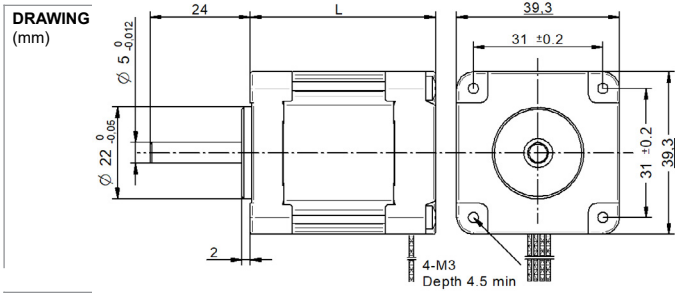
Graph	A			
Motor model	SHW3620-09-080			
Holding torque Nm	0.09			
Detent torque Nm	-			
Rotor inertia gcm ²	19.6			
Current phase A	0.80			
Resistance phase Ω	5.50			
Inductance mH	4.8			
Length mm	20.5			
Weight Kg	0.900			

SPEED | TORQUE PERFORMANCE GRAPH PULL OUT

Graph	A			
Supply voltage VDC	24			
Current phase A	0.8			



SHW39-09 Series 39 mm



MODEL NAME DESIGNATION

SHW3520 - STEP ANGLE - CURRENT

Example: SHW35-09-100



PHOTO



OPTIONS MOTOR DRIVERS AND POWER SUPPLIES



MOTOR FEATURES

Step angle	0.9
Step angle accuracy	± 5% full step no load
Shaft material	X8CrNiS18-9 303
Bearing type	Ball bearing
Radial play	0.02 mm 450 g
Axial play	0.08 mm 450 g
Max. radial force	28N 20 mm from shaft
Max. axial force	10N
Dielectric strength	600VAC 1 sec.
Insulation resistance	100MΩ 500VDC
Ambient temperature	-20° - (+50°)
Insulation class	Class B
IP rating	IP30
Connection leads	UL 1430 AWG26 300 mm
Connector	Not in standard version

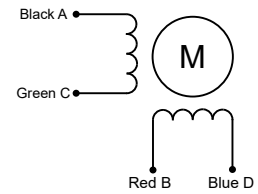
CUSTOMIZATION EXAMPLES

- Shaft configurations
- Bearing type and preload
- Temperature range
- IP rating
- Winding and performance optimization
- Cabling and harness
- Gear box to motor combinations
- Encoder to motor combinations

OPTIONS

- Stepper motor drivers Transmotec DS series
- Power supplies Transmotec LRS series

EXCITATION SEQUENCE TABLE



CW	A	C	B	D
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4	●			●
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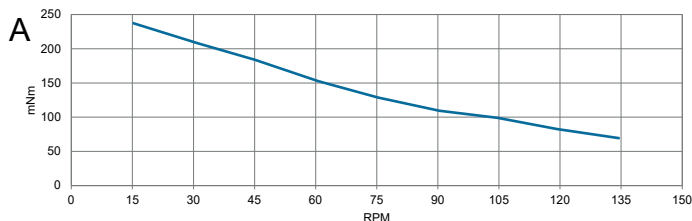
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MOTOR DATA

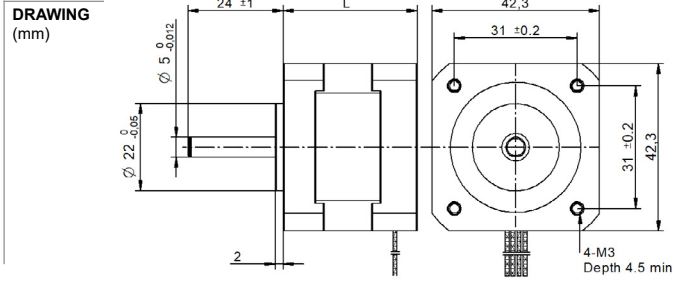
Graph	A			
Motor model	SHW3944-09-028			
Holding torque mNm	297			
Detent torque mNm	20			
Rotor inertia gcm ²	36			
Current phase A	0.28			
Resistance phase Ω	60.00			
Inductance mH	145			
Length mm	44.5			
Weight Kg	0.290			

SPEED | TORQUE PERFORMANCE GRAPH PULL OUT

Graph	A			
Supply voltage VDC	24			
Current phase A	0.35			



SHW42-09 Series 42 mm



PHOTO



MODEL NAME DESIGNATION

SHW3520 - STEP ANGLE - CURRENT

Example: SHW35-09-100



OPTIONS MOTOR DRIVERS AND POWER SUPPLIES



MOTOR FEATURES

Step angle	0.9
Step angle accuracy	± 5% full step no load
Shaft material	X8CrNiS18-9 303
Bearing type	Ball bearing
Radial play	0.02 mm 450 g
Axial play	0.08 mm 450 g
Max. radial force	28N 20 mm from shaft
Max. axial force	10N
Dielectric strength	600VAC 1 sec.
Insulation resistance	100MΩ 500VDC
Ambient temperature	-20° - (+50°)
Insulation class	Class B
IP rating	IP30
Connection leads	UL 1430 AWG26 300 mm
Connector	Not in standard version

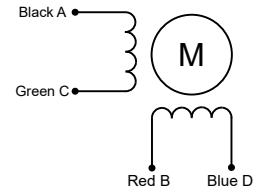
CUSTOMIZATION EXAMPLES

- Shaft configurations
- Bearing type and preload
- Temperature range
- IP rating
- Winding and performance optimization
- Cabling and harness
- Gear box to motor combinations
- Encoder to motor combinations

OPTIONS

- Stepper motor drivers Transmotec DS series
- Power supplies Transmotec LRS series

EXCITATION SEQUENCE TABLE



CW	A	C	B	D
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2		●	●	
3		●		●
4	●			●
1	●		●	

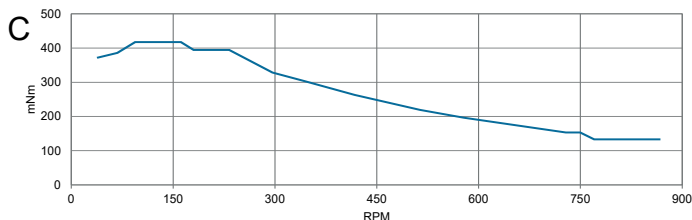
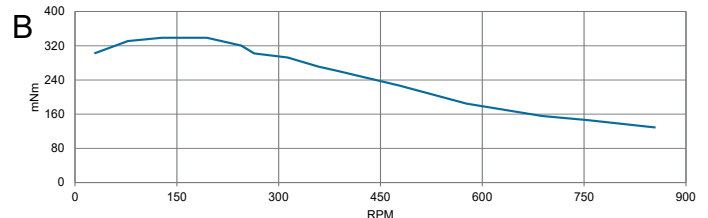
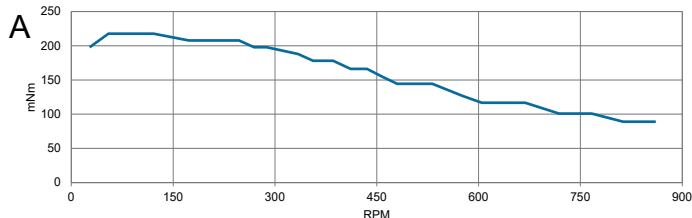
● = + Polarity

MOTOR DATA

Graph	A	B	C
Motor model	SHW4234-09-133	SHW4240-09-168	SHW4247-09-168
Holding torque mNm	220	330	440
Detent torque mNm	20	22	25
Rotor inertia gcm ²	35	54	68
Current phase A	1.33	1.68	1.68
Resistance phase Ω	2.10	1.80	1.80
Inductance mH	4.2	4.1	5
Length mm	33.5	39.5	47.5
Weight Kg	0.200	0.220	0.250

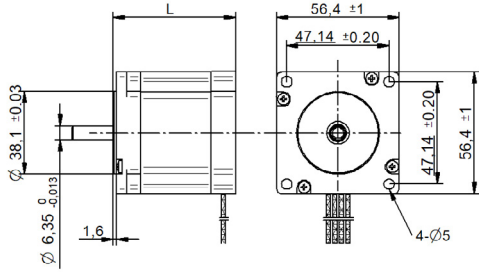
SPEED | TORQUE PERFORMANCE GRAPH PULL OUT

Graph	A	B	C
Supply voltage VDC	36	36	36
Current phase A	1.36	1.69	1.69

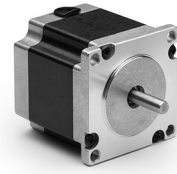


SHW57-09 Series □ 57 mm

DRAWING (mm)



PHOTO



MODEL NAME DESIGNATION

SHW3520 - STEP ANGLE - CURRENT

Example: SHW35-09-100



OPTIONS MOTOR DRIVERS AND POWER SUPPLIES



MOTOR FEATURES

Step angle	0.9
Step angle accuracy	± 5% full step no load
Shaft material	X8CrNiS18-9 303
Bearing type	Ball bearing
Radial play	0.02 mm 450 g
Axial play	0.08 mm 450 g
Max. radial force	75N 20 mm from shaft
Max. axial force	15N
Dielectric strength	600VAC 1 sec.
Insulation resistance	100MΩ 500VDC
Ambient temperature	-20° - (+50°)
Insulation class	Class B
IP rating	IP30
Connection leads	UL 1430 AWG22 300 mm
Connector	Not in standard version

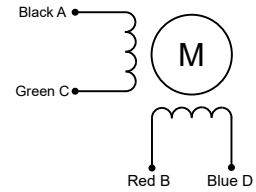
CUSTOMIZATION EXAMPLES

- Shaft configurations
- Bearing type and preload
- Temperature range
- IP rating
- Winding and performance optimization
- Cabling and harness
- Gear box to motor combinations
- Encoder to motor combinations

OPTIONS

- Stepper motor drivers Transmotec DS series
- Power supplies Transmotec LRS series

EXCITATION SEQUENCE TABLE



CW	A	C	B	D
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2		●	●	
3		●		●
4	●			●
1	●		●	

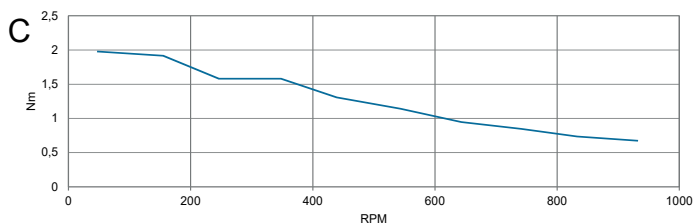
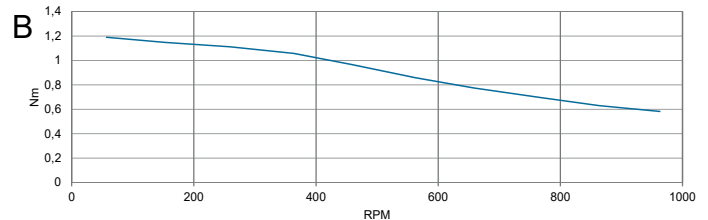
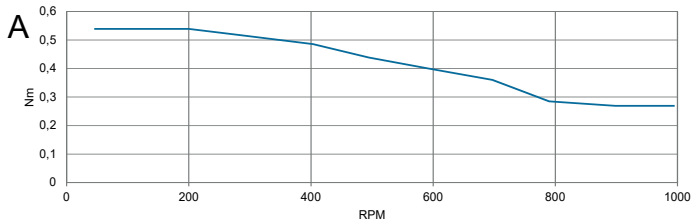
● = + Polarity

MOTOR DATA

Graph	A	B	C
Motor model	SHW5741-09-280	SHW5756-09-280	SHW5776-09-280
Holding torque Nm	0.550	1.200	1.800
Detent torque Nm	0.021	0.040	0.068
Rotor inertia gcm ²	120	300	480
Current phase A	2.80	2.80	2.80
Resistance phase Ω	0.70	0.90	1.13
Inductance mH	2.2	4.5	5.6
Length mm	41.0	56.0	76.0
Weight Kg	0.450	0.700	1.000

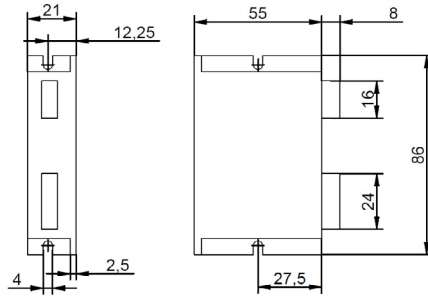
SPEED | TORQUE PERFORMANCE GRAPH PULL OUT

Graph	A	B	C
Supply voltage VDC	48	48	48
Current phase A	2.8	2	2

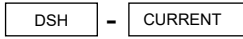


DSH-200

DRAWING (mm)



MODEL NO. DESIGNATION



Example: DSH-200

PHOTO



OPTIONS POWER SUPPLIES LRS SERIES



GENERAL

Model	Current	Weight	IP	Temperature range	Accessories
DSH-200	2.2 A	0.10 Kg	IP20	0 - 50 °C	Power supplies series Transmotec LRS series

FUNCTIONS

ALARM PWR	LED indicators	Green LED on Red LED on	Power on Fault detection
+5V	Control signal positive power		
DIR	Motor direction signal	+5 V CW rotational direction	0 V CCW rotational direction
PUL	Pulse signal	Driver input clock pulses (LO=0V, HI=5V)	Max pulse frequency 200 kHz
MF	Motor enable signal	+5 V to enable rotation	0 V to disable rotation
A- A+ B- B+		Motor phases connection	-
V+ V-		Power supply 18-36 VDC GND	

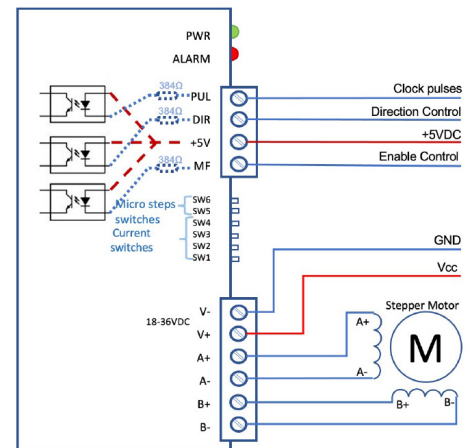
Note +5V = signal voltage | +5VDC = continuous supply voltage

CURRENT LIMIT SWITCH SETTINGS

Current RMS A	0.2	0.4	0.5	0.7	0.9	1.1	1.4	1.6
Current peak A	0.3	0.5	0.7	1.0	1.3	1.6	1.9	2.2
SW1	ON	OFF	ON	OFF	ON	OFF	ON	OFF
SW2	ON	ON	OFF	OFF	ON	ON	OFF	OFF
SW3	ON	ON	ON	ON	OFF	OFF	OFF	OFF

MICRO-STEP SWITCH SETTINGS

Micro-step/step	1	8	16	32
PUL/REV	200	1600	3200	6400
SW5	ON	OFF	ON	OFF
SW6	ON	ON	OFF	OFF

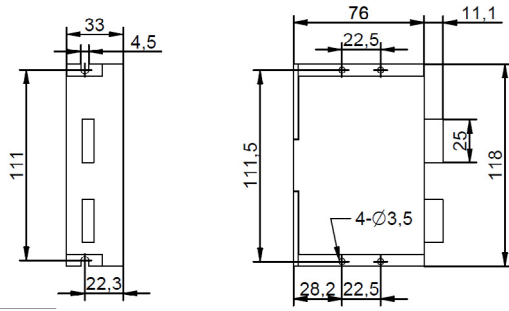


FUNCTION SWITCH SETTINGS

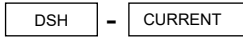
		ON-SETTING	OFF-SETTING
SW4	Full and half current	Full current always	Half current when pulse time ≥ 200 ms

DSH-300

DRAWING (mm)



MODEL NO. DESIGNATION



Example: DSH-300

PHOTO



OPTIONS POWER SUPPLIES LRS SERIES



GENERAL

Model	Current	Weight	IP	Temperature range	Accessories
DSH-300	3 A	0.25 Kg	IP20	0 - 50 °C	Power supplies series Transmotec LRS series

FUNCTIONS

ALARM PWR	LED indicators	Green LED on Green LED flashes	Power on Fault detection
DIR-	Motor direction signal	+5 V CW rotational direction	0 V CCW rotational direction
DIR+	Motor direction Vcc	+5 VDC to enable direction control	-
PUL-	Pulse signal	Driver input clock pulses (LO=0V, HI=5V)	Max pulse frequency 200 kHz
PUL+	Pulse Vcc	+5 VDC to enable clock pulses	-
MF-	Motor enable signal	+5 V to enable rotation	0 V to disable rotation
MF+	Motor enable Vcc	+5 VDC to enable the enable operation	-
A- A+ B- B+		Motor phases connection	-
V+ V-		Power supply 20-50 VDC GND	

Note +5V = signal voltage | +5VDC= continuous supply voltage

CURRENT LIMIT SWITCH SETTINGS

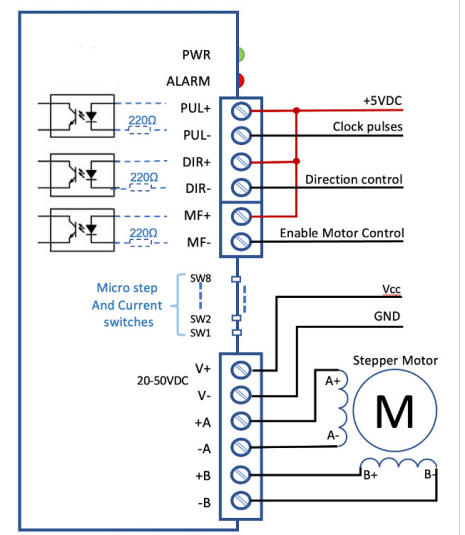
Current RMS A	0.7	1.0	1.4	1.7	2.0	2.4	2.7	3.0
Current peak A	1.0	1.5	1.9	2.4	2.8	3.3	3.8	4.2
SW1	ON	OFF	ON	OFF	ON	OFF	ON	OFF
SW2	ON	ON	OFF	OFF	ON	ON	OFF	OFF
SW3	ON	ON	ON	ON	OFF	OFF	OFF	OFF

MICRO-STEP SWITCH SETTINGS

Micro-step/step	2	4	8	16	32	64	128	5	10	20	25	40	50	100	200
PUL/REV	400	800	1.6K	3.2K	6.4K	12.8K	25.6K	1K	2K	4K	5K	8K	10K	20K	40K
SW5	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
SW6	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
SW7	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
SW8	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

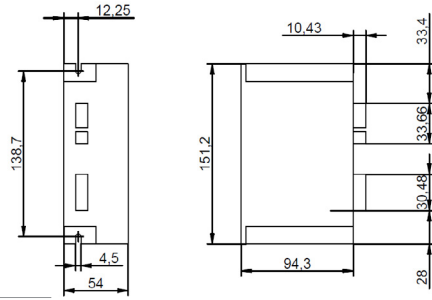
FUNCTION SWITCH SETTINGS

	ON-SETTING	OFF-SETTING
SW4	Full and half current	Full current always
		Half current when pulse time ≥ 200 ms



DSH-600

DRAWING (mm)



MODEL NO. DESIGNATION

DSH - CURRENT

Example: DSH-600

PHOTO



OPTIONS POWER SUPPLIES LRS SERIES



GENERAL

Model	Current	Weight	IP	Temperature range	Accessories
DSH-600	6 A	0.60 Kg	IP20	0 - 50 °C	Power supplies series Transmotec LRS series

FUNCTIONS

ALARM PWR	LED indicators	Green LED on Green LED flashes Red LED 2 flashes / 3 seconds Red LED 3 flashes / 3 seconds Red LED 4 flashes / 3 seconds	Motor disabled Motor enabled Undervoltage Overvoltage Overcurrent
DIR-	Motor direction signal	+5 V CW rotational direction	0 V CCW rotational direction
DIR+	Motor direction Vcc	+5 VDC to enable direction control	-
PUL-	Pulse signal	Driver input clock pulses	Max pulse frequency 200 kHz
PUL+	Pulse Vcc	+5 VDC to enable clock pulses	-
MF-	Motor enable signal	+5 V to enable rotation	0 V to disable rotation
MF+	Motor enable Vcc	+5 VDC to enable the enable operation	-
A- A+ B- B+		Motor phases connection	-
DC AC		Power supply 24-110 VDC polarity any 18-80 VAC	

Note +5V = signal voltage | +5VDC= continuous supply voltage

CURRENT LIMIT SWITCH SETTINGS

Current RMS A	2.00	2.57	3.14	3.71	4.28	4.86	5.43	6.00
Current peak A	2.40	3.08	3.77	4.45	5.14	5.83	6.52	7.20
SW1	ON	OFF	ON	OFF	ON	OFF	ON	OFF
SW2	ON	ON	OFF	OFF	ON	ON	OFF	OFF
SW3	ON	ON	ON	ON	OFF	OFF	OFF	OFF

MICRO-STEP SWITCH SETTINGS

Micro-step/step	2	4	8	16	32	64	128	256	5	10	20	25	40	50	100	200
PUL/REV	400	800	1.6K	3.2K	6.4K	12.8K	25.6K	51.2K	1K	2K	4K	5K	8K	10K	20K	40K
SW5	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
SW6	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF	ON	ON	OFF	OFF
SW7	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF
SW8	ON	ON	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

FUNCTION SWITCH SETTINGS

		ON-SETTING	OFF-SETTING
SW4	Full and half current	Full current always	Half current when pulse time ≥ 200 ms
SW9	Pulse Smoothing	Motor accelerate and decelerate smoothly	Regular acceleration and deceleration
SW10	N/A	N/A	N/A
SW11	Pulse filter	Enabled low pass filter ≤ 400 Hz	Enabled low pass filter ≤ 100 Hz
SW12	N/A	N/A	N/A
SW13	Pulse mode not supported	Always off	Always off
SW14	Self-test	Connect only driver and power to motor. Motor should run by internal puses at 5 kHz	Normal connection

