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[The information contained in this catalog is subject to change without notice.]

480-1309Y-A-R9 (April 20 2023)



PRODUCT CATALOG

DC24V
Powered

DC48V
Powered

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PULSE ROLLER Drives Overview

SENERGY / SENERGY-Ai / SENERGY-Ai48

SENERGY / SENERGY-Ai



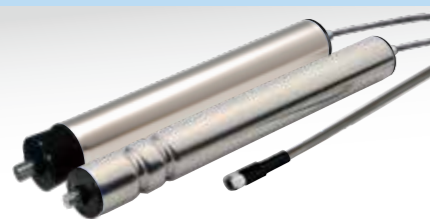
Product type	Motor Roller
Rated voltage	DC24V
Output	50W (Max)
Conveyor speed	0.03 ~ 5.06 m/sec (50.0 mm diameter)

PGD / PGD-Ai



Product type	Geared Drive
Rated voltage	DC24V
Output	50W (Max)
Rotational speed	8.5 ~ 528.9 rpm (Output shaft)

SENERGY-Ai48



Product type	Motor Roller
Rated voltage	DC48V
Output	118W (Max)
Conveyor speed	0.03 ~ 1.66 m/sec (50.0 mm diameter)

PGD-Ai48



Product type	Geared Drive
Rated voltage	DC48V
Output	118W (Max)
Rotational speed	12.84 ~ 637.52 rpm (Output shaft)

Pallet / Pallet-Ai



Product type	Motor Roller
Rated voltage	DC24V
Output	50W (Max)
Conveyor speed	0.025 ~ 0.57 m/sec (76.3 mm diameter)

Introduction

SENERGY

The SENERGY unique gearbox design and powerful brushless DC motor provides an extremely efficient means of delivering an amazing amount of torque and speed with the smallest amount of energy. Typically used in conveyors for Zero Pressure Accumulation or roller transportation. SENERGY Roller gearbox selection contains only 11 gearbox combinations to make ordering and keeping an inventory much more manageable. SENERGY's range and performance characteristics are suitable for speeds between 2.0 to 304.1 m/min and starting torque up to an amazing 24.2 N·m.

Regardless of the project, type of conveyor, the weight or speed of the load you really only need one type of roller. SENERGY.

SENERGY-Ai / SENERGY-Ai48

SENERGY-Ai is the world's first motor roller using a robust M8-4pin connector which is then connected to an external control of your choice. The hall-effect signals are digitally coded by a micro controller inside the motor, which makes it possible to communicate through only one pin to an external controller. The micro controller also digitally provides through the same pin complete roller part number containing the diameter and gearbox information, serial number, motor temperature and other information. The external control can read and analyze all this data for multiple functions such as precise speed and positioning control, full diagnostics such as over-temp, over-current, over-voltage and much more to help with predictive maintenance.

The proven and patented Ai technology is also used for the connection and cabling of 48V model which ensures safe installation and a robust connection with M8-4 pin connector.

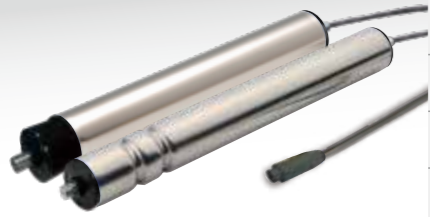
The use of 48V as supply voltage, the established SENERGY-Ai motorized roller reaches a new level and provides clear advantages compared to the DC24V model.

- Significantly increased torque of the motorized roller: stronger acceleration of heavy goods and higher throughput.
- More precise and smooth acceleration due to high power output: better controllability of the drive when positioning and braking.
- Halving of the current in the power supply cables: significantly longer cables from the power supply unit to the individual motorized rollers and thus more flexibility in the cabling.
- Reduction in the number of power supplies in a system: savings in procurement, cabling and installation.

PULSE ROLLER Drives Overview

SENERGY-IDC

SENERGY-IDC



Product type	Motor Roller
Rated voltage	DC24V
Output	38W (Max)
Conveyor speed	0.03 ~ 2.23 m/sec (50.0 mm diameter)

PGD-IDC



Product type	Geared Drive
Rated voltage	DC24V
Output	38W (Max)
Rotational speed	8.0 ~ 528.0 rpm (Output shaft)

Introduction

SENERGY-IDC

Pulseroller Senergy-IDC (Internal Drive Commutation) motor rollers are designed to be drop-in compatible with many 3rd party motor controllers. The Senergy-IDC utilizes the same robust and reliable motor and gearbox construction used in all Senergy products. Available in Pulse Geared Drive (PGD) and MDR versions.

Drives

SENERGY / SENERGY-Ai



Product information

General information

- Conformance: CE, RoHS, IP54
- Certifications: ETL Listed to UL 1004-1 & UL 1004-6
UL Recognized to UL 1004-1
- Tube material: Mild steel, zinc plating / Stainless steel (SUS304)
- Roller diameter: 48.6, 50.0, 60.5 (mm)
- Min. roller length: Refer to the "Available minimum roller length table" below
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 600 mm (SENERGY) / 1000 mm (SENERGY-Ai)
*Contact us for extension cables
- Motor connector: JST (SENERGY) / M8-4pin (SENERGY-Ai)
- Operation: 0.5 sec ON / 0.5 sec OFF duty cycle (Minimum)
or continuous within rated load

Compatible Control Technologies



Conformance / Certifications



Technical data

	ECO mode	BOOST mode	BOOST-8 mode
Voltage	DC24V		
Nominal output	40W	50W	50W
Rated current	2.5A	3.5A	3.5A
Starting current	3.0A	5.0A	8.0A
Ambient temperature	-10 ~ 40°C		
Ambient humidity	10 ~ 90% RH (No condensation)		

Available Minimum Roller Length (SENERGY, SENERGY-Ai)

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
SENERGY 48.6 / 50.0	15, 20, 25	325	318	325	357
	35, 45, 60, 75	301	294	301	333
	95, 125, 175, 215	274	267	274	306
SENERGY-Ai 48.6 / 50.0	15, 20, 25	330	323	330	362
	35, 45, 60, 75	306	299	306	338
	95, 125, 175, 215	279	272	279	311

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Weight table

Diameter	Speed code	Roller length							
		300	400	500	600	700	800	900	1000
φ48.6	15, 20, 25	2.0	2.1	2.3	2.5	2.6	2.8	2.9	3.1
	35, 45, 60, 75	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9
	95, 125, 175, 215	1.7	1.8	2.0	2.1	2.3	2.5	2.6	2.8
φ50	15, 20, 25	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2
	35, 45, 60, 75	1.8	2.0	2.2	2.4	2.5	2.7	2.9	3.0
	95, 125, 175, 215	1.7	1.9	2.0	2.2	2.4	2.6	2.7	2.9
φ60.5	15, 20, 25	3.1	3.6	4.0	4.5	4.9	5.3	5.8	6.2
	35, 45, 60, 75	2.9	3.4	3.8	4.3	4.7	5.2	5.6	6.1
	95, 125, 175, 215	2.8	3.2	3.7	4.1	4.6	5.0	5.5	5.9

*Above values are only approximate. Contact us for more details. Unit: kg

Wall thickness

Diameter	48.6	50.0	60.5
Thickness	1.4	1.5	3.25

Unit: mm

Static load capacity

Diameter	Length	300	400	500	600	700	800	900	1000
		48.6	70	60	50	40	35	30	25
50.0	80	70	60	55	50	45	40	35	
60.5	160	160	130	130	100	100	80	80	

Unit: kg

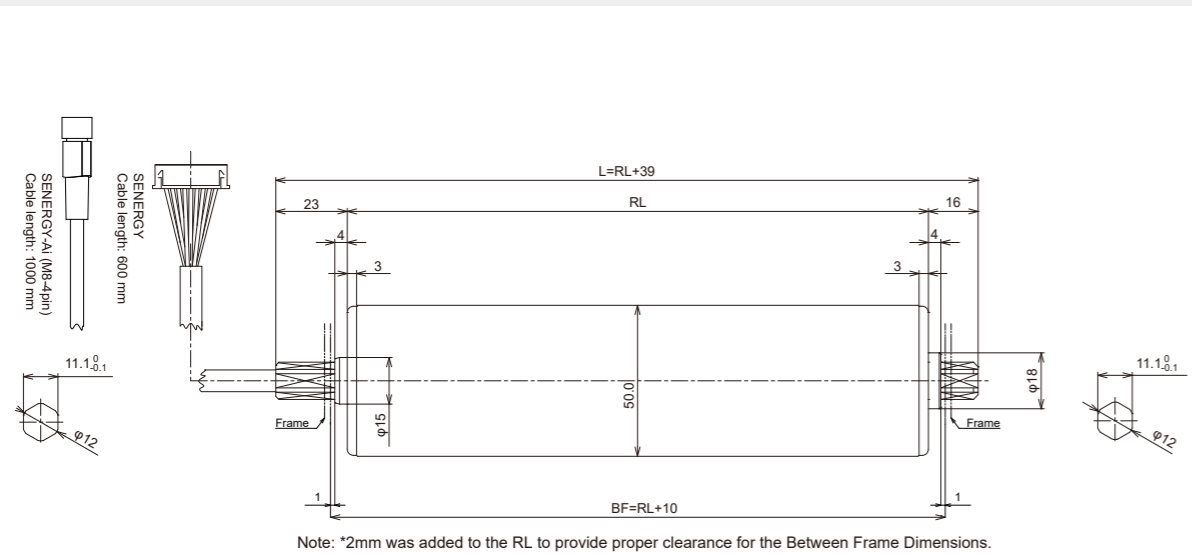
Drives

SENERGY / SENERGY-Ai

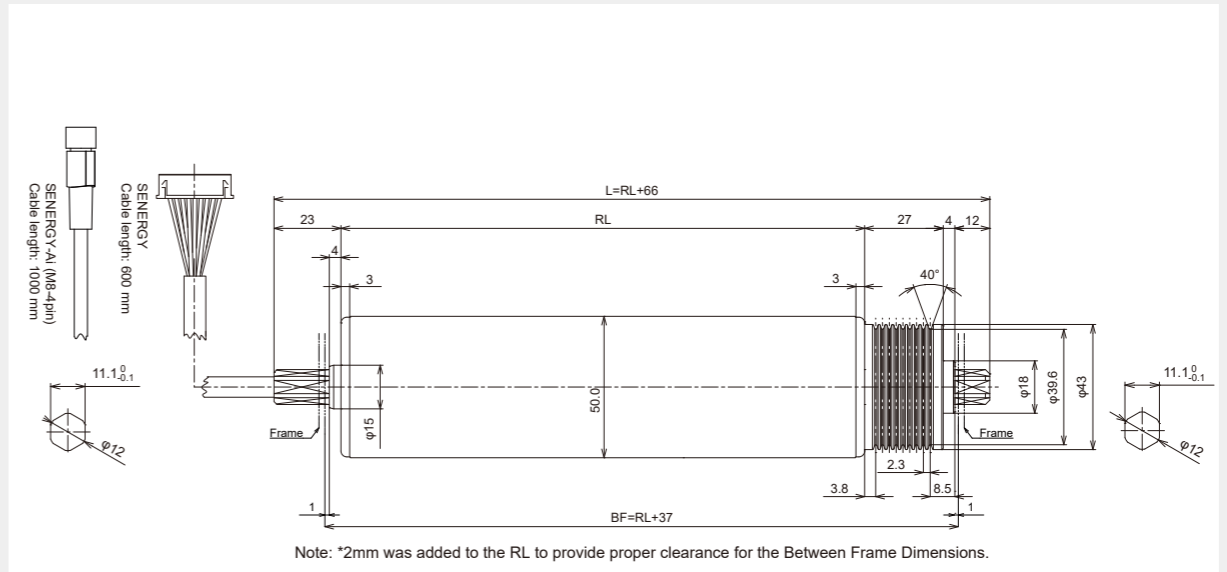


Dimensions (Metric)

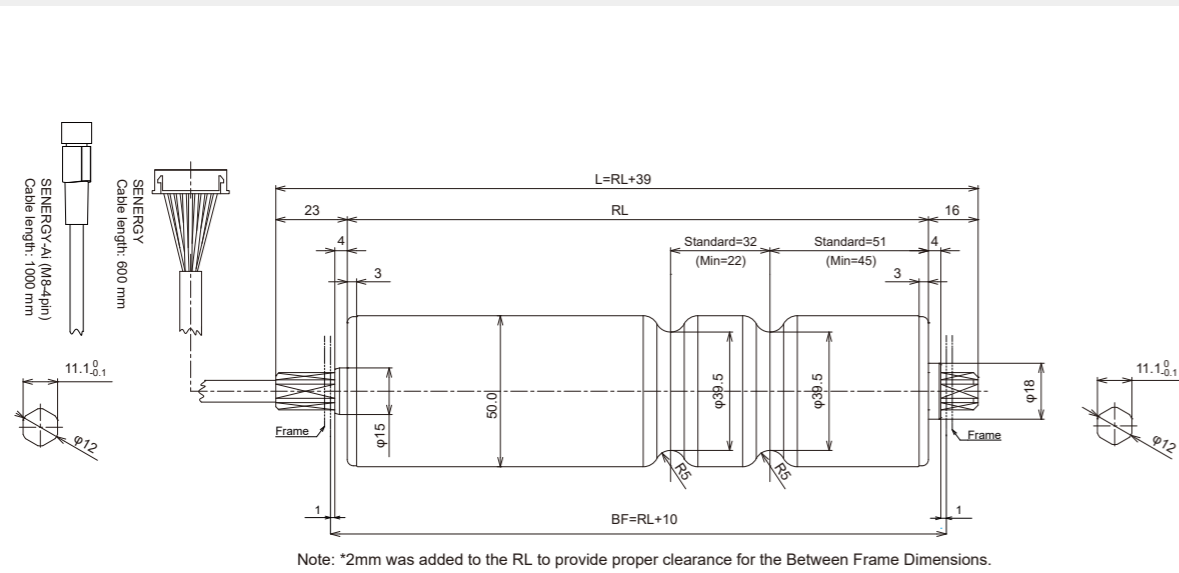
Plain straight



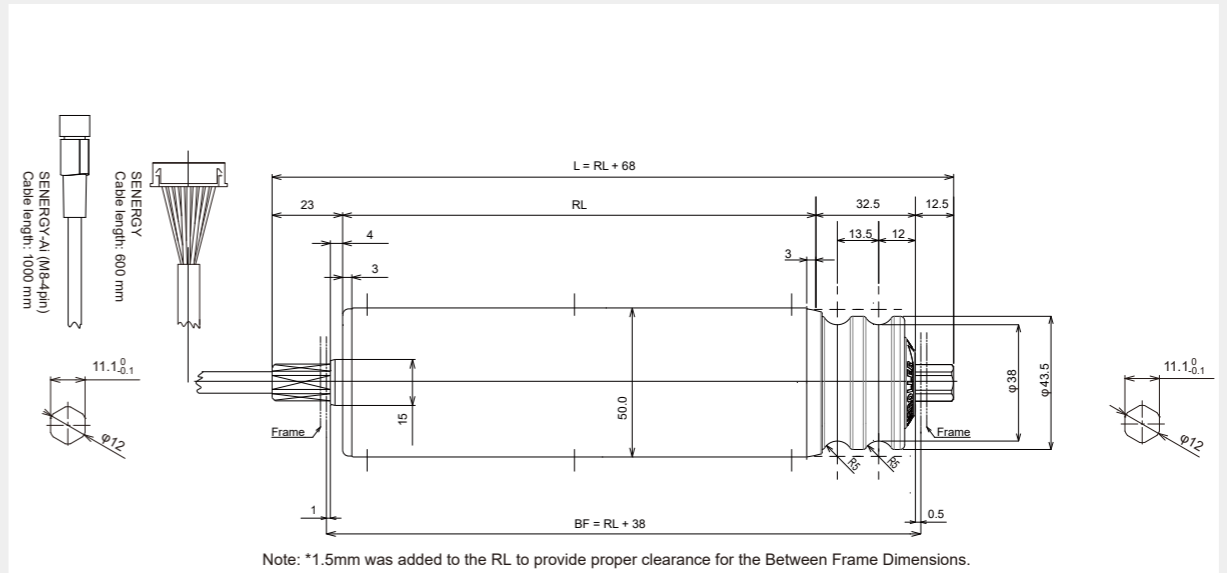
Micro-V pulley



Round Groove



Round Groove pulley



Drives

SENERGY / SENERGY-Ai

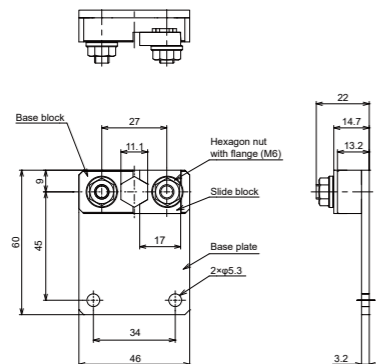


Bracket

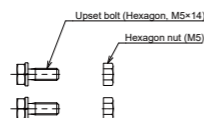
Standard accessory
(Cable side)

PR-D-30H-PU-N
(Point-up)

PR-D-30H-FU-N
(Flat-up)



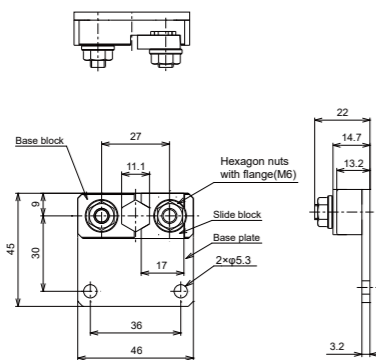
*Drawing above depicts Point-up



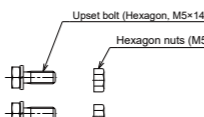
*Note Tightening torque (M6) : 8 ~10 N-m
Tightening torque (M5) : 2.3 ~3.5 N-m

PR-D-30H-PU-N-ST
(Point-up)

PR-D-30H-FU-N-ST
(Flat-up)



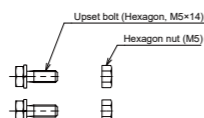
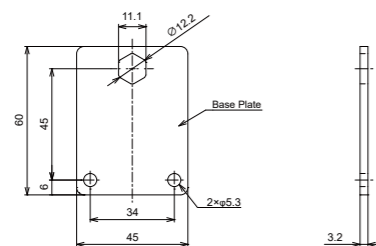
*Drawing above depicts Point-up



*Note Tightening torque (M6) : 8 ~10 N-m
Tightening torque (M5) : 2.3 ~3.5 N-m

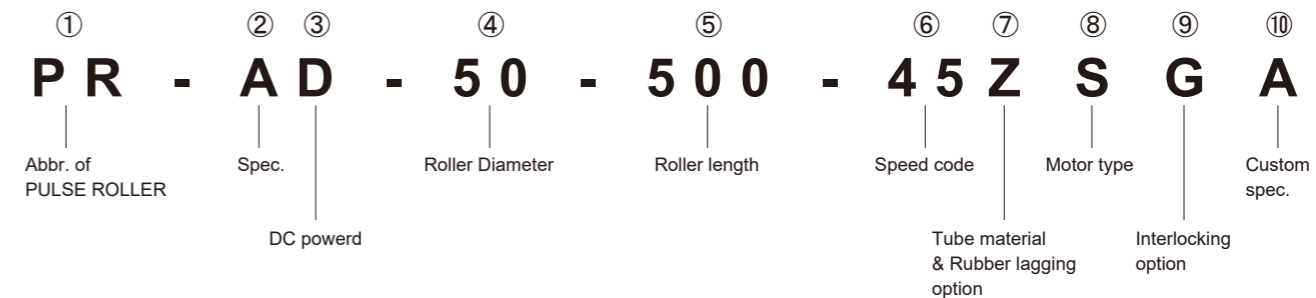
Optional accessory
(Non-Cable side)

*Flat up is not available



*Note Tightening torque (M5) : 2.3 ~3.5 N-m

Part number definition



② Spec.

- A** --- Standard
- B** --- Built-in brake
- Z** --- Freezer spec. (-30°C)
- W** --- Wash-down rated (IP-66)
- Q** --- Wash-down rated (IP-69K)

④ Roller Diameter

- 48** ---φ48.6
- 50** ---φ50.0
- 57** ---φ57.0
- 60** ---φ60.5

⑤ Roller length

Dimension RL (Unit: mm) *Available for every 1 mm unit

⑥ Speed code

Selection of speed range *See Characteristics data table for available speed codes.

⑦ Tube material & Rubber lagging option

- Z** --- Steel, Zinc plating, No lagging *Z is standard for Dia. 48.6 and 50.
- A** --- Steel, Unichrome plating, No lagging *A is standard for Wash-down rated and Dia. 57 & 60.5.
- J** --- Stainless tube
- B** --- 3 mm Black rubber lagging
- W** --- 3 mm Urethane lagging
- Y** --- Special

⑧ Motor type

- S** ---SENERGY (DC 24V, JST connector)
- M** --- SENERGY-Ai (DC 24V, M8-4pin connector, ETL)

⑨ Interlocking option

- A** --- Plain straight, No interlocking
- H** --- Micro V-pulley (Poly vee)
- G** --- Round groove
- F** --- Round groove pulley
- D** --- Dual sprockets
- Y** --- Special

* Special interlocking options are also available. For more details, please contact us.

⑩ Custom spec.

- A** --- Standard
- Y** --- Special

Drives

SENERGY / SENERGY-Ai



Characteristics data

Roller Dia: 50.0 mm

Speed Code	Gearbox	ECO-mode						BOOST-mode & BOOST-8 mode												
		Speed (m/sec)	Torque(N-m)		Tangential force(N)		Current (A)		Speed (m/sec)	Torque(N-m)			Tangential force(N)			Current (A)				
			Rated	Accel	Starting	Rated	Starting	Rated (max)		Starting	Rated	Accel	Boost Starting	Boost-8 Starting	Rated	Boost Starting	Boost-8 Starting	Rated (max)	Boost Starting	Boost-8 Starting
15	3 stage	0.03 ~ 0.33	2.97	4.95	16.39	118.8	655.7	2.5	3.0	0.03 ~ 0.24	5.40	7.94	21.37	24.30	216.0	855.0	972.0	3.5	5.0	8.0
20		0.04 ~ 0.37	2.17	3.62	12.00	86.9	480.0			0.04 ~ 0.33	3.95	5.81	15.64	17.78	158.1	625.8	711.5			
25		0.05 ~ 0.56	1.78	2.97	9.83	71.2	393.4			0.05 ~ 0.40	3.24	4.76	12.82	14.58	129.6	513.0	583.2			
35	2 stage	0.08 ~ 0.83	1.20	2.00	6.66	48.3	266.6	0.08 ~ 0.60	2.19	3.59	8.69	9.88	87.8	347.7	395.2					
45		0.11 ~ 1.01	0.99	1.65	5.46	39.6	218.5	0.11 ~ 0.73	1.80	2.94	7.12	8.10	72.0	285.0	324.0					
60		0.13 ~ 1.38	0.72	1.20	4.00	28.9	160.0	0.13 ~ 1.00	1.31	2.15	5.21	5.92	52.7	208.6	237.1					
75	1 stage	0.16 ~ 1.69	0.59	0.98	3.27	23.7	131.1	0.16 ~ 1.22	1.08	1.76	4.27	4.86	43.2	171.0	194.4					
95		0.22 ~ 2.23	0.44	0.73	2.48	17.9	99.3	0.22 ~ 1.61	0.81	1.49	3.23	3.63	32.7	129.5	147.2					
125		0.30 ~ 3.04	0.33	0.55	1.82	13.2	72.8	0.30 ~ 2.19	0.60	1.09	2.37	2.70	24.0	95.0	108.0					
175		0.41 ~ 4.15	0.24	0.40	1.33	9.6	53.3	0.41 ~ 3.00	0.43	0.78	1.73	1.97	17.5	69.5	79.0					
215		0.50 ~ 5.06	0.19	0.32	1.09	7.9	43.7	0.50 ~ 3.66	0.36	0.65	1.42	1.62	14.4	57.0	64.8					

*Rated torque and rated tangential force of BOOST-8 are the same values as BOOST.
 *BOOST-8 performance is available with EZQUBE-HTBF and ConveyLinX HTF card only for SENERGY
 *BOOST-8 performance is available with ConveyLinX-Ai2 and ConveyLinX-Ai3-24-FC / RC for SENERGY-Ai

SENERGY / SENERGY-Ai torque values are tested data and shall help to apply the product in a right way.

- Rated torque :

This torque value can be delivered by SENERGY / SENERGY-Ai for continuous use without overheating in environmental temperature of 25°C. Average torque of start/stop operation should not exceed this torque value.

- Starting torque :

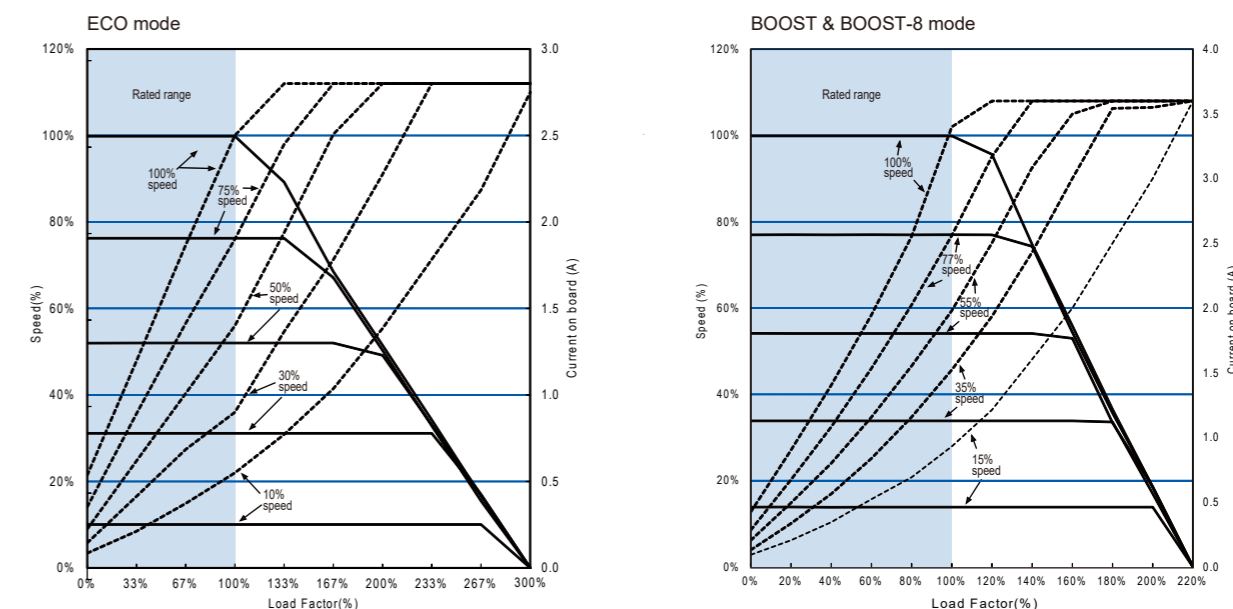
This torque is the peak value of motor stall torque.

- Accel torque :

This torque is the average torque which is present in the phase of acceleration up to set speed. This torque value can be used to calculate real acceleration time of an application. However torque consumption of idler rollers and belts also must be taken into consideration.

NOTE : When the motor is warmed up, torque performance will be less than above values, therefore enough safety factor consideration is necessary to pick the right speed code for each application.

Characteristics chart





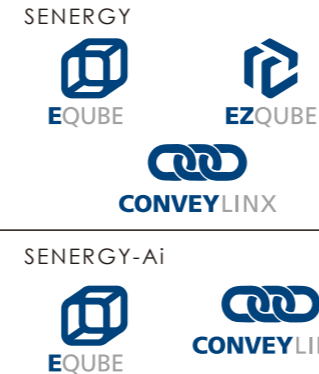
SENERGY / SENERGY-Ai

Optional spec.

Wash-down rated

- IP rating: IP66, IP69K
- Material: All stainless made (Tube: SUS304, Side plate and shaft: SUS303)
- Roller diameter: 48.6, 50.0, 60.5 (mm)
- Min. roller length: Refer to the "Available minimum roller length table" below.
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 600 mm (SENERGY) / 1000mm (SENERGY-Ai)
*Contact us for extension cables
- Motor connector: JST (SENERGY) / M8-4pin (SENERGY-Ai)
- Operation: 0.5 sec ON / 0.5 sec OFF duty cycle (Minimum)
or continuous within rated load

Compatible Control Technologies



Part numbers example

PR - **W**D - 50 - 500 - 45 **A** S A T

Spec.
W for Wash-down, IP66

Tube material & Rubber lagging option
A is standard for Wash-down rated.

PR - **Q**D - 50 - 500 - 45 **A** M A T

Spec.
Q for Wash-down, IP69K

Tube material & Rubber lagging option
A is standard for Wash-down rated.

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
SENERGY 48.6 / 50.0	15, 20, 25	368	352	368	382
	35, 45, 60, 75	344	328	344	368
	95, 125, 175, 215	317	301	317	331
SENERGY-Ai 48.6 / 50.0	15, 20, 25	348	332	348	362
	35, 45, 60, 75	324	318	324	338
	95, 125, 175, 215	297	281	297	311

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Optional spec.

Built-in Brake

- Brake: Electromagnetic brake
- Roller diameter: 48.6, 50.0, 60.5 (mm)
- Min. roller length: Refer to the "Available minimum roller length" table below.
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 600 mm *Contact us for extension cables
- Operation: 0.5 sec ON / 0.5 sec OFF duty cycle (Minimum)
or continuous within rated load

-Note: Not available with SENERGY-Ai

Compatible Control Technologies



*1 Only EZQUBE-HTBF is capable for brake control in EZQUBE series.

Part number definition

PR - **B**D - 50 - 500 - 45 Z S A A

Spec.
B for Built-in Brake

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
SENERGY 48.6 / 50.0	15, 20, 25	394	387	394	426
	35, 45, 60, 75	371	364	371	403
	95, 125, 175, 215	343	336	343	376

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Holding torque

Speed code	15	20	25	35	45	60	75	95	125	175	215
Holding torque	11.2	8.2	6.7	4.5	3.7	2.7	2.2	1.7	1.2	0.9	0.7

Unit: N-m

Drives

SENERGY / SENERGY-Ai



Optional spec.

Freezer rated

- Applicable Temp: From 0°C down to -30°C (No condensation)
- Tube material: Mild steel, zinc plating / Stainless steel (SUS304)
- Side plate material: Aluminium
- Roller diameter: 48.6, 50.0, 60.5 (mm)
- Min. roller length: Refer to the "Available minimum roller length table" below
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 600 mm *Contact us for extension cables
- Operation: 0.5 sec ON / 0.5 sec OFF duty cycle (Minimum)
or continuous within rated load

Compatible Control Technologies

SENERGY



^{*1} EZQUBE



^{*2} CONVEYLINX

SENERGY-Ai



^{*3} CONVEYLINX

- ^{*1} Only EZQUBE-HTBF is capable for freezer application in EZQUBE series.
- ^{*2} Only ConveyLinX-HTF is capable for freezer application in ConveyLinX series.
- ^{*3} For freezer application, the above controls need to be specially made. Please contact us for more details

Part number definition

PR - Z D - 50 - 500 - 45 Z S A A

Spec.
Z for Freezer rated.

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
SENERGY 48.6 / 50.0	15, 20, 25	296	289	296	340
	35, 45, 60, 75	273	258	274	316
	95, 125, 175, 215	246	231	247	289
SENERGY-Ai 48.6 / 50.0	15, 20, 25	301	294	301	345
	35, 45, 60, 75	278	263	279	321
	95, 125, 175, 215	251	236	252	294

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Drives

SENERGY-IDC



Product information

General information

- Conformance: CE, UKCA, RoHS, IP54
- Tube material: Mild steel, zinc plating / Stainless steel (SUS304)
- Roller diameter: 48.6, 50.0 (mm)
- Min. roller length: Refer to the "Available minimum roller length table" below
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 500 mm
- Motor connector: Socket straight 5pin
- Operation: 0.5 sec ON / 0.5 sec OFF duty cycle (Minimum) or continuous within rated load

Compatible Control Technologies

Internal Drive Commutation

Conformance / Certifications



Weight table

Diameter	Speed code	Roller length							
		300	400	500	600	700	800	900	1000
φ48.6	15, 20, 25	2.0	2.1	2.3	2.5	2.6	2.8	2.9	3.1
	35, 45, 60, 75	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9
	95, 125, 175, 215	1.7	1.8	2.0	2.1	2.3	2.5	2.6	2.8
φ50	15, 20, 25	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2
	35, 45, 60, 75	1.8	2.0	2.2	2.4	2.5	2.7	2.9	3.0
	95, 125, 175, 215	1.7	1.9	2.0	2.2	2.4	2.6	2.7	2.9

*Above values are only approximate. Contact us for more details. Unit: kg

Technical data

	SIO mode
Voltage	DC24V
Nominal output	38W
Rated current	2.4A
Starting current	3.0A
Ambient temperature	-10 ~ 40°C
Ambient humidity	10 ~ 90% RH (No condensation)

Wall thickness

Diameter	48.6	50.0
Thickness	1.4	1.5

Unit: mm

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
48.6 / 50.0	15, 20	350	343	350	382
	35, 45, 60	326	319	326	358
	95	299	292	299	331

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Static load capacity

Diameter	Length	300	400	500	600	700	800	900	1000
		48.6	70	60	50	40	35	30	25
50.0		80	70	60	55	50	45	40	35

Unit: kg

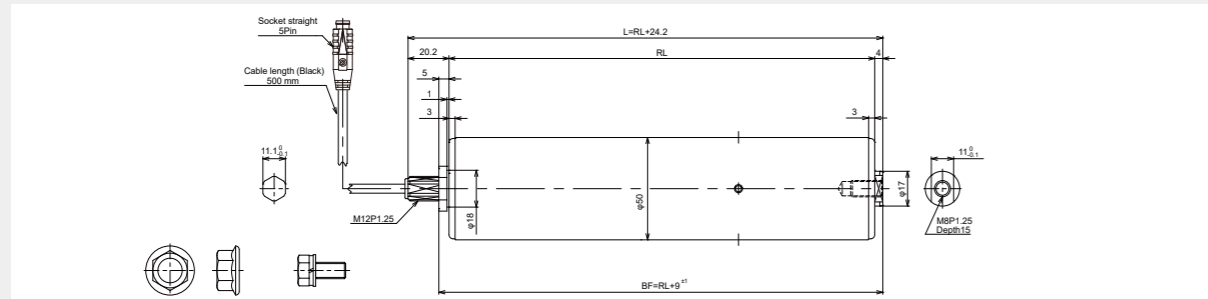
Drives

SENERGY-IDC

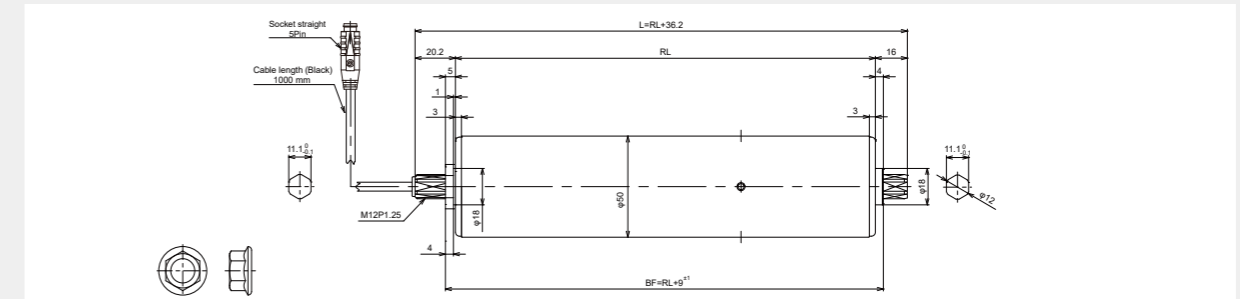


Dimensions (Reference drawing)

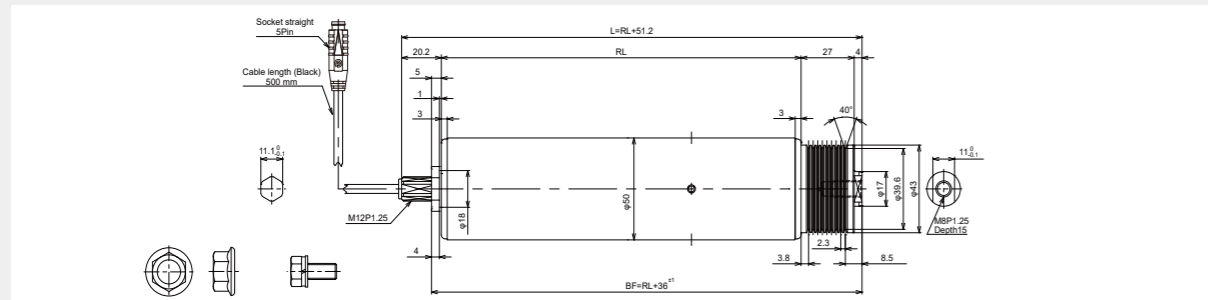
Plain straight



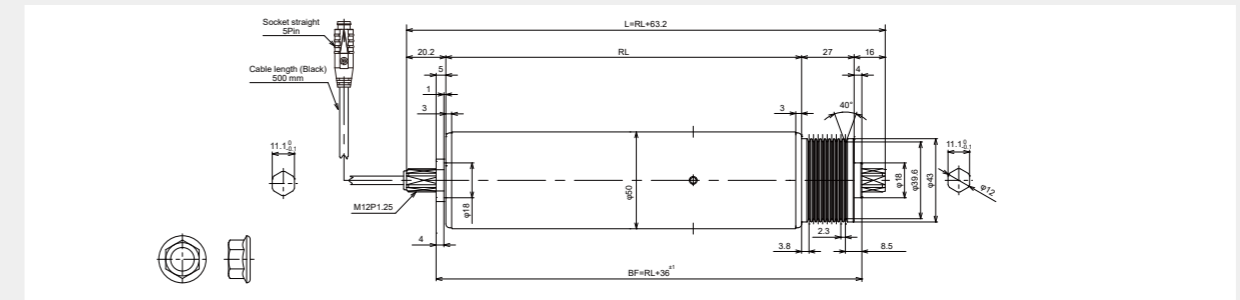
Plain straight



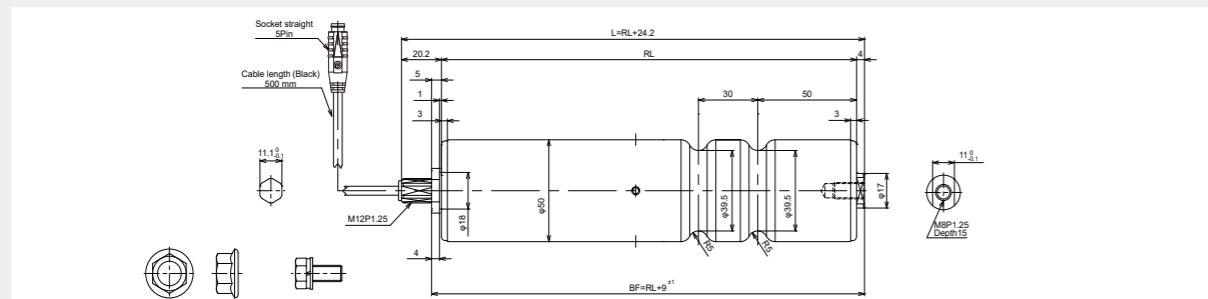
Micro V-Pulley



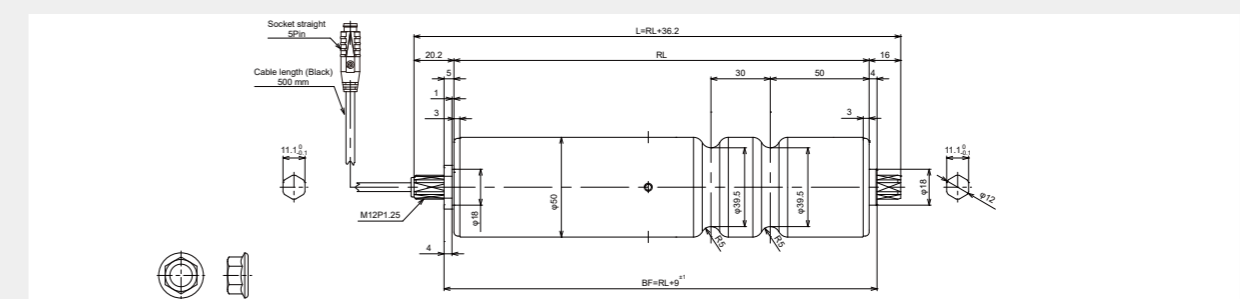
Micro V-Pulley



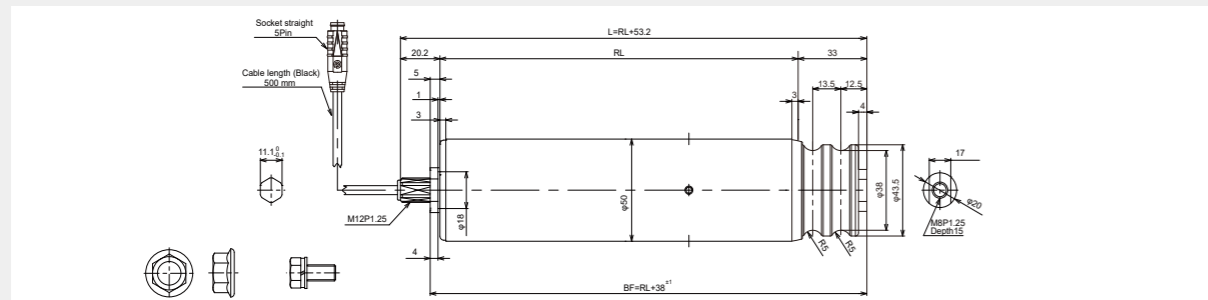
Round Grooves



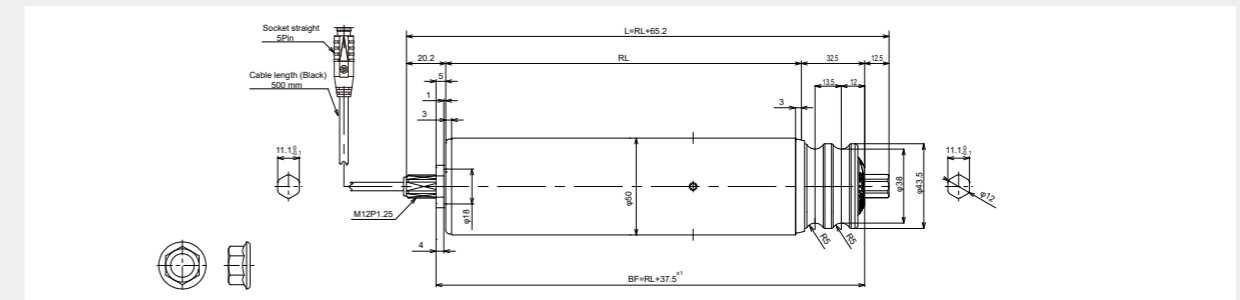
Round Grooves



Round Groove Pulley



Round Groove Pulley

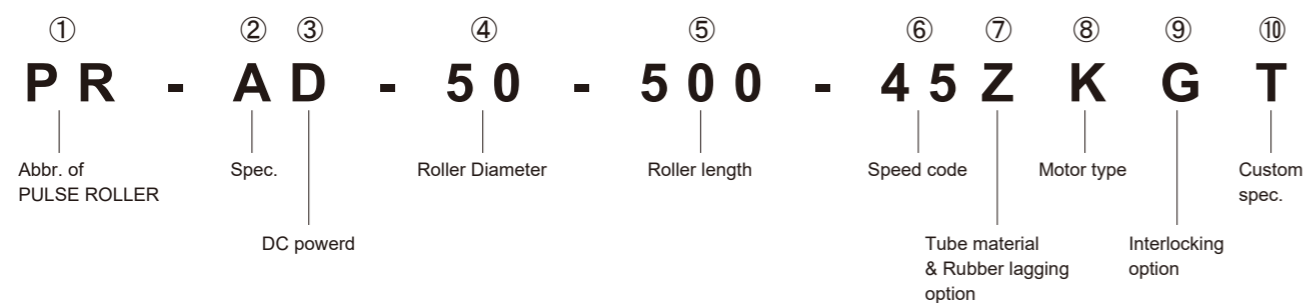


Drives

SENERGY-IDC



Part number definition



- ② Spec.
 - A** --- Standard
 - Q** --- Wash-down rated (IP-69K)
 - W** --- Wash-down rated (IP-66)
 - Z** --- Freezer rated (-30°C)
- ④ Roller Diameter
 - 48** ---φ48.6
 - 50** ---φ50.0
- ⑤ Roller length
 - Dimension RL (Unit: mm) *Available for every 1 mm unit
- ⑥ Speed code
 - Selection of speed range *See Characteristics data table for available speed codes.
- ⑦ Tube material & Rubber lagging option
 - Z** --- Steel, Zinc plating, No lagging *Z is standard for Dia. 48.6 and 50.
 - A** --- Steel, Unichrome plating, No lagging *A is standard for Wash-down rated and Dia. 57 & 60.5.
 - J** --- Stainless tube
 - B** --- 3 mm Black rubber lagging
 - W** --- 3 mm Urethane lagging
 - Y** --- Special
- ⑧ Motor type
 - K** ---SENERGY-IDC (DC 24V, Integrated Motor Drive Control)
- ⑨ Interlocking option
 - A** --- Plain straight, No interlocking
 - G** --- Round groove
 - D** --- Dual sprockets
 - H** --- Micro V-pulley (Poly vee)
 - F** --- Round groove pulley
 - Y** --- Special
- ⑩ Custom spec.
 - T** --- M12 threaded hex (Cable end) + M8 female threaded
 - P** --- M12 threaded hex (Cable end) + Spring-loaded hex

* Special interlocking options are also available. For more details, please contact us.

Characteristics data

Roller Dia: 50.0 mm

Speed code	Gear ratio	Speed (m/s)	Torque(N-m)			Tangential force(N)			Current(A)	
			Rated	Accel	Starting	Rated	Accel	Starting	Rated	Max
15	45	0.03 ~ 0.34	2.7	4.98	10.3	111.6	199.2	414	2.4	3.0
20	32.94	0.05 ~ 0.46	2.0	3.64	7.5	81.6	145.8	303.0		
35	18.3	0.08 ~ 0.83	1.1	2.02	4.2	45.3	81.0	168.3		
45	15	0.10 ~ 1.01	0.9	1.51	3.4	37.2	60.5	101.0		
60	10.98	0.14 ~ 1.38	0.6	1.10	2.5	27.2	44.2	62.7		
95	6.818	0.22 ~ 2.23	0.4	0.68	1.5	16.9	27.5	33.6		

SENERGY-IDC torque values are tested data and shall help to apply the product in a right way.

- Rated torque :
This torque value can be delivered by SENERGY-IDC for continuous use without overheating in environmental temperature of 25°C. Average torque of start/stop operation should not exceed this torque value.
- Starting torque :
This torque is the peak value of motor stall torque.
- Accel torque :
This torque is the average torque which is present in the phase of acceleration up to set speed.
This torque value can be used to calculate real acceleration time of an application. However torque consumption of idler rollers and belts also must be taken into consideration.

NOTE : When the motor is warmed up, torque performance will be less than above values, therefore enough safety factor consideration is necessary to pick the right speed code for each application.

Drives

SENERGY-IDC



Optional spec.

Wash-down rated

- IP rating: IP66, IP69K
- Material: All stainless made (Pipe: SUS304, Side plate and shaft: SUS303)
- Roller diameter: 48.6, 50.0 (mm)
- Min. roller length: Refer to the "Available minimum roller length" table below.
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 500 mm

Compatible Control Technologies

Internal Drive Commutation

Part numbers example

PR - WD - 50 - 500 - 45 A K A T

Spec.
W for Wash-down, IP66

Tube material & Rubber lagging option
A is standard for Wash-down rated.

PR - QD - 50 - 500 - 45 A K A T

Spec.
Q for Wash-down, IP69K

Tube material & Rubber lagging option
A is standard for Wash-down rated.

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
48.6 / 50.0	15, 20	368	352	359	382
	35, 45, 60	344	328	335	358
	95	317	301	308	331

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Optional spec.

Freezer rated

- Applicable Temp: From 0 down to -30°C (No condensation)
- Tube material: Mild steel, zinc plating / Stainless steel (SUS304)
- Side plate material: Aluminium
- Roller diameter: 48.6, 50.0 (mm)
- Min. roller length: Same as standard model
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 500 mm

Compatible Control Technologies

Internal Drive Commutation

Part numbers example

PR - ZD - 50 - 500 - 45 Z K A T

Spec.
Z for Freezer rated

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
48.6 / 50.0	15, 20	321	314	321	382
	35, 45, 60	298	283	298	358
	95	271	256	271	331

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Drives

SENERGY-Ai48



Product information

General information

- Conformance: CE, UKCA, RoHS, IP54
- Certifications: ETL Listed to UL 1004-1 & UL 1004-6
UL Recognized to UL 1004-1
- Tube material: Mild steel, zinc plating / Stainless steel (SUS304)
- Roller diameter: 48.6, 50.0, 60.5 (mm)
- Min. roller length: Refer to the "Minimum available roller length table" below.
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Connector: 4-pin M8 connector cabling
- Cable length: 1000 mm
- Advanced intelligence inside:
 - Internal diagnostics (Real time motor temp report)
 - Product information stored (Serial number, Date of

Compatible Control Technologies



Conformance / Certifications



Weight table

Diameter	Speed code	Roller length							
		300	400	500	600	700	800	900	1000
φ48.6	15, 20	2.0	2.1	2.3	2.5	2.6	2.8	2.9	3.1
	35, 45, 60	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9
φ50	15, 20	2.0	2.2	2.4	2.5	2.7	2.9	3.0	3.2
	35, 45, 60	1.8	2.0	2.2	2.4	2.5	2.7	2.9	3.0
φ60.5	15, 20	3.1	3.6	4.0	4.5	4.9	5.3	5.8	6.2
	35, 45, 60	2.9	3.4	3.8	4.3	4.7	5.2	5.6	6.1

*Above values are only approximate. Contact us for more details. Unit: kg

Technical data

Current limit option	1.7A	2.0A	2.5A	3.5A	4.0A
Voltage	DC48V				
Rated current	1.6A				
Rated output	50W				
Max current	1.9A	2.2A	2.7A	3.7A	4.0A
Max output	63W	69W	84W	108W	118W
Ambient temperature	-10 ~ 40°C				
Ambient humidity	10 ~ 90% RH (No condensation)				

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
48.6 / 50.0	15, 20	330	323	330	362
	35, 45, 60	306	299	306	338

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Wall thickness

Diameter	48.6	50.0	60.5
Thickness	1.4	1.5	3.25

Unit: mm

Static load capacity

Diameter	Length	300	400	500	600	700	800	900	1000
		48.6	70	60	50	40	35	30	25
50.0	80	70	60	55	50	45	40	35	
60.5	160	160	130	130	100	100	80	80	

Unit: kg

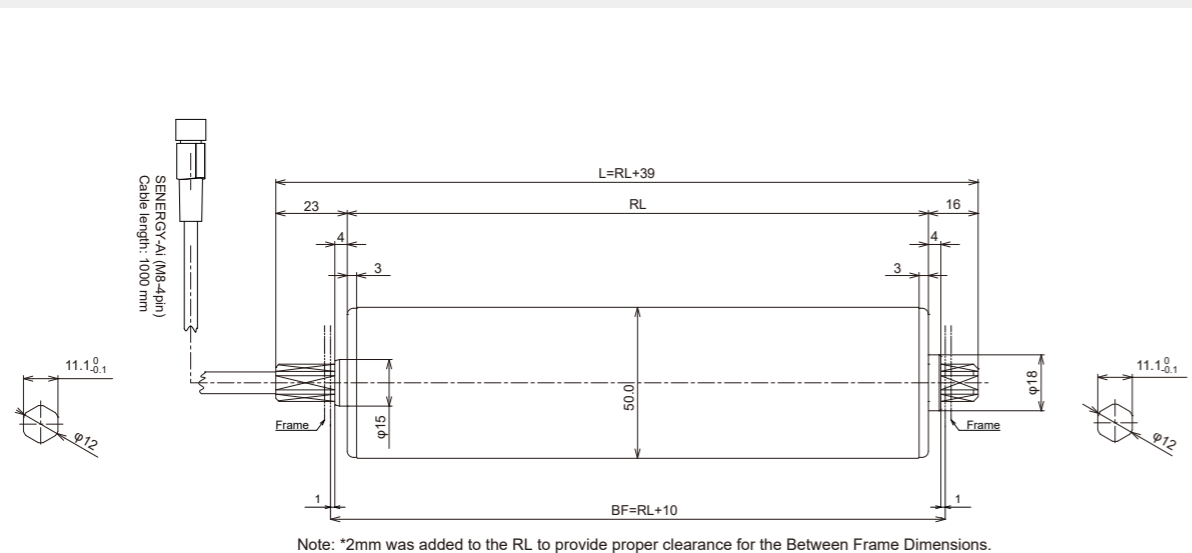
Drives

SENERGY-Ai48

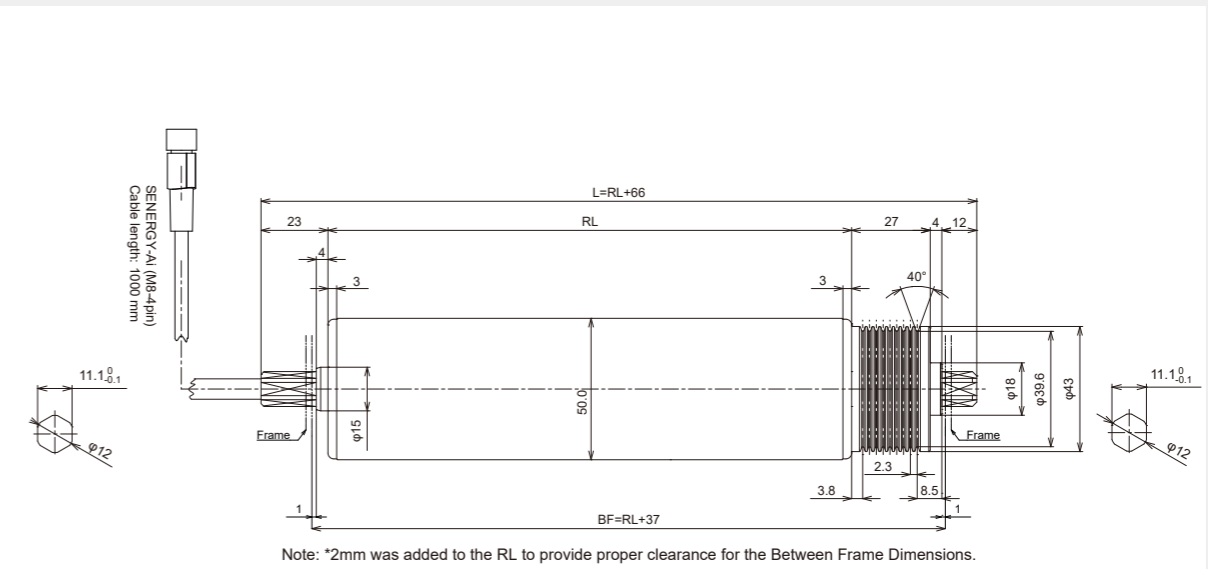


Dimensions (Metric)

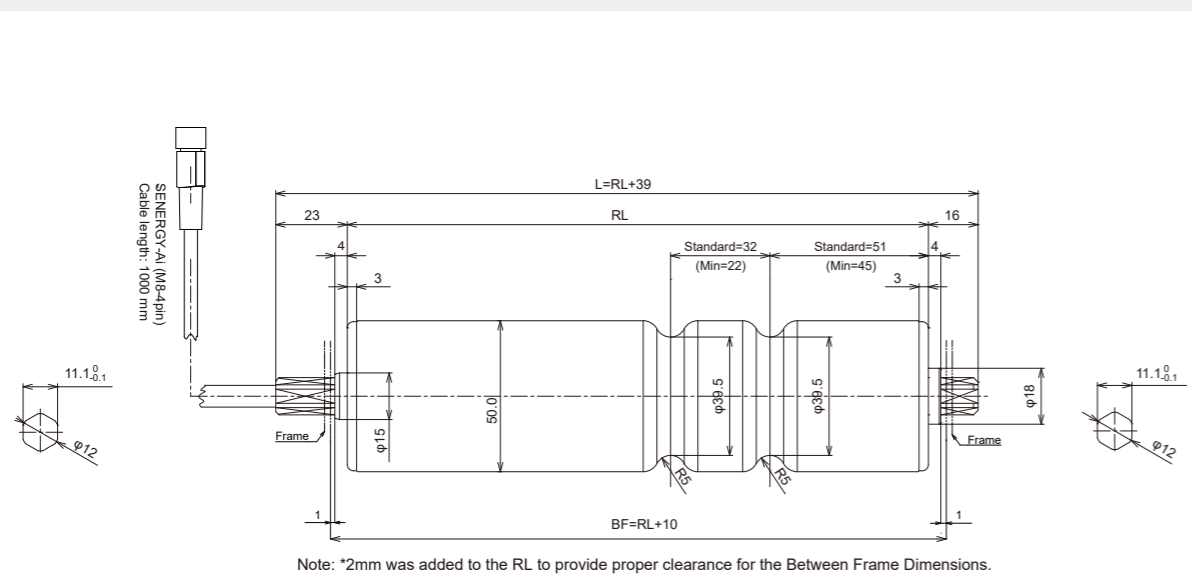
Plain straight



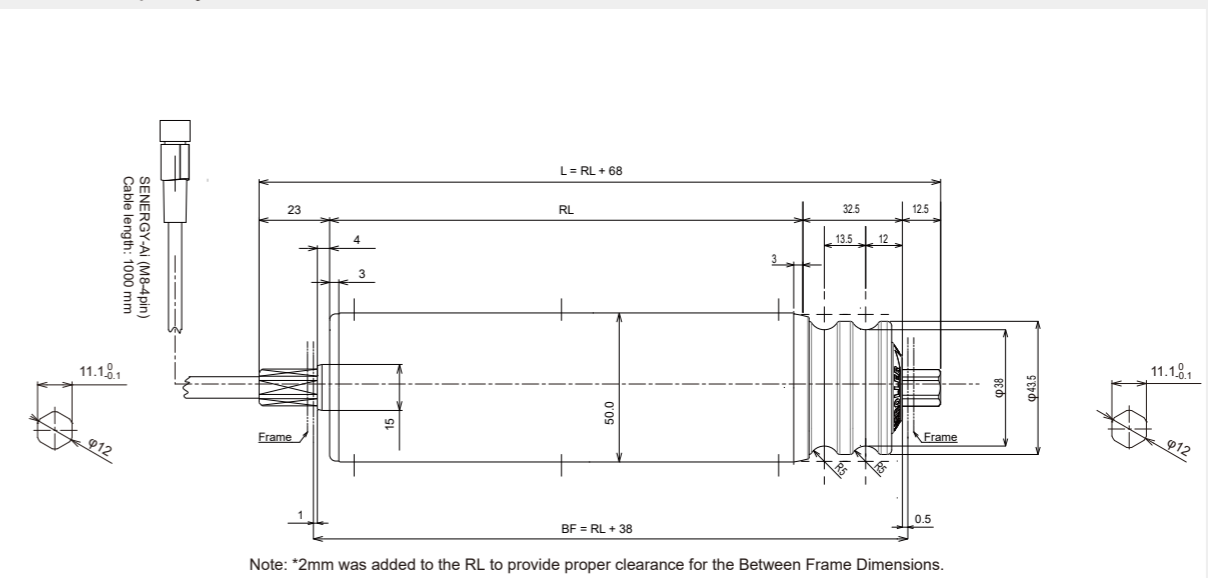
Micro-V pulley



Round Groove



Round Groove pulley



Drives

SENERGY-Ai48

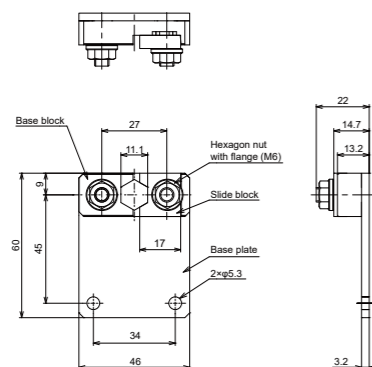


Bracket

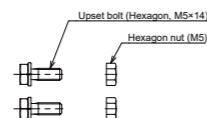
Standard accessory
(Cable side)

PR-D-30H-PU-N
(Point-up)

PR-D-30H-FU-N
(Flat-up)



*Drawing above depicts Point-up

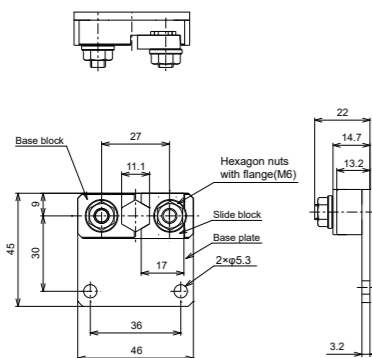


*Note Tightening torque (M6) : 8 ~10 N-m
Tightening torque (M5) : 2.3 ~3.5 N-m

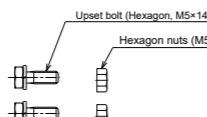


PR-D-30H-PU-N-ST
(Point-up)

PR-D-30H-FU-N-ST
(Flat-up)



*Drawing above depicts Point-up

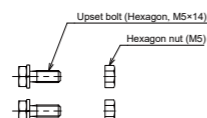
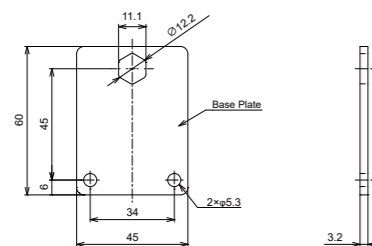


*Note Tightening torque (M6) : 8 ~10 N-m
Tightening torque (M5) : 2.3 ~3.5 N-m



Optional accessory
(Non-Cable side)

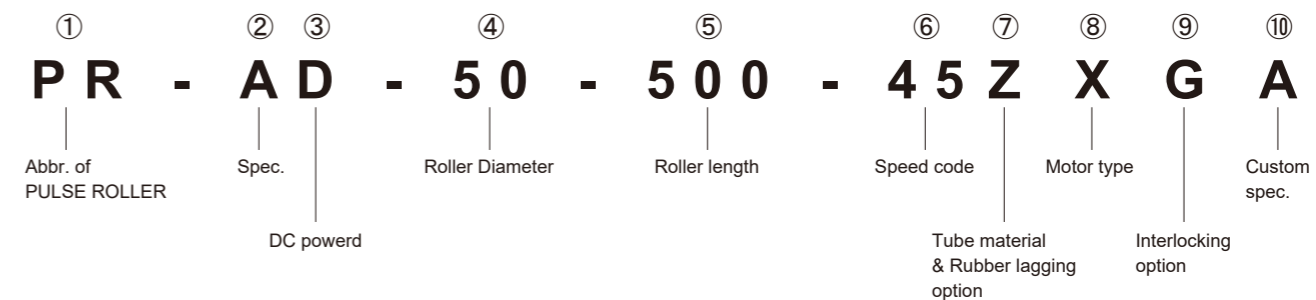
*Flat up is not available



*Note Tightening torque (M5) : 2.3 ~3.5 N-m



Part number definition



② Spec.

- A** --- Standard
- W** --- Wash-down rated (IP-66)
- Z** --- Freezer spec. (-30°C)
- Q** --- Wash-down rated (IP-69K)

④ Roller Diameter

- 48** ---φ48.6
- 50** ---φ50.0
- 60** ---φ60.5

⑤ Roller length

Dimension RL (Unit: mm) *Available for every 1 mm unit

⑥ Speed code

Selection of speed range *See Characteristics data table for available speed codes.

⑦ Tube material & Rubber lagging option

- Z** --- Steel, Zinc plating, No lagging *Z is standard for Dia. 48.6 and 50.
- A** --- Steel, Unichrome plating, No lagging *A is standard for Wash-down rated and Dia. 57 & 60.5.
- J** --- Stainless tube
- B** --- 3 mm Black rubber lagging
- W** --- 3 mm Urethane lagging
- Y** --- Special

⑧ Motor type

- X** ---SENERGY-Ai-X (DC 48V, M8-4pin connector)

⑨ Interlocking option

- A** --- Plain straight, No interlocking
- G** --- Round groove
- D** --- Dual sprockets
- H** --- Micro V-pulley (Poly vee)
- F** --- Round groove pulley
- Y** --- Special

* Special interlocking options are also available. For more details, please contact us.

⑩ Custom spec.

- A** --- Standard
- Y** --- Special

Drives

SENERGY-Ai48



Characteristics data

Roller Dia: 50.0 mm

Current limit: 1.7A

Speed code	Gear ratio	Speed (m/s)	Torque(N-m)			Tangential force(N)			Output(W)	Output(W)	Current(A)	Current(A)
			Rated	Accel	Holding	Rated	Accel	Holding	Rated	Max	Rated	Max
15	45	0.03 ~ 0.40	2.95	4.58	7.94	118	183.2	317.6	50W	63W	1.6A	1.9A
20	32.94	0.04 ~ 0.55	2.16	3.36	5.82	86.4	134.4	232.8				
35	18.3	0.08 ~ 1.00	1.25	1.86	3.10	50	74.4	124.0				
45	15	0.10 ~ 1.22	1.02	1.53	2.54	40.8	61.2	101.6				
60	10.98	0.13 ~ 1.66	0.75	1.12	1.86	30	44.8	74.4				

Current limit: 3.5A

Speed code	Gear ratio	Speed (m/s)	Torque(N-m)			Tangential force(N)			Output(W)	Output(W)	Current(A)	Current(A)
			Rated	Accel	Holding	Rated	Accel	Holding	Rated	Max	Rated	Max
15	45	0.03 ~ 0.40	2.95	7.36	7.94	118	294.4	317.6	50W	108W	1.6A	3.7A
20	32.94	0.04 ~ 0.55	2.16	5.40	5.82	86.4	216.0	232.8				
35	18.3	0.08 ~ 1.00	1.25	2.99	3.10	50	119.6	124.0				
45	15	0.10 ~ 1.22	1.02	2.45	2.54	40.8	98.0	101.6				
60	10.98	0.13 ~ 1.66	0.75	1.86	1.86	30	72.0	74.4				

Current limit: 2.0A

Speed code	Gear ratio	Speed (m/s)	Torque(N-m)			Tangential force(N)			Output(W)	Output(W)	Current(A)	Current(A)
			Rated	Accel	Holding	Rated	Accel	Holding	Rated	Max	Rated	Max
15	45	0.03 ~ 0.40	2.95	4.91	7.94	118	196.4	317.6	50W	69W	1.6A	2.2A
20	32.94	0.04 ~ 0.55	2.16	3.60	5.82	86.4	144.0	232.8				
35	18.3	0.08 ~ 1.00	1.25	2.00	3.10	50	80.0	124.0				
45	15	0.10 ~ 1.22	1.02	1.64	2.54	40.8	65.6	101.6				
60	10.98	0.13 ~ 1.66	0.75	1.20	1.86	30	48.0	74.4				

Current limit: 4.0A

Speed code	Gear ratio	Speed (m/s)	Torque(N-m)			Tangential force(N)			Output(W)	Output(W)	Current(A)	Current(A)
			Rated	Accel	Holding	Rated	Accel	Holding	Rated	Max	Rated	Max
15	45	0.03 ~ 0.40	2.95	8.12	7.94	118	324.8	317.6	50W	118W	1.6A	4.0A
20	32.94	0.04 ~ 0.55	2.16	5.96	5.82	86.4	238.4	232.8				
35	18.3	0.08 ~ 1.00	1.25	3.30	3.10	50	132.0	124.0				
45	15	0.10 ~ 1.22	1.02	2.71	2.54	40.8	108.4	101.6				
60	10.98	0.13 ~ 1.66	0.75	1.99	1.86	30	79.6	74.4				

Current limit: 2.5A

Speed code	Gear ratio	Speed (m/s)	Torque(N-m)			Tangential force(N)			Output(W)	Output(W)	Current(A)	Current(A)
			Rated	Accel	Holding	Rated	Accel	Holding	Rated	Max	Rated	Max
15	45	0.03 ~ 0.40	2.95	5.72	7.94	118	228.8	317.6	50W	84W	1.6A	2.7A
20	32.94	0.04 ~ 0.55	2.16	4.19	5.82	86.4	167.6	232.8				
35	18.3	0.08 ~ 1.00	1.25	2.33	3.10	50	93.2	124.0				
45	15	0.10 ~ 1.22	1.02	1.91	2.54	40.8	76.4	101.6				
60	10.98	0.13 ~ 1.66	0.75	1.40	1.86	30	56.0	74.4				

Definitions and Notes :

"Holding" torque means continuous holding torque without overheating.

"Rated" torque means continuous running torque without overheating.

"Accel" torque means the average torque which is present in the phase of acceleration up to set speed. This torque value can be used to calculate real acceleration time of an application.

However, torque consumption of idler rollers and belts also must be taken into consideration.

Above performance values may have its tolerance range of +/-10% as individual differences.

Before the run-in, the values may differ up to +/-20%.

After a run-in phase, the values vary only in the range of +/-8% for 96% of all PulseRoller used.

Above maximum output is intermittent output of the product.

All of the above performance data is at 22C ambient temperature environment.

Applicable temp in operation : -10~50C degrees (no condensation)

Drives

SENERGY-Ai48



Optional spec.

Wash-down rated

- IP rating: IP66, IP69K
- Material: All stainless made (Pipe: SUS304, Side plate and shaft: SUS303)
- Roller diameter: 48.6, 50.0, 60.5 (mm)
- Min. roller length: Refer to the "Available minimum roller length" table below.
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 1000 mm

Compatible Control Technologies



Optional spec.

Freezer rated

- Applicable Temp: From 0 down to -30°C (No condensation)
- Tube material: Mild steel, zinc plating / Stainless steel (SUS304)
- Side plate material: Aluminium
- Roller diameter: 48.6, 50.0, 60.5 (mm)
- Min. roller length: Same as standard model
- Max. roller length: 1000 mm *Contact us for longer than 1000 mm.
- Cable length: 1000 mm

Compatible Control Technologies



*1 For freezer application, the above controls need to be specially made. Please contact us for more details

Part numbers example

PR - **W**D - 50 - 500 - 45 **A**XAT

Spec.
W for Wash-down, IP66

Tube material & Rubber lagging option
A is standard for Wash-down rated.

PR - **Q**D - 50 - 500 - 45 **A**XAT

Spec.
Q for Wash-down, IP69K

Tube material & Rubber lagging option
A is standard for Wash-down rated.

Part number definition

PR - **Z**D - 50 - 500 - 45 **Z**XAA

Spec.
Z for Freezer rated.

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
48.6 / 50.0	15, 20	348	332	348	362
	35, 45, 60	324	318	324	338

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Available Minimum Roller Length

Motor Type	Speed Code	Interlocking Option			
		Plain Straight	Micro V-Pulley	Round Groove Pulley	Round Groove
48.6 / 50.0	15, 20	301	294	301	345
	35, 45, 60	278	263	279	321

Unit: mm

*We support shorter length than those listed above using specially made components. Contact us for more details.

Drives

PGD / PGD-Ai -Pulse Geared Drive-



Product information

General information

- Conformance: CE, RoHS, IP54
- Certifications: ETL Listed to UL 1004-1 & UL 1004-6
UL Recognized to UL 1004-1 & UL 1004-6
- Mounting: M5 x 7 mm
- Shaft diameter: 16 mm
- Key: 5 x 5 x 25 mm
- Cable length: 600 mm (SENERGY motor) / 1000 mm (SENERGY-Ai motor)
*Contact us for extension cables
- Motor connector: JST (SENERGY motor) / M8-4pin (SENERGY-Ai motor)
- Operation: 0.5 sec ON / 0.5 sec OFF duty cycle (Minimum)

Compatible Control Technologies



Conformance / Certifications



Characteristics data

Nominal Gear ratio	Actual Gear ratio	Gear box	ECO-mode					BOOST-mode & BOOST-8 mode								
			Output shaft Speed (rpm)	Torque(N-m)			Current (A)		Output shaft Speed (rpm)	Torque(N-m)			Current (A)			
				Rated	Accel	Starting	Rated (max)	Starting		Rated	Accel	Boost Starting	Boost-8 Starting	Rated (max)	Boost Starting	Boost-8 Starting
67	67.222...	3 stage	8.5 ~ 86.7	4.4	7.33	24.4	2.5	3.0	8.5 ~ 62.7	8.03	11.82	31.81	36.1	3.5	5.0	8.0
45	45.00		12.8 ~ 129.0	2.97	4.95	16.39			12.8 ~ 93.3	5.40	7.94	21.37	24.3			
33	32.999...		17.4 ~ 176.3	2.17	3.62	12.00			17.4 ~ 127.5	3.95	5.81	15.64	17.7			
27	27.00		21.3 ~ 215.1	1.78	2.97	9.83			21.3 ~ 155.5	3.24	4.76	12.82	14.5			
18	18.333...	2 stage	31.4 ~ 317.3	1.20	2.00	6.66	2.5	3.0	31.4 ~ 229.5	2.19	3.59	8.69	9.8	3.5	5.0	8.0
15	15.00		38.4 ~ 387.2	0.99	1.65	5.46			38.4 ~ 280.0	1.80	2.94	7.12	8.1			
11	10.999...		52.4 ~ 528.9	0.72	1.20	4.00			52.4 ~ 382.5	1.31	2.15	5.21	5.9			
9	9.00		64.0 ~ 645.3	0.59	0.98	3.27			64.0 ~ 466.6	1.08	1.76	4.27	3.6			

*Rated torque and rated tangential force of BOOST-8 are the same values as BOOST.

*BOOST-8 performance is available with EQUBE-HTBF and ConveyLinX-HTF card only for SENERGY.

*BOOST-8 performance is available with ConveyLinX-Ai2 and ConveyLinX-Ai3-24-FC / RC for SENERGY-Ai.

Technical data

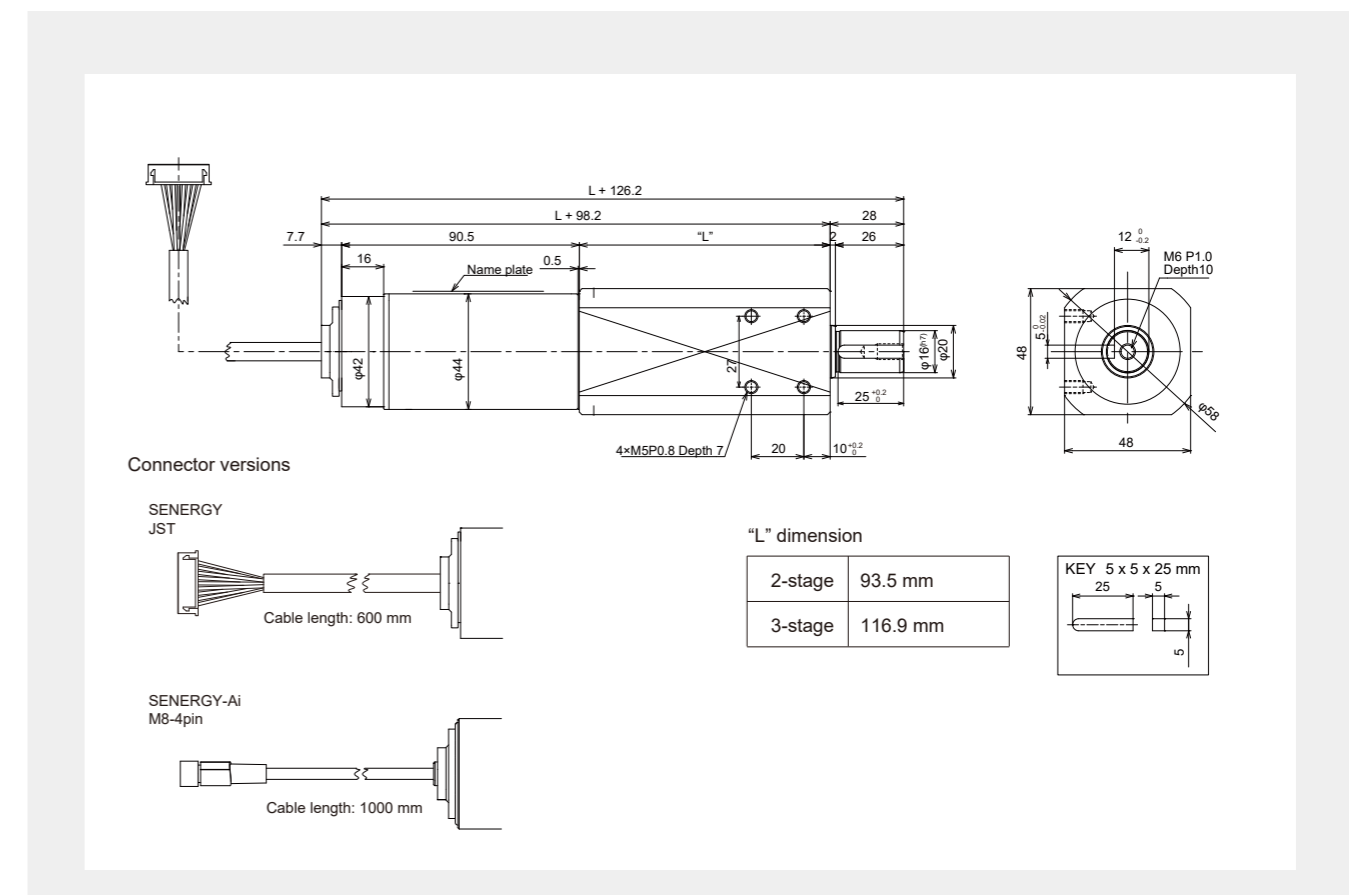
	ECO mode	BOOST mode	BOOST-8 mode
Voltage	DC24V		
Nominal output	40W	50W	50W
Rated current	2.5A	3.5A	3.5A
Starting current	3.0A	5.0A	8.0A
Ambient temperature	-10 ~ 40°C (No condensation)		
Ambient humidity	10 ~ 90% RH (No condensation)		

Weight table

Gear box	Reduction ratio	Weight
3 stage	67, 45, 33, 27	1.5
2 stage	18, 15, 11, 9	1.2

Unit: kg

Dimensions (Metric)

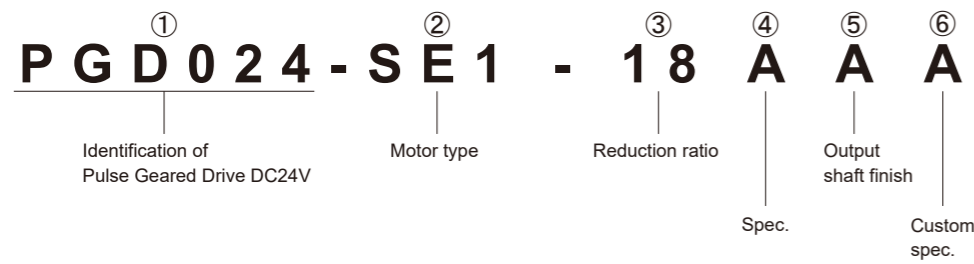


Drives

PGD / PGD-Ai -Pulse Geared Drive-



Part number definition



② Motor type

SE1 --- PGD (DC24V, JST connector) **SE2** --- PGD-Ai (DC24V, M8-4pin connector, ETL)

③ Reduction ratio

Selection of gear ratio *See Characteristics data table for available gear ratios.

④ Spec.

A --- Standard

⑤ Output shaft finish

A --- Standard key-way shaft (No attachment)

H --- With Micro V-pulley (Poly vee) Hub

⑥ Custom spec.

A --- Standard

Y --- Special



PGD-IDC -Pulse Geared Drive-

Product information

General information

- Conformance: CE, UKCA, RoHS, IP54
- Mounting: M5 x 7mm
- Shaft diameter: 16 mm
- Key: 5 x 5 x 25 mm
- Cable length: 500 mm

Compatible Control Technologies

Internal Drive Commutation

Conformance / Certifications



Technical data

	SIO mode
Voltage	DC24V
Nominal output	38W
Rated current	2.4A
Starting current	3.0A
Ambient temperature	-10 ~ 40°C
Ambient humidity	10 ~ 90% RH (No condensation)

Weight table

Gear box	Reduction ratio	Weight
3 stage	67, 45, 33	1.5
2 stage	18, 15, 11	1.2

Unit: kg

Part numbers example



② Nominal gear ratio

Selection of gear ratio *See Characteristics data table for available gear ratios.

③ Spec.

A --- Standard

④ Output shaft finish

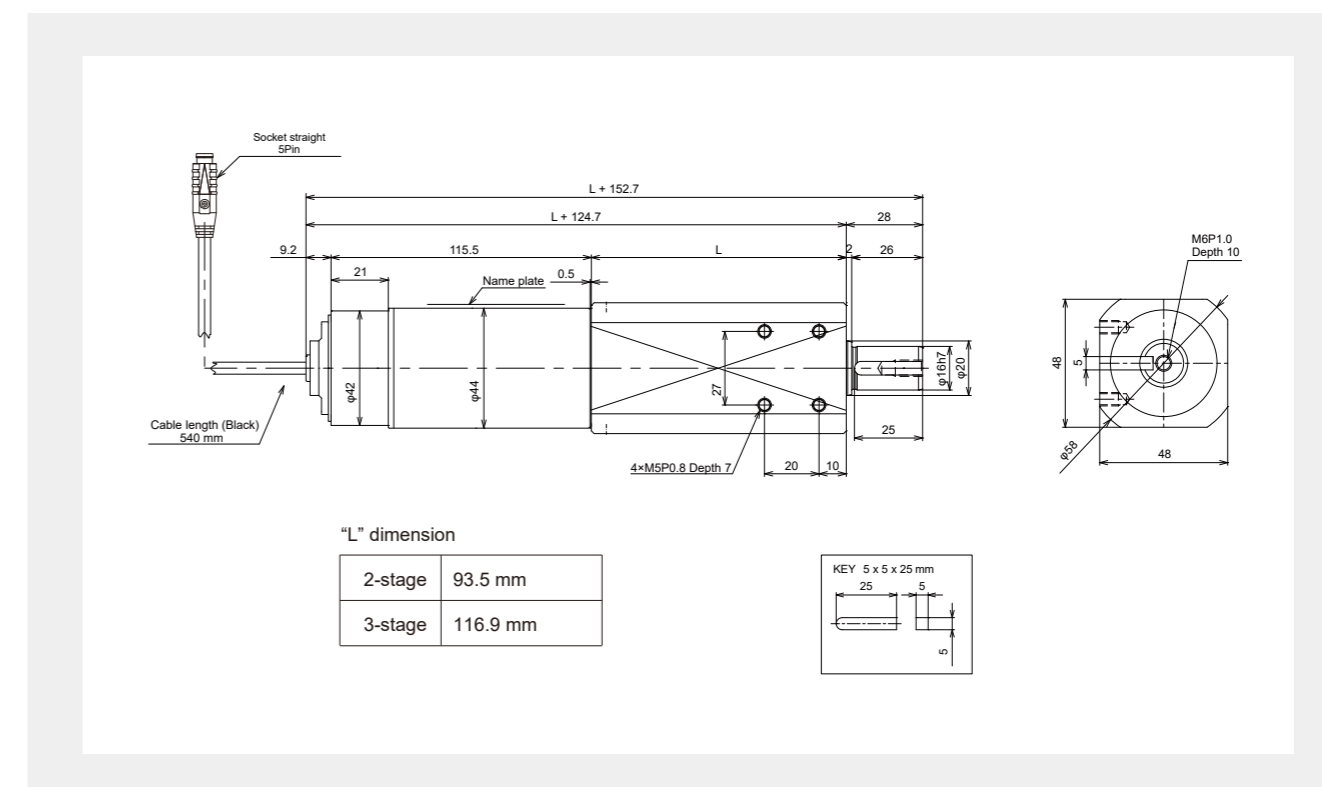
A --- Standard key-way shaft (No attachment)

⑤ Custom spec.

A --- Standard

Y --- Others

Dimensions (Metric)





PGD-IDC -Pulse Geared Drive-

Characteristics data

Nominal Gear ratio	Actual Gear ratio	Gear box	Speed (rpm)	Torque(N-m)			Current(A)	
				Rated	Accel	Starting	Rated	Max
67	67.22	3 stage	8 ~ 86	4.1	6.20	15.4	2.4	3.0
45	45.00		12 ~ 128	2.7	4.15	10.3		
33	32.999...		17 ~ 176	2.0	3.03	7.5		
18	18.333...	2 stage	31 ~ 316	1.1	2.02	4.2		
15	15.00		38 ~ 386	0.9	1.84	3.4		
11	10.999...		52 ~ 528	0.6	1.10	2.5		

PGD-IDC torque values are tested data and shall help to apply the product in a right way.

- Rated torque :

This torque value can be delivered by Senergy Ai for continuous use without overheating in environmental temperature of 25°C. Average torque of start/stop operation should not exceed this torque value.

- Starting torque :

This torque is the peak value of motor stall torque.

- Accel torque :

This torque is the average torque which is present in the phase of acceleration up to set speed. This torque value can be used to calculate real acceleration time of an application. However torque consumption of idler rollers and belts also must be taken into consideration.

NOTE : When the motor is warmed up, torque performance will be less than above values, therefore enough safety factor consideration is necessary to pick the right speed code for each application.



PGD-Ai48 -Pulse Geared Drive-

Product information

General information

- Conformance: CE, UKCA, RoHS, IP54
- Certifications: ETL Listed to UL 1004-1 & UL 1004-6
UL Recognized to UL 1004-1
- Mounting: M5 x 7 mm
- Shaft diameter: 16 mm
- Key: 5 x 5 x 25 mm
- Cable length: 1000 mm
*Contact us for extension cables
- Motor connector: M8-4pin
- Operation: 0.5 sec ON / 0.5 sec OFF duty cycle (Minimum)

Compatible Control Technologies



Conformance / Certifications



Technical data

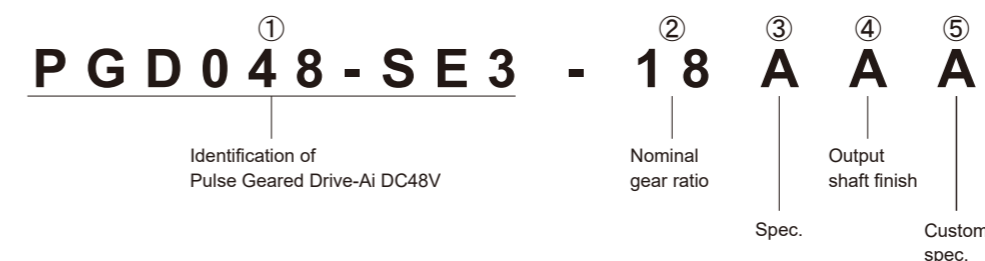
Current limit option	1.7A	2.0A	2.5A	3.5A	4.0A
Voltage	DC48V				
Rated current	1.6A				
Rated output	50W				
Max current	1.9A	2.2A	2.7A	3.7A	4.0A
Max output	63W	69W	84W	108W	118W
Ambient temperature	-10 ~ 40°C				
Ambient humidity	10 ~ 90% RH (No condensation)				

Weight table

Gear box	Reduction ratio	Weight
3 stage	45, 33	1.5
2 stage	18, 15, 11	1.2

Unit: kg

Part numbers example



② Nominal gear ratio

Selection of gear ratio *See Characteristics data table for available gear ratios.

③ Spec.

A --- Standard

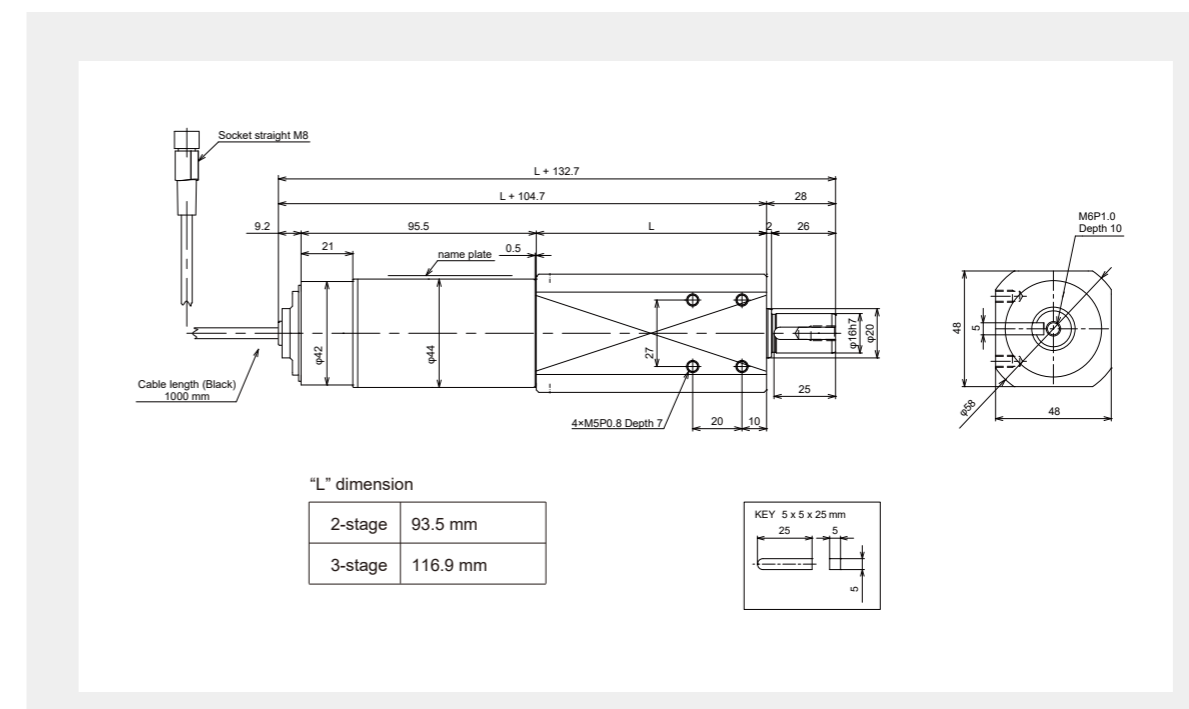
④ Output shaft finish

A --- Standard key-way shaft (No attachment)

⑤ Custom spec.

A --- Standard Y --- Others

Dimensions (Metric)





PGD-Ai48 -Pulse Geared Drive-

Characteristics data

Current limit: 1.7A

Speed code	Gear ratio	Outout shaft Speed (m/s)	Torque(N-m)			Output(W)		Current(A)	
			Rated	Accel	Holding	Rated	Max	Rated	Max
45	45.00	12.84 ~ 155.56	2.95	4.58	7.94	50W	63W	1.6A	1.9A
33	32.94	17.55 ~ 212.51	2.16	3.36	5.82				
18	18.30	31.58 ~ 382.51	1.25	1.86	3.10				
15	15.00	38.53 ~ 466.67	1.02	1.53	2.54				
11	10.98	52.64 ~ 637.52	0.75	1.12	1.86				

Current limit: 3.5A

Speed code	Gear ratio	Outout shaft Speed (m/s)	Torque(N-m)			Output(W)		Current(A)	
			Rated	Accel	Holding	Rated	Max	Rated	Max
45	45.00	12.84 ~ 155.56	2.95	7.36	7.94	50W	108W	1.6A	3.7A
33	32.94	17.55 ~ 212.51	2.16	5.40	5.82				
18	18.30	31.58 ~ 382.51	1.25	2.99	3.10				
15	15.00	38.53 ~ 466.67	1.02	2.45	2.54				
11	10.98	52.64 ~ 637.52	0.75	1.80	1.86				

Current limit: 2.0A

Speed code	Gear ratio	Outout shaft Speed (m/s)	Torque(N-m)			Output(W)		Current(A)	
			Rated	Accel	Holding	Rated	Max	Rated	Max
45	45.00	12.84 ~ 155.56	2.95	4.91	7.94	50W	69W	1.6A	2.2A
33	32.94	17.55 ~ 212.51	2.16	3.60	5.82				
18	18.30	31.58 ~ 382.51	1.25	2.00	3.10				
15	15.00	38.53 ~ 466.67	1.02	1.64	2.54				
11	10.98	52.64 ~ 637.52	0.75	1.20	1.86				

Current limit: 4.0A

Speed code	Gear ratio	Outout shaft Speed (m/s)	Torque(N-m)			Output(W)		Current(A)	
			Rated	Accel	Holding	Rated	Max	Rated	Max
45	45.00	12.84 ~ 155.56	2.95	8.12	7.94	50W	118W	1.6A	4.0A
33	32.94	17.55 ~ 212.51	2.16	5.96	5.82				
18	18.30	31.58 ~ 382.51	1.25	3.30	3.10				
15	15.00	38.53 ~ 466.67	1.02	2.71	2.54				
11	10.98	52.64 ~ 637.52	0.75	1.99	1.86				

Current limit: 2.5A

Speed code	Gear ratio	Outout shaft Speed (m/s)	Torque(N-m)			Output(W)		Current(A)	
			Rated	Accel	Holding	Rated	Max	Rated	Max
45	45.00	12.84 ~ 155.56	2.95	5.72	7.94	50W	84W	1.6A	2.7A
33	32.94	17.55 ~ 212.51	2.16	4.19	5.82				
18	18.30	31.58 ~ 382.51	1.25	2.33	3.10				
15	15.00	38.53 ~ 466.67	1.02	1.91	2.54				
11	10.98	52.64 ~ 637.52	0.75	1.40	1.86				

Definitions and Notes :

"Holding" torque means continuous holding torque without overheating.

"Rated" torque means continuous running torque without overheating.

"Accel" torque means the average torque which is present in the phase of acceleration up to set speed. This torque value can be used to calculate real acceleration time of an application.

However, torque consumption of idler rollers and belts also must be taken into consideration.

Above performance values may have its tolerance range of +/-10% as individual differences.

Before the run-in, the values may differe up to +/-20%.

After a run-in phase, the values vary only in the range of +/-8% for 96% of all PulseRoller used.

Above maximum output is intermittent output of the product.

All of the above performance data is at 22C ambient temperature environment.

Applicable temp in operation : -10~50C degrees (no condensation)

Drives

Pallet handling



Product information

General information

- Conformance: CE, UKCA, RoHS, IP54
- Certifications: ETL Listed to UL 1004-1 & UL 1004-6
UL Recognized to UL 1004-1
- Tube material: Mild steel, zinc plating / Stainless steel (SUS304)
- Roller diameter: 60.5, 76.3 (mm)
- Min. tube length: 450 mm
- Max. tube length: 1800 mm
- Cable length: 500 mm (Pallet) / 900 mm (Pallet-Ai)
*Contact us for extension cables
- Motor connector: JST (Pallet) / M8-4pin (Pallet-Ai)
- Operation: 1.0 sec ON / 1.0 sec OFF duty cycle (Minimum)
or continuous within rated load

Technical data

Voltage	DC24V
Nominal output	50W
Rated current	3.5A
Starting current	8.0A (Boost 8 mode with EZQUBE-HTBF card)
Ambient temperature	-10 ~ 40°C
Ambient humidity	10~90% RH (No condensation)

Weight table

Diameter (mm)	Roller length (mm)										
	500	600	700	800	900	1000	1100	1200	1300	1400	1500
60.5	8.1	8.6	9.0	9.5	9.9	10.4	10.8	11.2	11.7	12.1	12.6
76.3	9.0	9.5	10.1	10.6	11.2	11.8	12.3	12.9	13.4	14.0	14.6

*Weight indicates plain straight roller only. Sprockets, cams, etc. must be added Unit: kg

Compatible Control Technologies

SENERGY



EZQUBE
*1



CONVEYLINX
*2

*1 *2 Use high torque version of respective cards, EZQUBE-HTBF or ConveyLinX-HTF for pallet handling application.

SENERGY-Ai



CONVEYLINX

Conformance / Certifications



Conforms to:
UL STDS 1004-1&1004-6
Certified to:
CSA STD C22.2 No.100

Wall thickness

Diameter	60.5	63.5
Thickness	3.25	3.00

Unit: mm

Static load capacity

Diameter (mm)	Roller length (mm)										
	500	600	700	800	900	1000	1100	1200	1300	1400	1500
60.5	300	280	250	220	190	150	120	90	60	50	40
76.3	300	300	300	280	250	220	190	160	130	100	70

* Unit: kg

Drives

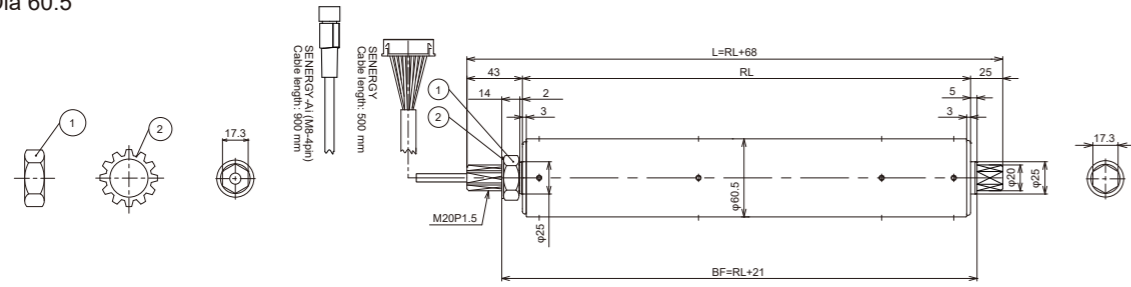
Pallet handling



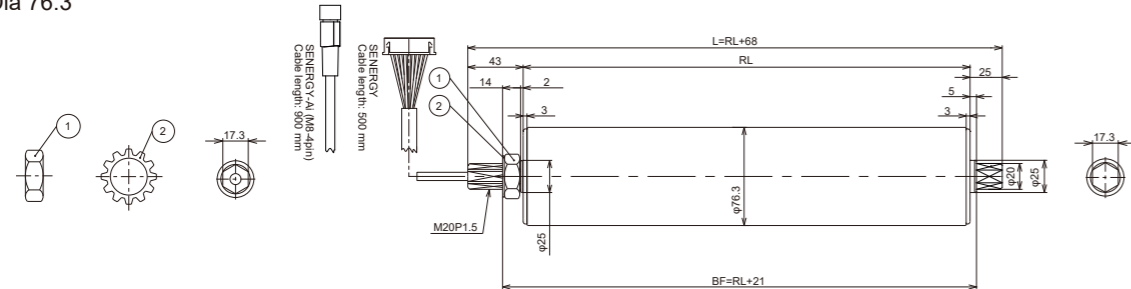
Dimensions (Metric)

Straight

Dia 60.5

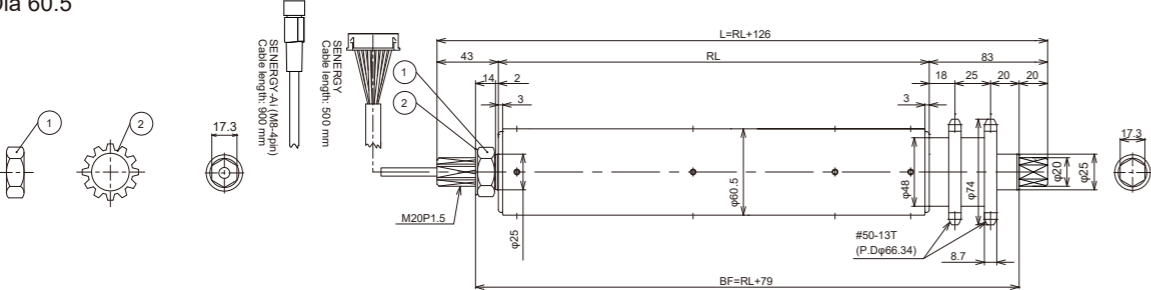


Dia 76.3

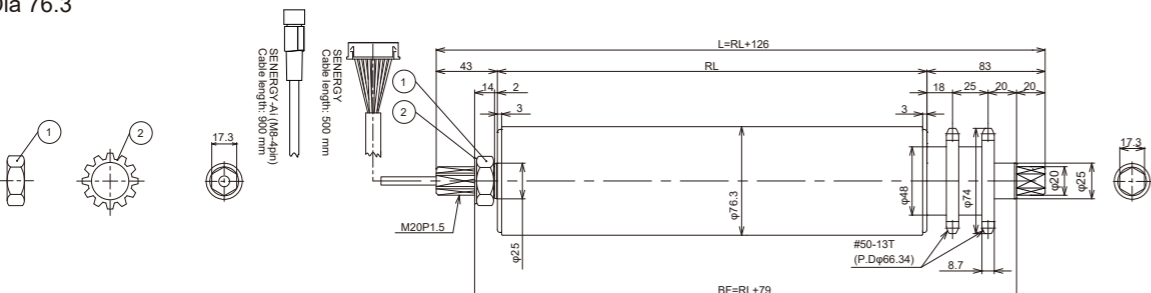


Sprocket

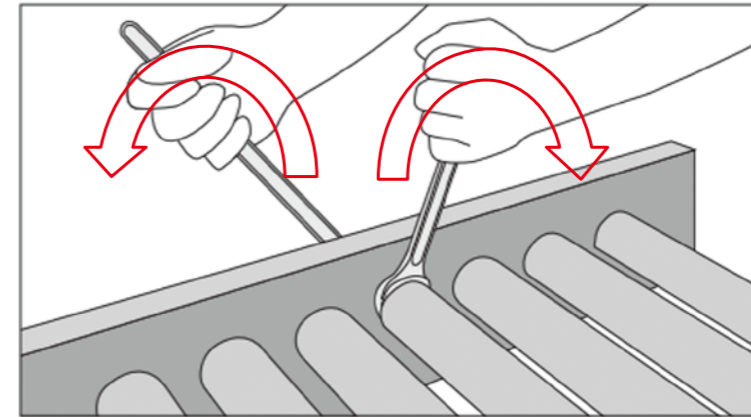
Dia 60.5



Dia 76.3



Installation caution of Pallet Handling



*Tighten both inside and outside nut with a spanner at the torque of between 75 - 80 N-m

Warning

Tightening only one nut cannot fix the shaft properly.

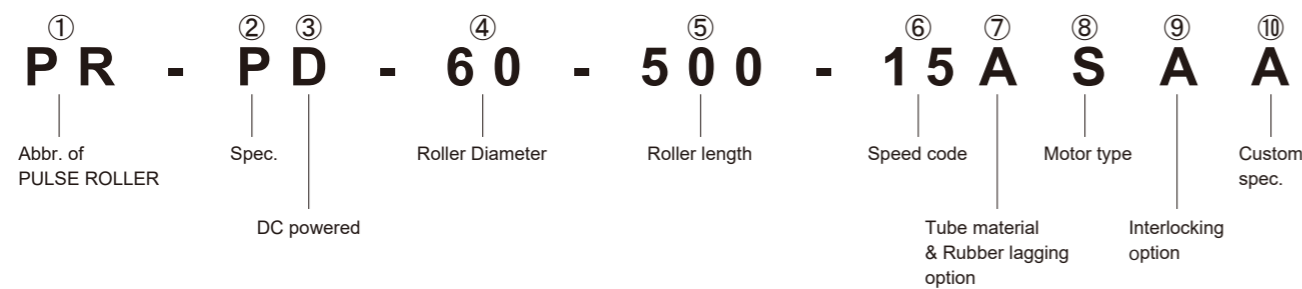
Loosened shaft may spin in the frame hole which may cause the cable to break.

Drives

Pallet handling



Part number definition



- ② Spec.
 - P** --- Pallet Handling
 - M** --- Pallet Handling + Wash down rated (IP-66) *Dia 60.5 only

- ④ Roller Diameter
 - 60** --- ϕ 60.5
 - 76** --- ϕ 76.3

- ⑤ Roller length
 - Dimension RL (Unit: mm) *Available for every 1 mm unit

- ⑥ Speed code
 - Selection of speed range *See Characteristics data table for available speed codes.

- ⑦ Tube material & Rubber lagging option
 - A** --- Standard, Mild steel, zinc plating
 - J** --- Stainless tube *Dia 60.5 only
 - B** --- 3 mm Black rubber lagging
 - W** --- 3 mm Urethane lagging

- ⑧ Motor type
 - S** --- SENERGY-Pallet handling (DC24V, JST connector)
 - M** --- SENERGY-Ai-Pallet handling (DC24V, M8-4pin connector)

- ⑨ Interlocking option
 - A** --- Plain straight, No interlocking
 - D** --- Dual sprockets

- ⑩ Custom spec.
 - A** --- Standard
 - Y** --- Special

Characteristics data

Roller Dia: 60.5

Speed Code	Gearbox	Gear ratio	Speed (m/sec)	Torque (N-m)		Tangential force (N)		Current (A)	
				Rated	Starting	Rated	Starting	Rated (max)	Starting
8	Reinforced 3 stage	91.666...	0.02 ~ 0.14	10.9	49.3	362.3	1630.3	3.5	8.0
10		67.222...	0.26 ~ 0.19	8.0	36.1	265.6	1195.6		
15		45.00	0.04 ~ 0.29	5.4	24.3	178.5	803.3		
20		32.999...	0.08 ~ 0.40	3.9	17.7	130.6	588.0		

*Control: EZQUBE-HTBF or ConveyLinXHTF for JST

Roller Dia: 76.3

Speed Code	Gearbox	Gear ratio	Speed (m/sec)	Torque (N-m)		Tangential force (N)		Current (A)	
				Rated	Starting	Rated	Starting	Rated (max)	Starting
8	Reinforced 3 stage	91.666...	0.025 ~ 0.18	10.9	49.3	287.2	1292.7	3.5	8.0
10		67.222...	0.035 ~ 0.25	8.0	36.1	210.6	948.0		
15		45.00	0.051 ~ 0.37	5.4	24.3	141.5	636.9		
20		32.999...	0.07 ~ 0.51	3.9	17.7	103.6	466.2		

*Control: EZQUBE-HTBF or ConveyLinXHTF for JST

Controls

EQUBE -Simple Drive Control-



Features

- Part number: E-Qube-N, E-Qube-P, E-Qube-Ai-P (For SENERGY-Ai motor only)
- CE Certified, RoHS Compliant, IP20 Environment
- UL Recognized to UL 61800-5-1
- ECO mode performance only
- LED Indicator for Power, Run, Reverse and Error
- 32 fixed speed setting by DIP Switch setting
- 3 stage speed selection via signal input
- Run motor forward or reverse
- Dynamic brake
- PI regulator (stable speed control)
- 16 stage Accel / Decel timer for 0 - 2.5 sec by DIP Switch setting

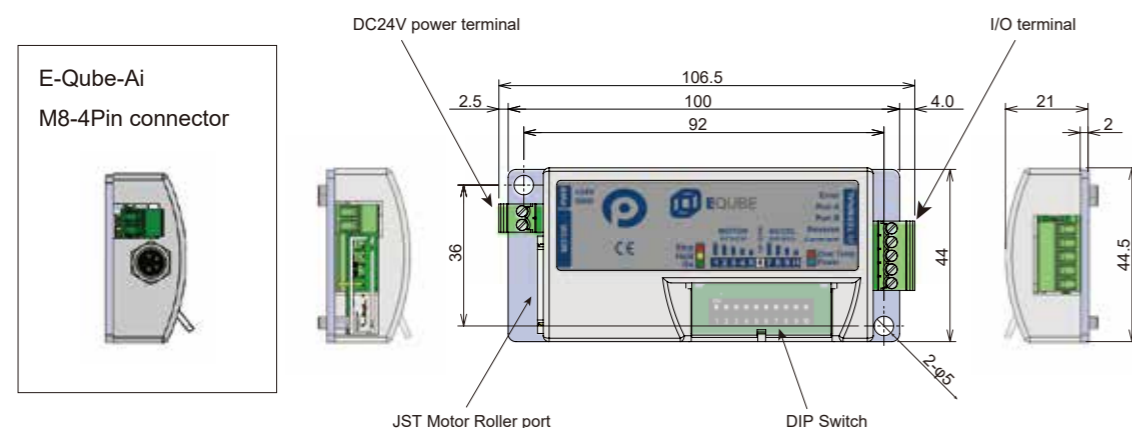
Technical data

Voltage	DC24V
Voltage range	18 ~ 28V
Rated current	2.5A
Starting current	3.0A
Fuse	Present

Applicable environment

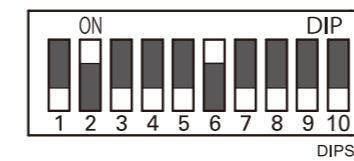
Operating ambient temp	-10 ~ 40°C
Operating ambient humidity	10 - 90% RH (No condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 - 90% RH (No condensation)
Vibration	1G or less

Dimensions and parts



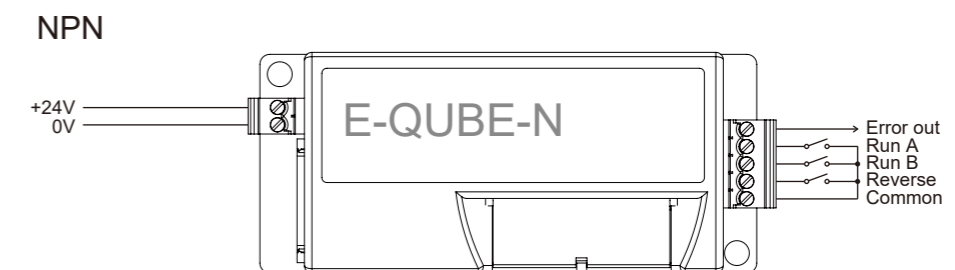
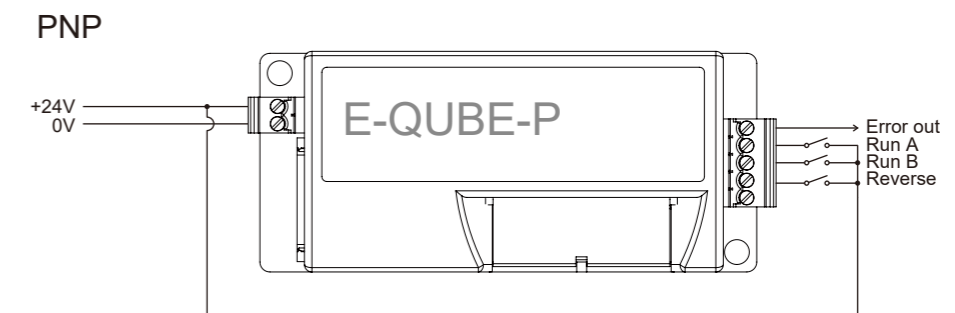
DIP Switch setting

No.	Function	Description
1	Speed setting	32 fixed stages available with DIP switch combinations
2		
3		
4		
5		
6	Direction of rotation	ON = CCW, OFF = CW
7	Acceleration / Deceleration timer setting	16 fixed timers (0 ~ 2.5 sec) available with DIP switch combinations
8		
9		
10		



*Above setting is for illustrative purpose only

Wiring



*NPN version is not available with E-Qube-Ai

Speed setting via signal input

Run A	100% of set speed by DIP switch
Run A + B	75% of set speed by DIP switch
Run B	50% of set speed by DIP switch

Controls

EZQUBE -Multi Drive Control-



Features

- Part number: EZQUBE-N, EZQUBE-P
- CE Certified, RoHS Compliant, IP20 Environment
- UL Recognized to UL 61800-5-1
- 2 different performance modes, ECO and BOOST
- LED Error Indicators
- 31 fixed speed setting with DIP Switch (High/ Low)
- 3 stage speed selection via signal input
- 0 - 10V analog input for speed setting
- Run motor forward or reverse
- Selectable braking methods -Dynamic brake, Free spin (Non braking), Servo Lock brake
- PID regulator (stable speed control)
- 16 stage Accel / Decel timer setting for 0.05 - 2.5 sec

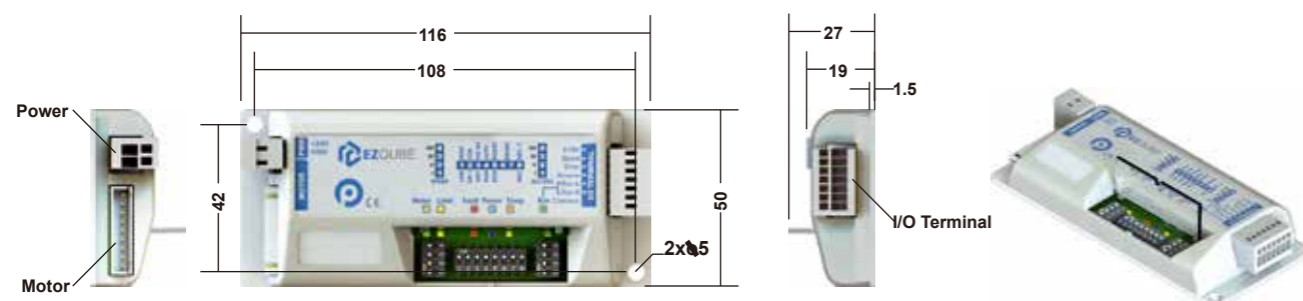
Technical data

Voltage	DC24V
Voltage range	18 - 28V
Rated current	2.5A (ECO), 3.5A (BOOST)
Starting current	3.0A (ECO), 5.0A (BOOST)
Fuse	Present

Applicable environment

Operating ambient temp	-10 - 40°C
Operating ambient humidity	10 - 90% RH (No condensation)
Storage ambient temp	-40 - 85°C
Storage ambient humidity	10 - 90% RH (No condensation)
Vibration	1G or less

Dimensions (Metric)

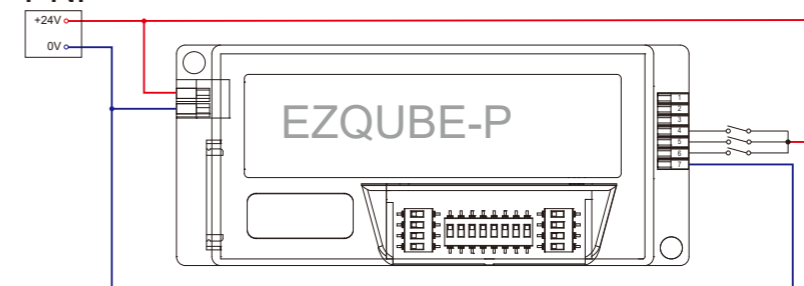


DIP Switch Setting

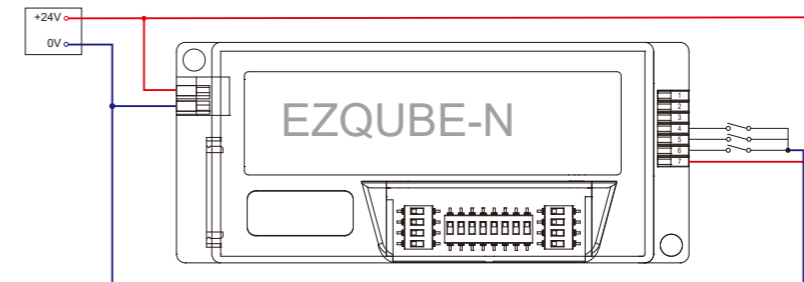
SWITCH SPEED	Function	OFF	ON	
1	Speed setting	32 fixed stages available with DIP switch combinations		
2				
3				
4				
SWITCH ACC/DCC	Function	OFF	ON	
1	Accel / Decel Setting	16 fixed timers (0.05 ~ 2.5 sec) available with DIP switch combinations		
2				
3				
4				
SWITCH CONFIG	Function	OFF	ON	
1	Speed range setting	Low range	High Range	
2	Direction of Rotation	CCW	CW	
3	Open/Close loop	Open Loop	Close Loop (PID)	
4	Auto/Manual Error Reset	Manual Reset	Automatic Reset	
5	Motor Setting	Eco mode	Boost mode	
6	Electrical Brake Method Setting	Brake method	SW 6	SW 10
		Dynamic brake	OFF	OFF
		Free spin	ON	OFF
7	Servo Lock	OFF	ON	
8	Deceleration Time	Decel time = Accel	Decel time = 2 * Accel	

Wiring

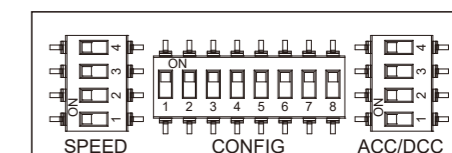
PNP



NPN



DIP SW setting



*Above positions are reference only DIP SW

Removable I/O Terminal Block

- 1 ← 0-10V
- 2 → Speed
- 3 → Error
- 4 ← Reverse
- 5 ← Run A
- 6 ← Run B
- 7 ← Common

Speed setting via signal input

Run A	100% of set speed by DIP switch
Run A + B	75% of set speed by DIP switch
Run B	50% of set speed by DIP switch

Controls

EZQUBE -Multi Drive Control-



Features

- Part number: EZQUBE-HTBF-N, EZQUBE-HTBF-P
- CE Certified, RoHS Compliant, IP20 Environment
- UL Recognized to UL 61800-5-1
- Options for PNP or NPN control inputs
- Provides ECO, BOOST, BOOST-8 and PDU MAX** modes
- DIP Switch Setting for 31 available fixed speeds
- DIP Switch Setting for 16 available Accel /Decel rates
- 0 to 10V Analog Speed Setting Input
- 2 Digital Run signals to provide 3 speed options plus Input for Reverse
- LED Indicators for Power, Run, Reverse, and Error
- PI regulated Speed Control
- Dynamic, Free Spin, and Servo Lock braking modes available
- Built-in brake control

**PDU MAX setting is not to be used for continuous or medium to high duty cycle applications. The MDR and/or EZQUBE-HTBF will overheat and potentially fail. PDU-MAX setting is designed for a very brief burst of starting torque such as to raise a transfer unit with a load on it and a comparatively long OFF duration to allow for MDR/module cooling.

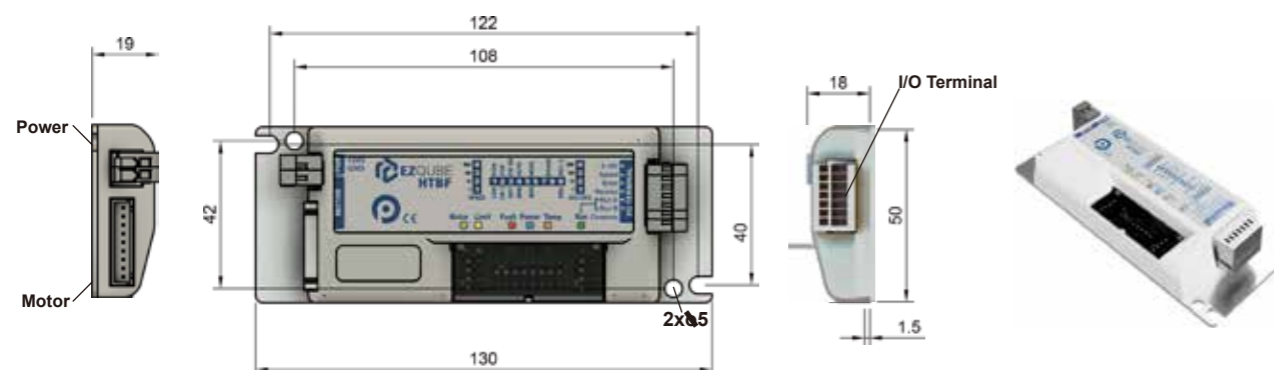
Technical data

Voltage	DC24V
Voltage range	18 - 28V
Rated current	2.5A (ECO), 3.5A (BOOST and BOOST-8)
Starting current	3.0A (ECO), 5.0A (BOOST), 8.0A (BOOST-8)
Fuse	Present

Applicable environment

Operating ambient temp	-30 - 40°C
Operating ambient humidity	10 - 90% RH (No condensation)
Storage ambient temp	-40 - 85°C
Storage ambient humidity	10 - 90% RH (No condensation)
Vibration	1G or less

Dimensions (Metric)

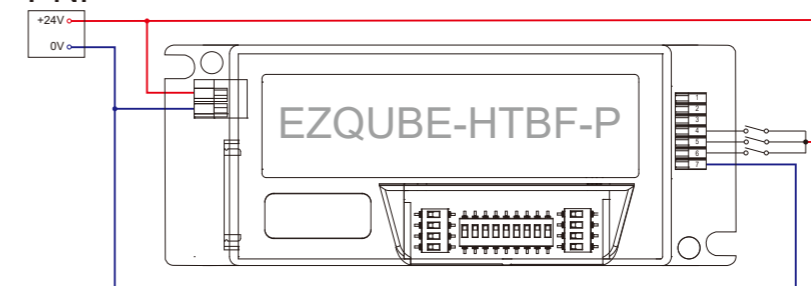


DIP Switch Setting

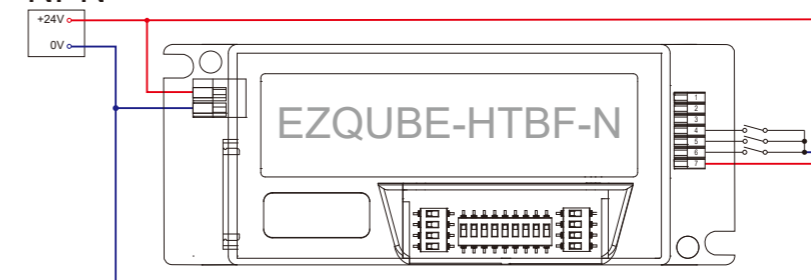
DIP Switch	Function	OFF	ON	
1	Speed setting	32 fixed stages available with DIP switch combinations		
2				
3				
4				
1	Accel / Decel Setting	16 fixed timers (0.05 ~ 2.5 sec) available with DIP switch combinations		
2				
3				
4				
1	Speed range setting	Low range	High range	
2	Direction of Rotation	CCW	CW	
3	Open / Close loop	Open Loop	Close Loop (PID)	
4	Auto / Manual Error Reset	Manual Reset	Automatic Reset	
5	Motor performance setting	Motor Performance	Switch 5	Switch 6
		ECO	OFF	OFF
		BOOST	ON	OFF
		BOOST 8	OFF	ON
6	Electrical Holding Brake Selection	PDU MAX	ON	ON
		Electrical Holding Brake Method	Switch 7	Switch 8
		Normal	OFF	OFF
		Free	ON	OFF
8	Servo Brake	OFF	OFF	ON
		ON	OFF	ON
9	Deceleration Time Adjustment	Decel Time = Accel Time	Decel time = 2 x Accel Time	

Wiring

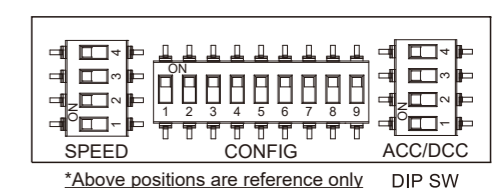
PNP



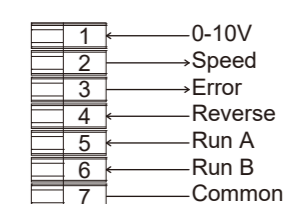
NPN



DIP SW layout



Removable I/O Terminal Block



Speed setting via signal input

Run A	100% of set speed by DIP switch
Run A + B	75% of set speed by DIP switch
Run B	50% of set speed by DIP switch

Controls

CONVEYLINX -Ethernet Drive Control-



Features

- Part number: ConveyLinX, ConveyLinX-HTF
- CE compliant, RoHS compliant
- Option for ETL Listed (UL 61010-2 & UL 61010-2-201)
- Ethernet I/P, Modbus/TCP, PROFINET, CC-LINK IE Field basic Connectivity
- Baud rate: 10Mbps / 100Mbps
- 2 Zones control (Up to 4 sensors and 2 motors connections)
- Both NPN/PNP photo-eye sensor applicable
- Auto-Configuration for ZPA (Zero Pressure Accumulation) conveyor set-up
- ZPA logic: Singulation, Train and Gap Train
- EasyRoll or EasyRoll+ Software for changing default configuration and customizing functionality of each module
- Motor error detection (Overload, Over-current, motor not connected)
- Jam error detection (Sensor Jam, Arrival Jam)
- Mechanical brake control
- Use card as motor drive card, PLC, or remote I/O

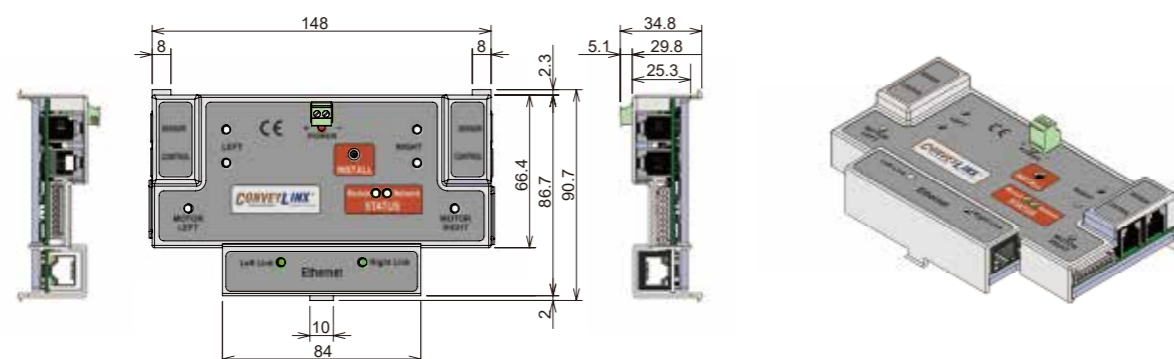
Technical data

Voltage	DC24V
Voltage range	18 - 28V
Rated current	5.2A (ECO), 7.2A (BOOST) *Two Motors
Starting current	6.0A (ECO), 10.0A (BOOST) *Two Motors
Fuse	Present

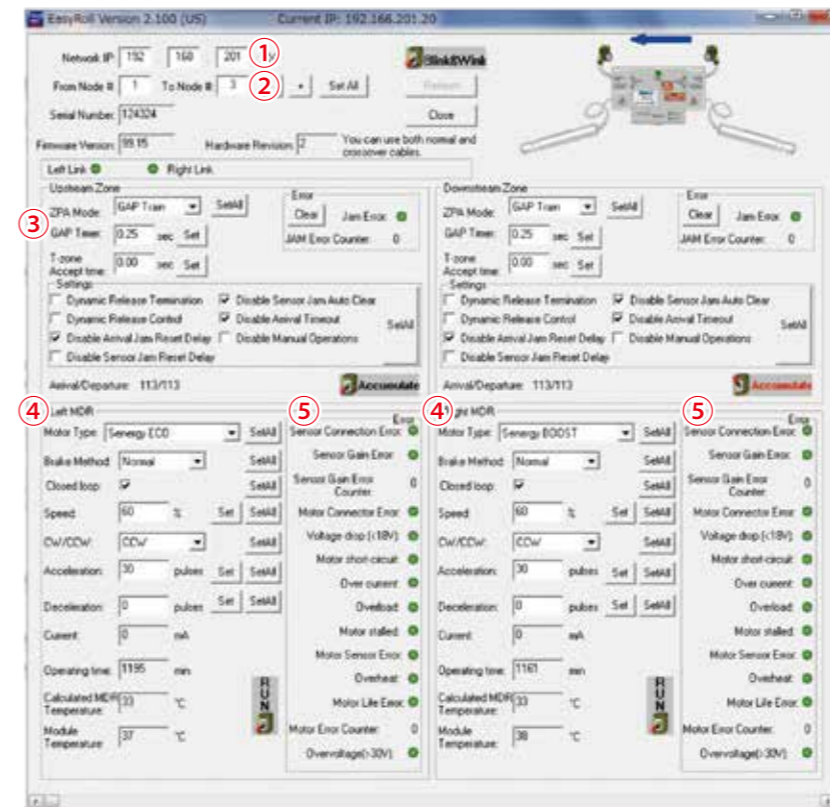
Applicable environment

Operating ambient temp	-10 ~ 40°C
Operating ambient humidity	10 - 90% RH (Non condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 - 90% RH (Non condensation)
Vibration	1G or less

Dimensions (Metric)

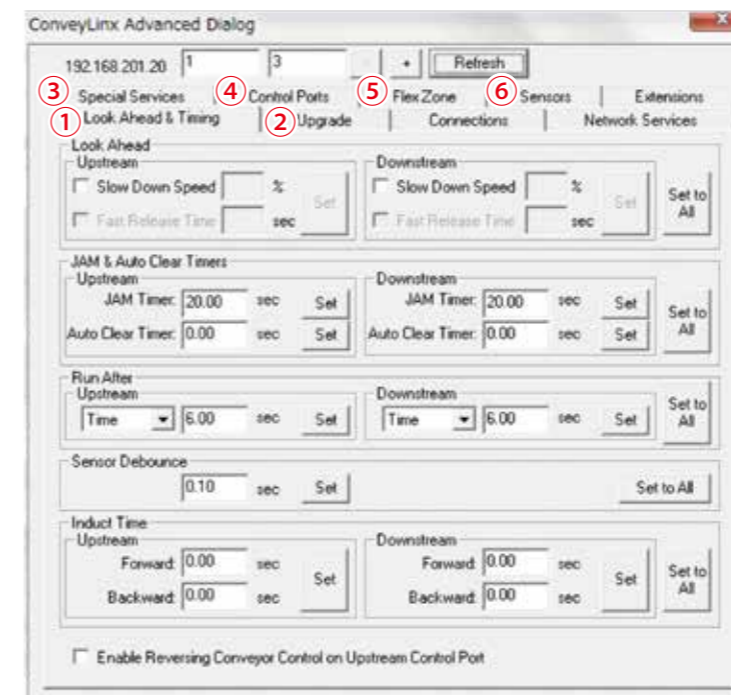


EasyRoll Configuration Software



Main screen

1. Network IP – The Subnet of the particular ConveyLinX network to be connected.
2. Node No. – A range of Nodes in which to be connected.
3. Upstream Zone / Downstream Zone – Selection of ZPA mode, GAP timer and T-bone accept timer settings, etc.
4. Left / Right MDR (Motor Roller) -Selections for changing Motor Roller type, braking method, Accel/Decel timer setting, etc as well as showing values of the current Module status.
5. Error – Error indicators for Sensor connection, Motor connection, Over current, Overload, etc.



Advanced dialog

* Press F2 key to invoke the Advanced Dialog

1. Setting of Look Ahead feature, JAM timer, Run After timer, etc.
2. Upgrade - Upgrade of firmware version
3. Special Service - Reset operating time, Clear Motor-short circuit error
4. Control Ports - Control ports' configuration
5. Flex Zone - Flex Zone feature setting
6. Sensors - Sensor ports configuration

*ConveyLinX provides many more functions and is the most advanced motor drive control in the market today. Visit www.pulseroller.com for more details.

Controls

CONVEYLINX-ECO -Ethernet Drive Control-



Features

- Part number : ConveyLinx-Eco
- CE conformance, RoHS compliant
- UL Recognized to UL 61800-5-1
- Separate motor and logic power
- Ethernet I/P, Modbus/TCP, PROFINET, CC-LINK IE Field basic Connectivity
- Baud rate: 10Mbps / 100Mbps
- 2 Zones control (Up to 2 sensors and 2 motors connections)
- Both NPN/PNP photo-eye sensor applicable
- Auto configuration for ZPA (Zero Pressure Accumulation) conveyor set-up (from EasyRoll software)
- ZPA logic; Singulation, Train and Gap Train
- EasyRoll or EasyRoll+ Software for changing default configuration and customizing functionality of each module
- Motor error detection (Overload, Over-current, motor not connected)
- Jam error detection (Sensor Jam, Arrival Jam)

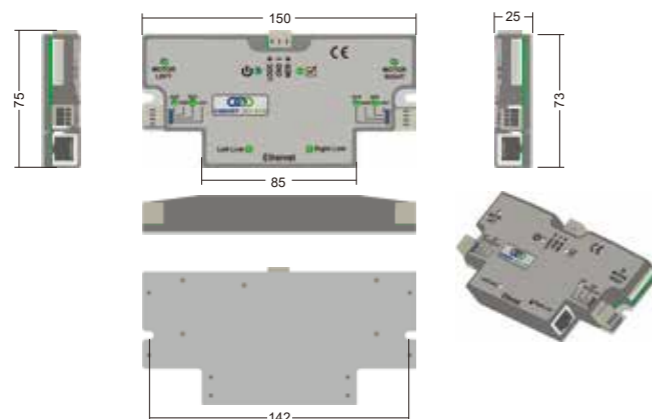
Technical data

Voltage	DC24V
Voltage range	18 ~ 28V
Rated current	5.2A (ECO) *Two Motors
Starting current	6.0A (ECO) *Two Motors
Fuse	Present

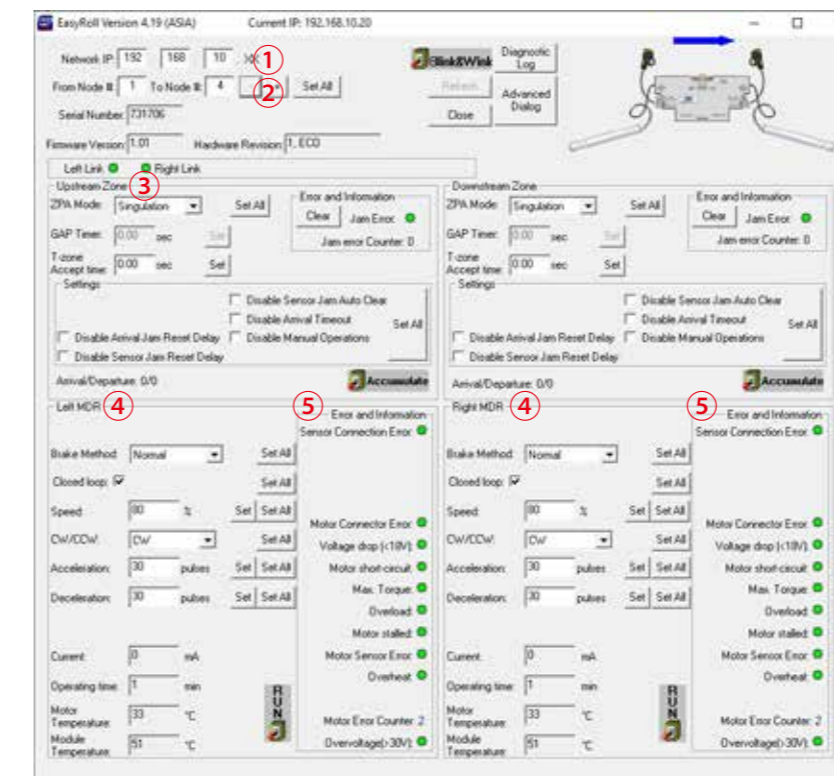
Applicable environment

Operating ambient temp	-10 ~ 40°C
Operating ambient humidity	10 - 90% RH (Non condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 - 90% RH (Non condensation)
Vibration	1G or less

Dimensions

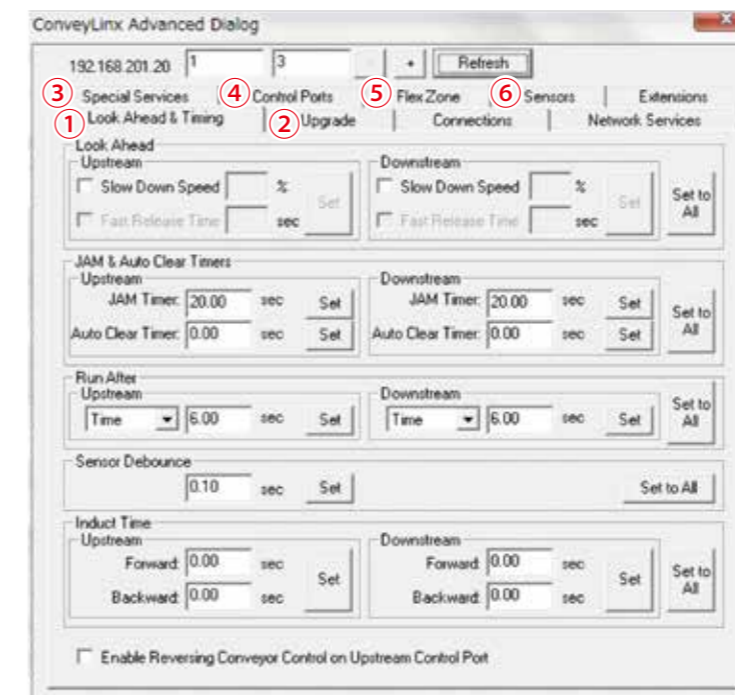


EasyRoll Configuration Software



Main screen

1. Network IP – The Subnet of the particular ConveyLinx network to be connected.
2. Node No. – A range of Nodes in which to be connected.
3. Upstream Zone / Downstream Zone – Selection of ZPA mode, GAP timer and T-bone accept timer settings, etc.
4. Left / Right MDR (Motor Roller) -Selections for changing performance mode, speed, braking method, Accel/Decel distance setting, etc as well as showing values of operation status.
5. Error – Error indicators for Sensor connection, Motor connection, Over current, Overload, etc.



Advanced dialog screen

* Press F2 key to invoke the Advanced Dialog.

1. Setting of Look Ahead feature, JAM timer, Run After timer, etc.
2. Upgrade - Upgrade of firmware version
3. Special Service - Reset operating time, Clear Motor-short circuit error
4. Control Ports - Control ports' configuration
5. Flex Zone - Flex Zone feature setting
6. Sensors - Sensor ports configuration

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Controls



-Ethernet Drive Control-



Features

- Part number : ConveyLinx-Ai2 (For SENERGY-Ai motor)
- CE compliant, RoHS compliant, IP54
- ETL Listed to UL 61010-2 & UL 61010-2-201
- UL Recognized to UL 61800-5-1
- Separate motor and logic power
- M8 - 4 pin connector for Motors and Sensors
- Ethernet I/P, Modbus/TCP, PROFINET, CC-LINK IE Field Basic Connectivity
- Baud rate: 10Mbps / 100Mbps
- 2 Zones control (Up to 2 sensors and 2 motors connections)
- Both NPN/PNP photo-eye sensor applicable
- Auto configuration for ZPA (Zero Pressure Accumulation) conveyor set-up (from EasyRoll software)
- ZPA logic; Singulation, Train and Gap Train
- EasyRoll or EasyRoll+ Software for changing default configuration and customizing functionality of each module
- Motor error detection (Overload, Over-current, motor not connected)
- Jam error detection (Sensor Jam, Arrival Jam)

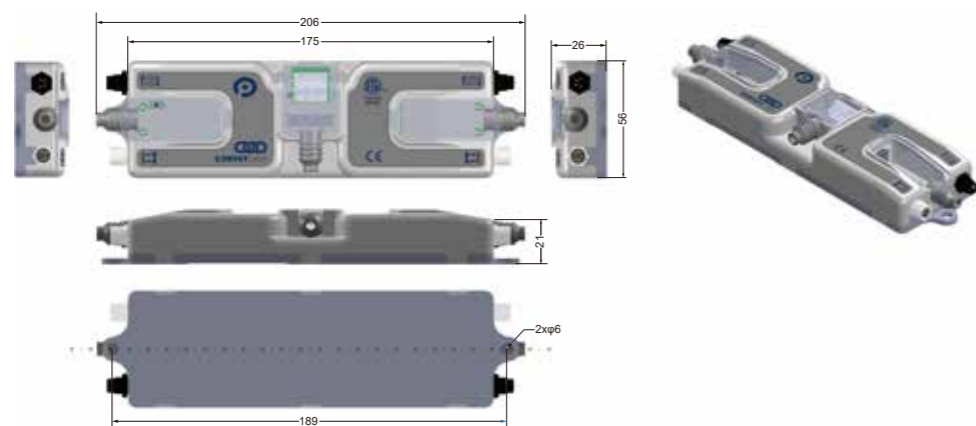
Technical data

Voltage	DC24V
Voltage range	18 ~ 28V
Rated current	5.2A (ECO), 7.2A (BOOST) *Two Motors
Starting current	6.0A (ECO), 10.0A (BOOST) *Two Motors
Fuse	Present

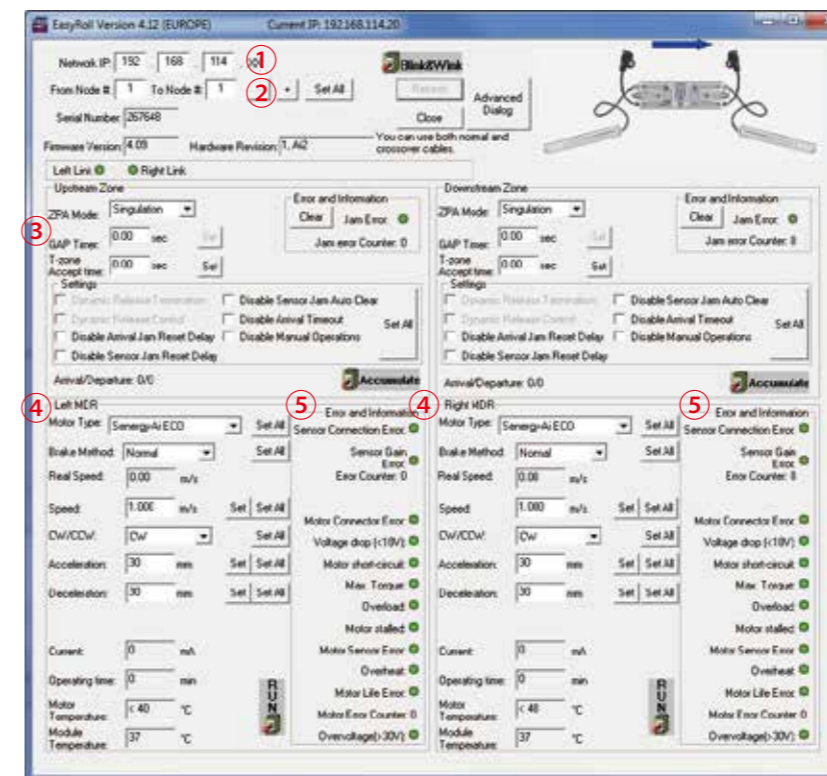
Applicable environment

Operating ambient temp	-10 ~ 40°C
Operating ambient humidity	10 - 90% RH (Non condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 - 90% RH (Non condensation)
Vibration	1G or less

Dimensions

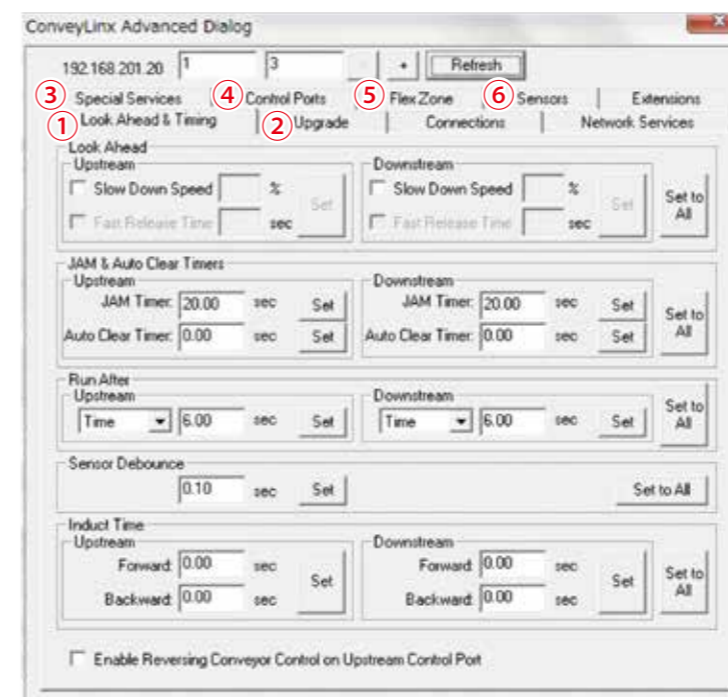


EasyRoll Configuration Software



Main screen

1. Network IP – The Subnet of the particular ConveyLinx network to be connected.
2. Node No. – A range of Nodes in which to be connected.
3. Upstream Zone / Downstream Zone – Selection of ZPA mode, GAP timer and T-bone accept timer settings, etc.
4. Left / Right MDR (Motor Roller) -Selections for changing performance mode, speed, braking method, Accel/Decel distance setting, etc as well as showing values of operation status.
5. Error – Error indicators for Sensor connection, Motor connection, Over current, Overload, etc.



Advanced dialog screen

* Press F2 key to invoke the Advanced Dialog.

1. Setting of Look Ahead feature, JAM timer, Run After timer, etc.
2. Upgrade - Upgrade of firmware version
3. Special Service - Reset operating time, Clear Motor-short circuit error
4. Control Ports - Control ports' configuration
5. Flex Zone - Flex Zone feature setting
6. Sensors - Sensor ports configuration

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Control



CONVEYLINX -Ethernet Drive Control-



Features

- Part number : ConveyLinX-Ai3-24-FC
: ConveyLinX-Ai3-24-RC
- Compatible motor drives : Senergy-Ai roller and PGD-Ai
- CE Certified, RoHS Compliant, IP54
- ETL Listed to UL 61010-2 & UL 61010-2-201
- UL Recognized to UL 61800-5-1
- Separate motor and logic power
- M8 - 4 pin connector for Motors and Sensors
- PROFINET Ethernet I/P, Modbus/TCP, CC-LINK IE Feild Basic Connectivity
- 2 Zones control (Up to 4 sensors and 2 motors connections)
- Baud rate: 10Mbps / 100Mbps
- Both NPN/PNP photo-eye sensor applicable
- ZPA (Zero Pressure Accumulation) logic; Singulation, Train and Gap Train
- EasyRoll or EasyRoll+ Software for changing default configuration and customizing functionality of each module
- Auto configuration for quick set-up (from EasyRoll software)
- Motor error detection (Overload, Over-current, motor not connected)
- Jam error detection (Sensor Jam, Arrival Jam)
- Power supply using piercing technology
- Choice of 2.5 mm² ASI flat cables or 6 mm² / 2.5 mm² round cables
- Separate base plate for 2.5 mm² ASI flat cables or 6 mm² / 2.5 mm² round cables

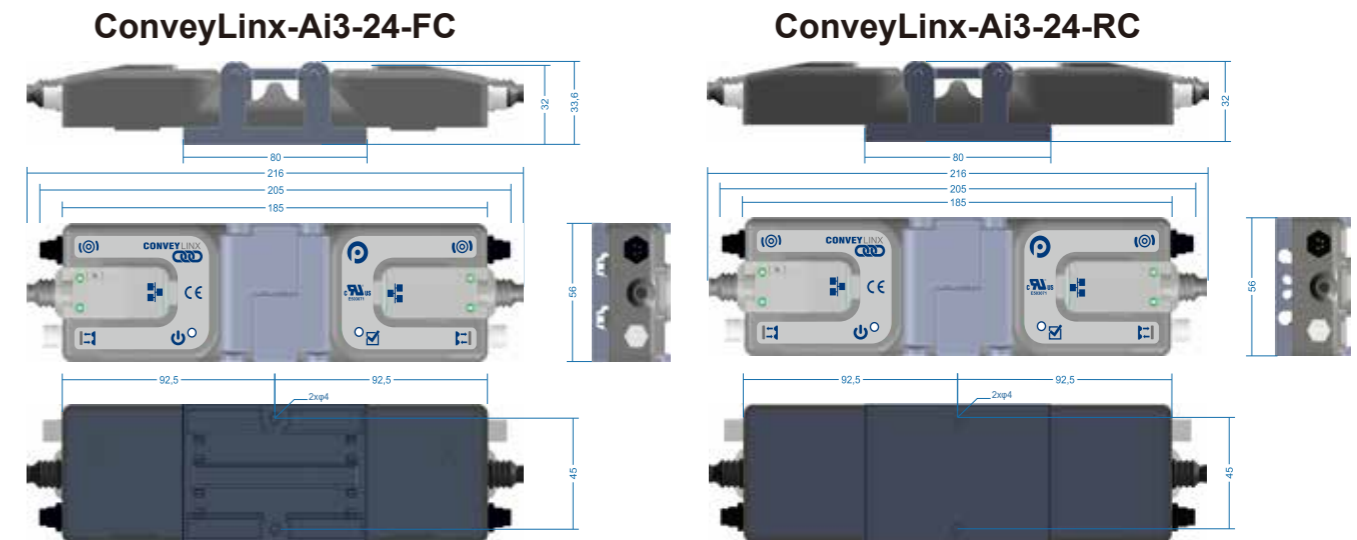
Technical data

Voltage	DC24V
Voltage range	18 ~ 28V
Rated current	5.0A (Eco), 7.0A (Boost) *Two Motors
Starting current	6.0A (Eco), 10.0A (Boost) *Two Motors
Fuse	Present

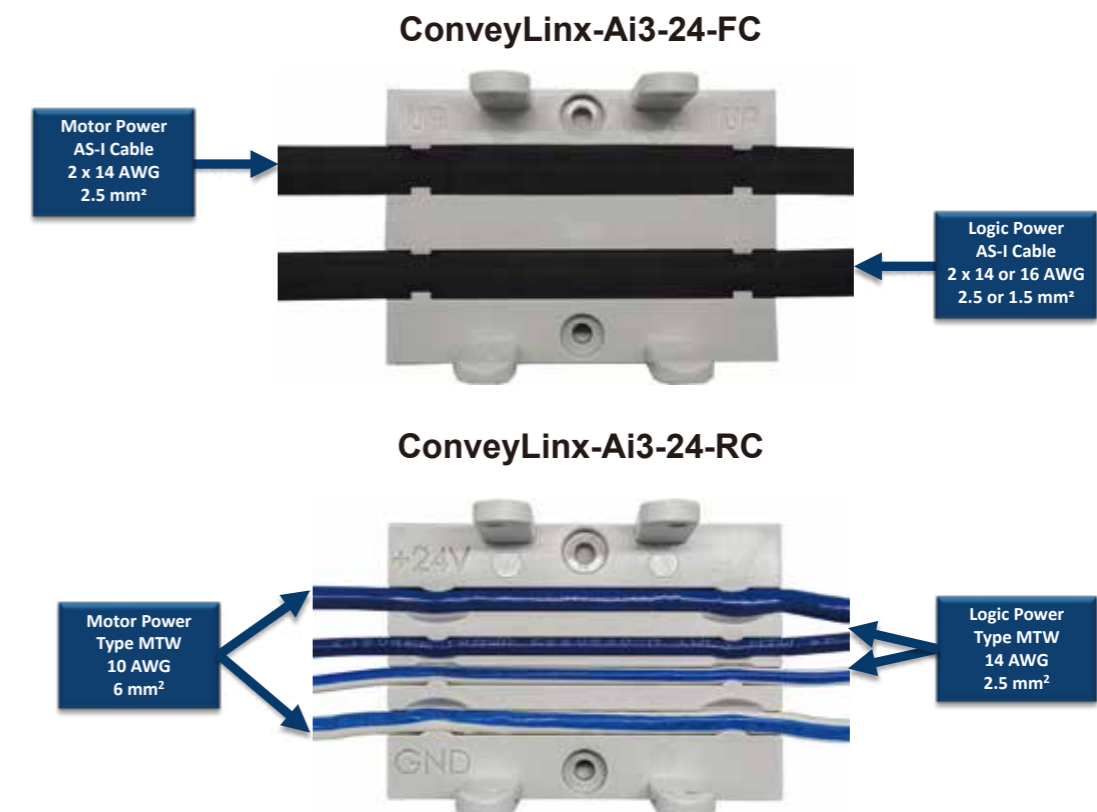
Applicable environment

Operating ambient temp	0 ~ 40°C
Operating ambient humidity	10 ~ 90% RH (Non condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 ~ 90% RH (Non condensation)
Vibration	2G or less

Dimensions (mm)



Module power connections



NOTE : For more details, please refer to User's Manual available on pulseroller.com

Controls



MOTION LINX -EtherCAT Drive Control-



Features

- Part number: MotionLinX-Ai
- Compatible motor drives : Senergy-Ai roller and PGD-Ai
- ETL Listed to UL 61010-2 & UL 61010-2-201
- UL Recognized to UL 61800-5-1
- Separate motor and logic power
- M8 - 4 pin connector for Motors and Sensors
- Baud rate: 100Mbps
- 2 Zones control (Up to 2 sensors and 2 motors connections)
- Both NPN/PNP photo-eye sensor applicable
- Motor error detection (Overload, Over-current, motor not connected)
- Precision repeatable motion

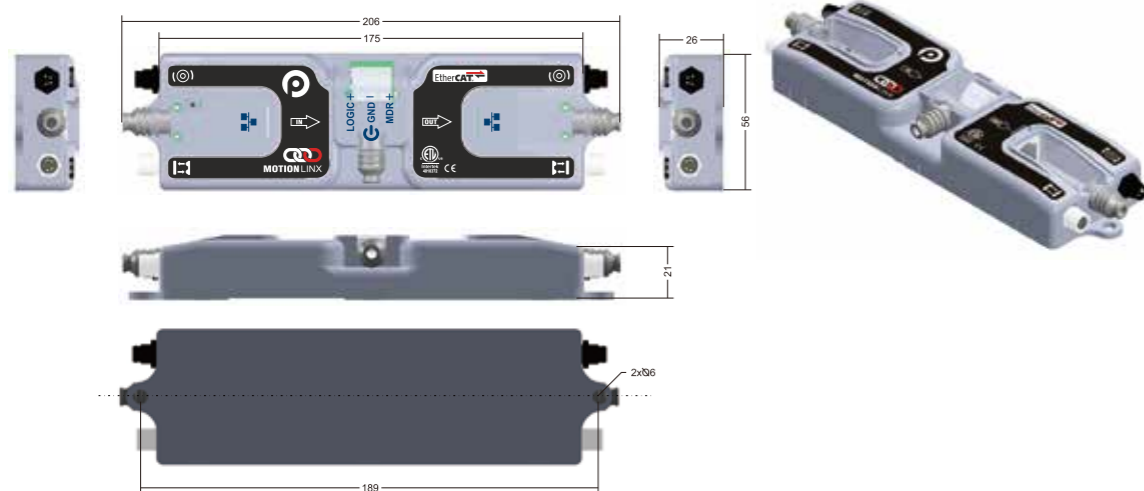
Technical data

Voltage	DC24V
Voltage range	18 - 28V
Rated current	5.2A (Eco), 7.2A (Boost) *Two Motors
Starting current	6.0A (Eco), 10.0A (Boost) *Two Motors
Fuse	Present

Applicable environment

Operating ambient temp	-10 ~ 40°C
Operating ambient humidity	10 ~ 90% RH (Non condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 ~ 90% RH (Non condensation)
Vibration	1G or less

Dimensions (Metric)



Introduction

MotionLinX-Ai provides integrated control solution for conveyor and motor control applications with industrial protocol EtherCAT. The module is on EtherCAT slave and exchanges information with the master, concerning motor control, servo commands, sensors and diagnostics. The benefits of such a conveyor system includes:

- Real time communication with cycle times < 100 μs
- Easy way to configure the EtherCAT slaves
- Simple system maintenance

EtherCAT is a highly flexible Ethernet network protocol, a unique principle called "processing on the fly" gives EtherCAT a handful of unique advantages. Because EtherCAT messages are passed before being processed in each node, EtherCAT operates at a high speed and efficiency. The process also creates flexibility in topology and incredible synchronization.

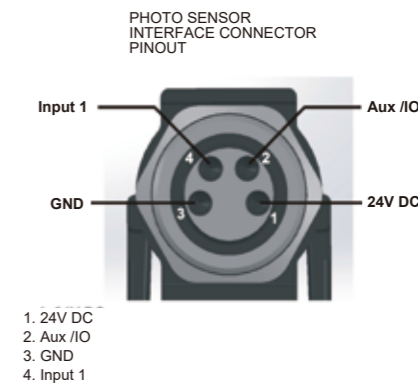
Connectors

Sensor connectors

- Number of inputs:
- 2 M8 female connectors - 4 inputs
- PNP/NPN/Push-Pull Sensors

Motor connectors - 2 M8 male connectors

- Number of motors :
- 2 SENERGY-Ai motors - ECO or BOOST mode
- Overload, overheat, overvoltage, short-circuit protection
- Extended Motor Diagnostics/Maintenance Data



Network connectors - 2 RJ45

- Number of ports :
- Port A and Port B

Hardware overview



Controls

I/O control



Features

- Part number : ConveyLinX-IO
- CE compliant, RoHS compliant, IP54 rated
- ETL Listed to UL 61010-2 & UL 61010-2-201
- UL Recognized to UL 61800-5-1
- Ethernet I/P, Modbus/TCP, PROFINET, CC-LINK IE Feild Basic Connectivity
- M8 - 4 pin connectors x 4
- Configurable 2 I/O points per M8 connector
- Baud rate: 10Mbps / 100Mbps

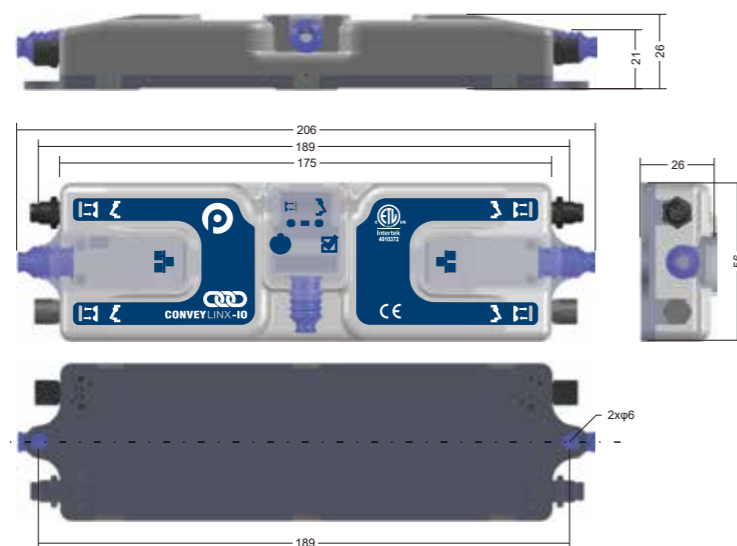
Technical data

Voltage	DC24V
Voltage range	21 ~ 30V
Input current	0.4mA is Maximum OFF current. 1.5mA is Minimum ON current.
Output current	Maximum current per Output is 300mA
Fuse	Present

Applicable environment

Operating ambient temp	-10 ~ 40°C
Operating ambient humidity	10 - 90% RH (Non condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 - 90% RH (Non condensation)
Vibration	1G or less

Dimensions



Features

- Part number : MotionLinX-IO
- CE certified, RoHS compliant, IP54 rated
- ETL Listed to UL 61010-2 & UL 61010-2-201
- UL Recognized to UL 61800-5-1
- EtherCAT Connectivity
- M8 - 4 pin connectors x 4
- Configurable 2 I/O points per M8 connector
- Baud rate: 10Mbps / 100Mbps

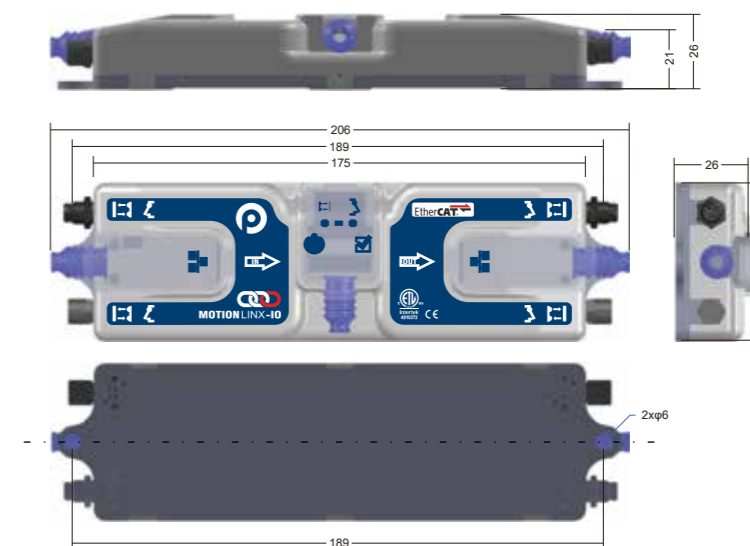
Technical data

Voltage	DC24V
Voltage range	21 ~ 30V
Input current	0.4mA is Maximum OFF current. 1.5mA is Minimum ON current.
Output current	Maximum current per Output is 300mA
Fuse	Present

Applicable environment

Operating ambient temp	-10 - 40°C
Operating ambient humidity	10 ~ 90% RH (Non condensation)
Storage ambient temp	-10 - 75°C
Storage ambient humidity	10 ~ 90% RH (Non condensation)
Vibration	1G or less

Dimensions



Control



CONVEYLINX -Ethernet Drive Control-



Features

- Part number : ConveyLinX-Ai3-48-FC
- Compatible motor drives : Senergy-Ai48 roller and PGD-Ai48
- CE Certified, RoHS Compliant, IP54
- ETL Listed to UL 61010-2 & UL 61010-2-201
- UL Recognized to UL 61800-5-1
- M8 - 4 pin connector for Motors and Sensors
- PROFINET Ethernet I/P, Modbus/TCP, CC-LINK IE Feild Basic Connectivity
- 2 Zones control (Up to 4 sensors and 2 motors connections)
- Baud rate: 10Mbps / 100Mbps
- Both NPN/PNP photo-eye sensor applicable
- ZPA (Zero Pressure Accumulation) logic; Singulation, Train and Gap Train
- EasyRoll Plus Software for changing default configuration and customizing functionality of each module
- Auto configuration for quick set-up (from EasyRoll Plus software)
- Motor error detection (Overload, Over-current, motor not connected)
- Jam error detection (Sensor Jam, Arrival Jam)
- Power supply using piercing technology
- 2.5 mm² ASI flat cables
- Active Power Management (Available on EasyRoll+ software only)

Technical data

Voltage	DC48V
Voltage range	44 ~ 50V
Rated motor output current	1.6A *Per motor
Current limit option	1.7A, 2.0A, 2.5A, 3.5A, 4.0A *Per motor
Max current	1.9A, 2.2A, 2.7A, 3.7A, 4.0A *Per motor
Fuse	Present

*Current limit option selectable.
*Max current varies depending on the selected current limit option

Applicable environment

Operating ambient temp	0 ~ 40°C
Operating ambient humidity	10 ~ 90% RH (Non condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 ~ 90% RH (Non condensation)
Vibration	2G or less

Introduction of Active Power Management (※Patent pending)

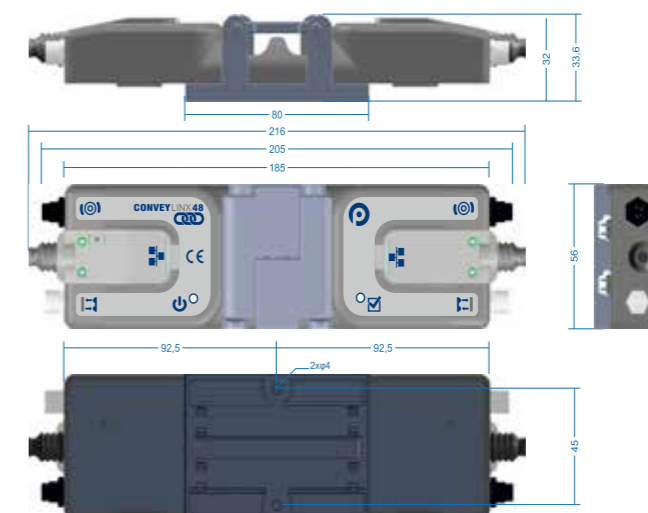
Active Power Management (hereinafter, this is called "APM"), is a system that fundamentally prevents power supply overloading. While configuring the system using EasyRoll+, a ConveyLinX Ai3-FC group is formed that is connected to one power supply, then the maximum amperage of this power supply is defined for the group.

APM gives conveyor systems several unique benefits such as;

- Ensures reliable conveying under all operating conditions, especially in rare cases of full or peak load which prevents a power supply failure.
- Prevent major uncertainties and oversized reserves when defining the number of power supplies in a system.
- Power supply of a system can be defined with its average power instead of its peak power.

With APM, the availability of the system is significantly increased under all operating conditions, and at the same time, oversizing of the power supply units is prevented.

Dimensions (metric)



Module power connections

Motor Power
AS-I Cable
2 x 14 AWG
2.5 mm²



Logic Power
AS-I Cable
2 x 14 or 16 AWG
2.5 or 1.5 mm²

NOTE : For more details, please refer to User's Manual available on pulseroller.com