



## PULSE ROLLER

[www.pulseroller.com](http://www.pulseroller.com)  
[sales@pulseroller.com](mailto:sales@pulseroller.com)  
[support@pulseroller.com](mailto:support@pulseroller.com)  
[www.pulseroller.com/contact](http://www.pulseroller.com/contact)



**Kyowa Manufacturing Co.,Ltd.**

Industrial Machinery Division  
Kubota Factory: 570-10 Kubota-cho, Kasai City, Hyogo Prefecture, 675-2364 Japan  
TEL. +81-790-42-0601 FAX. +81-790-42-4895  
<URL>[www.pulseroller.com](http://www.pulseroller.com) <e-mail> [sales@kyowa-mfg.co.jp](mailto:sales@kyowa-mfg.co.jp)

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# PULSE ROLLER

— GLOBAL MOTOR ROLLER TECHNOLOGIES —



PRODUCT CATALOG

**DC24V**  
Powered

**DC48V**  
Powered

# Table of Contents

## Drives

<b>Drives Overview and introduction</b>		2-5
<b>SENERGY</b>	Product information	
	General information	6
	Technical data	6
	Available minimum roller length	6
	Weight table	7
	Wall thickness	7
	Static load capacity	7
	Dimensions	8-9
	Bracket	10
	Part number definition	11
	Characteristics data	12-13
	Optional spec. Wash-down rated	14
	Optional spec. Built-in Brake	15
	Optional spec. Freezer rated	16
<b>SENERGY-IDC</b>	Product information	
	General information	18
	Technical data	18
	Available minimum roller length	18
	Weight table	19
	Wall thickness	19
	Static load capacity	19
	Dimensions	20-21
	Part number definition	22
	Characteristics data	23
	Optional spec. Wash-down rated	24
	Optional spec. Freezer rated	25
<b>SENERGY-Ai48</b>	Product information	
	General information	26
	Technical data	26
	Available minimum roller length	26
	Weight table	27
	Wall thickness	27
	Static load capacity	27
	Dimensions	28-29
	Bracket	30
	Part number definition	31
	Characteristics data	32-33
	Optional spec. Wash-down rated	34
	Optional spec. Freezer rated	35
<b>PGD</b>	Product information	
	General information	36
	Technical data	36
	Weight table	36
	Characteristics data	37
	Dimensions	37
	Part number definition	38
<b>PGD-IDC</b>	Product information	
	General information	40
	Technical data	40
	Weight table	40
	Part number definition	41
	Dimensions	41
	Characteristics data	42

<b>PGD-Ai48</b>	Product information	
	General information	44
	Technical data	44
	Weight table	44
	Part number definition	45
	Dimensions	45
	Characteristics data	46-47
<b>Pallet Handling</b>	Product information	
	General information	48
	Technical data	48
	Wall thickness	49
	Static load capacity	49
	Dimensions	50
	Installation caution of Pallet Handling	51
	Part number definition	52
	Characteristics data	53
<b>Assemblies</b>		
<b>PDU-90</b>	Product information	
	Features	54
	Technical data	54
	Dimensions	55
	Installation image	55
	Worksheet	56-57
<b>PPU-30/45</b>	Product information	
	Features	58
	Technical data	58
	Dimensions	58
	Part number definition	59
	Installation image	59
	Worksheet	60-61

# Table of Contents

## Controls

<b>E-Qube</b>	Features	62
	Technical data	62
	Applicable environment	62
	Dimensions and parts	63
	DIP Switch setting	63
	Wiring	63
	Speed setting via signal input	63
<b>EZQUBE</b>	Features	64
	Technical data	64
	Applicable environment	64
	Dimensions	64
	Wiring	65
	DIP Switch setting	65
	Removable I/O Terminal Block	65
	Speed setting via signal input	65
<b>EZQUBE-HTBF</b>	Features	66
	Technical data	66
	Applicable environment	66
	Dimensions	66
	Wiring	67
	DIP Switch setting	67
	Removable I/O Terminal Block	67
	Speed setting via signal input	67
<b>ConveyLinx</b>	Features	68
	Technical data	68
	Applicable environment	68
	Dimensions	68
	EasyRoll configuration Software	69
<b>ConveyLinx-ECO</b>	Features	70
	Technical data	70
	Applicable environment	70
	Dimensions	70
	EasyRoll configuration Software	71
<b>ConveyLinx-Ai2</b>	Features	72
	Technical data	72
	Applicable environment	72
	Dimensions	72
	EasyRoll configuration Software	73
<b>ConveyLinx-Ai3-24-FC/RC</b>	Features	74
	Technical data	74
	Applicable environment	74
	Dimensions	75
	Module power connection	75
<b>MotionLinx-Ai</b>	Features	76
	Technical data	76
	Applicable environment	76
	Dimensions	76
	Introduction	77
	Connectors	77
	Hardware overview	77

<b>ConveyLinx-IO</b>	Features	78
	Technical data	78
	Applicable environment	78
	Dimensions	78
<b>MotionLinx-IO</b>	Features	79
	Technical data	79
	Applicable environment	79
	Dimensions	79
<b>ConveyLinx-Ai3-48-FC</b>	Features	80
	Technical data	80
	Applicable environment	80
	Introduction of Active Power Management	81
	Dimensions	81
	Module power connection	81

# 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	<b>DC48V</b>
Output	118W (Max)
Conveyor speed	0.03 ~ 1.66 m/sec (50.0 mm diameter)

## PGD-Ai48



Product type	Geared Drive
Rated voltage	<b>DC48V</b>
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

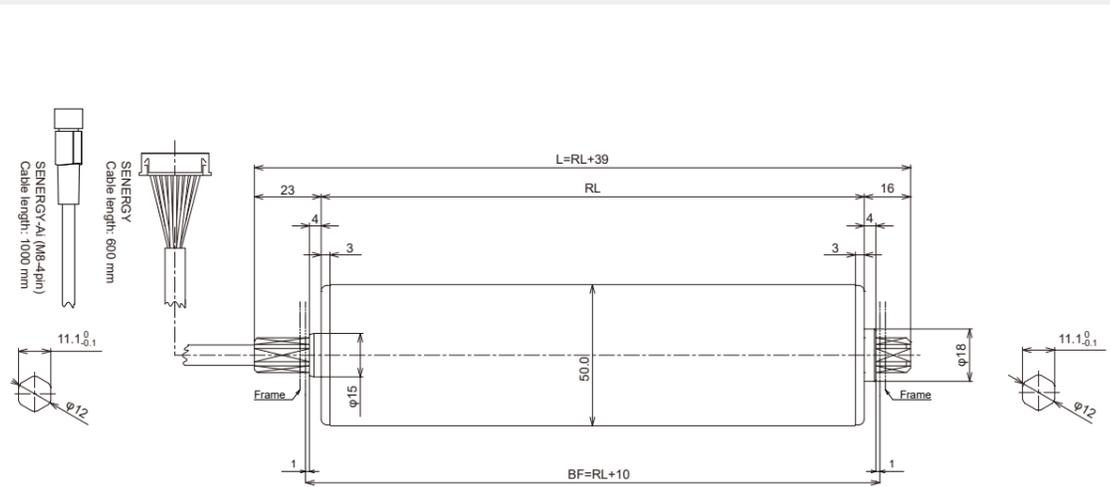
Drives

# SENERGY / SENERGY-Ai



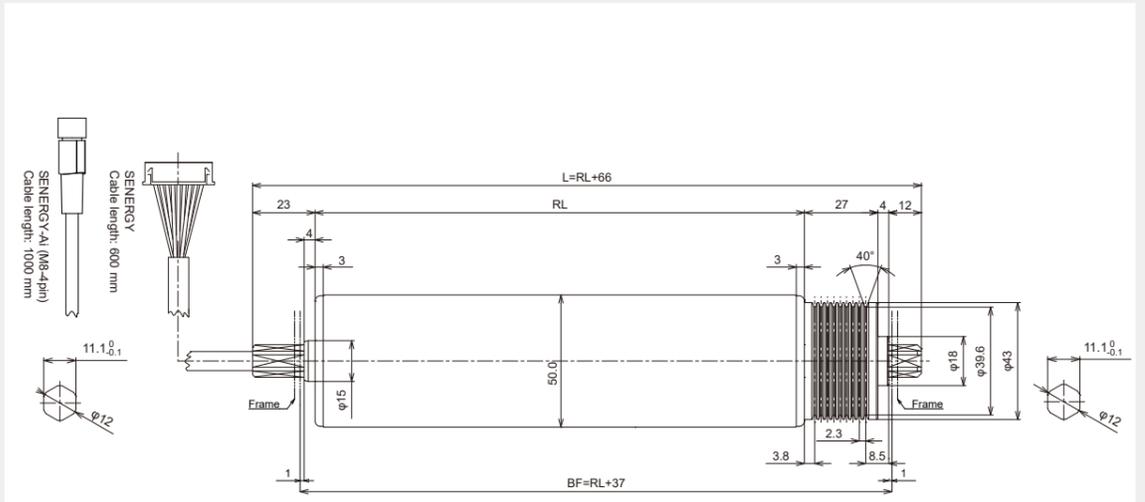
Dimensions (Metric)

Plain straight



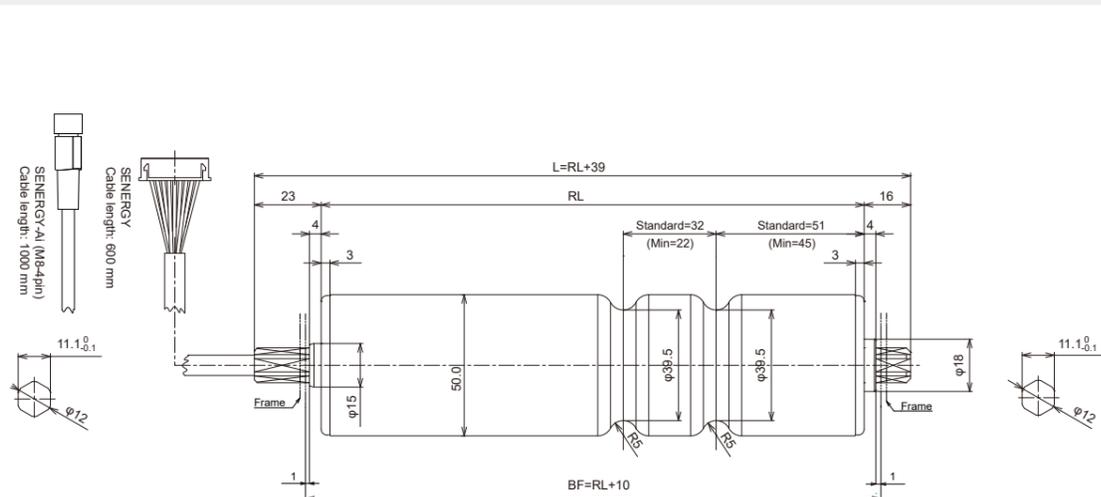
Note: \*2mm was added to the RL to provide proper clearance for the Between Frame Dimensions.

Micro-V pulley



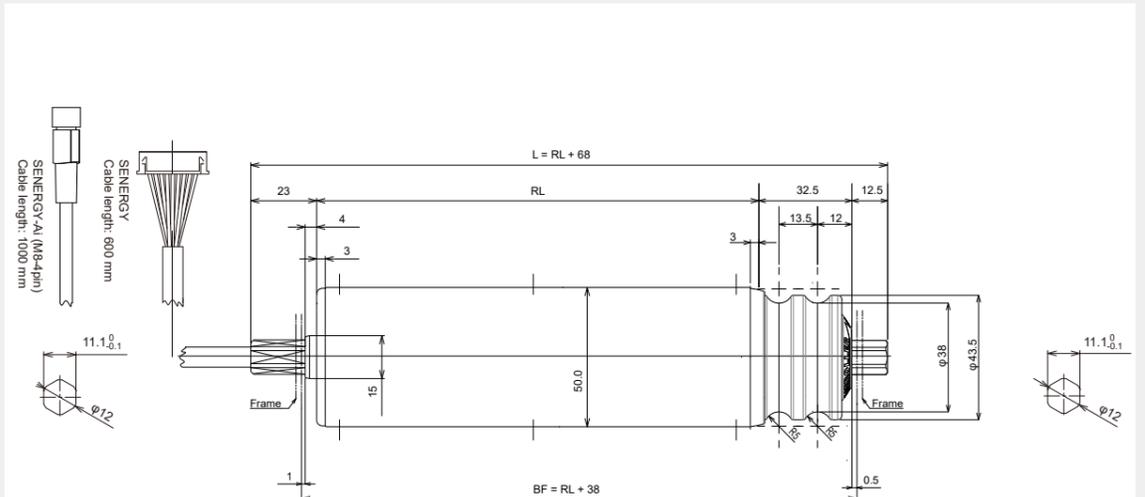
Note: \*2mm was added to the RL to provide proper clearance for the Between Frame Dimensions.

Round Groove



Note: \*2mm was added to the RL to provide proper clearance for the Between Frame Dimensions.

Round Groove pulley



Note: \*1.5mm was added to the RL to provide proper clearance for the Between Frame Dimensions.

Drives

# SENERGY / SENERGY-Ai

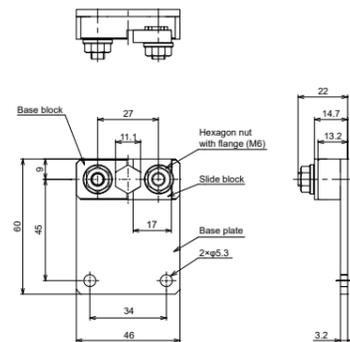


## Bracket

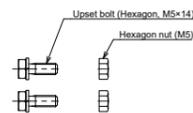
Standard accessory  
(Cable side)

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

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



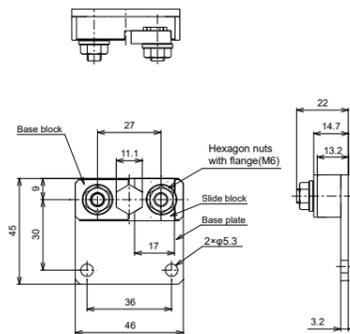
\*Drawing above depicts Point-up



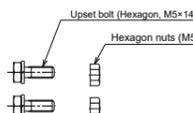
\*Note Tightening torque (M6) : 8 ~10 N-m  
Tightening torque (M5) : 2.3 ~3.5 N-m

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

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



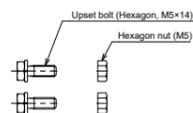
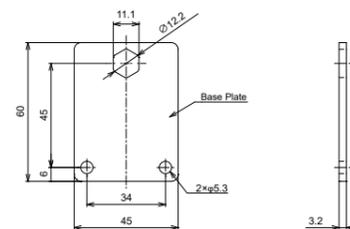
\*Drawing above depicts Point-up



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

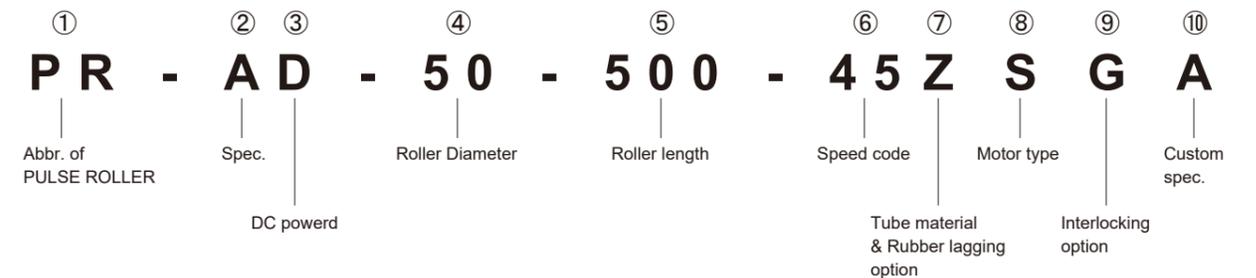
Optional accessory  
(Non-Cable side)

\*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 :**

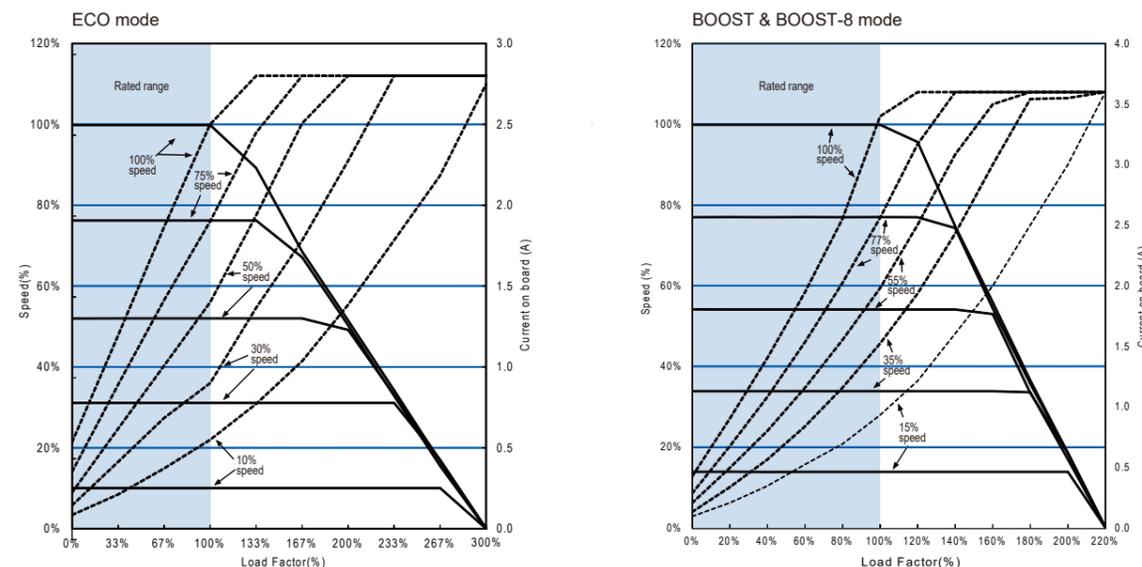
This torque is the peak value of motor stall torque.

**- 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

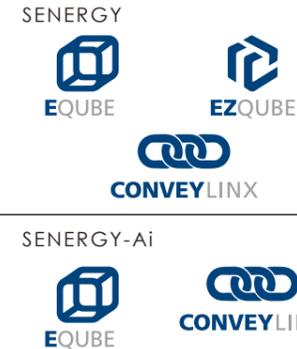


## Optional spec.

### 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 - WD - 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 - QD - 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

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

Unit: mm

## 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 EQUBE-HTBF is capable for brake control in EQUBE series.

## Part number definition

**PR - BD - 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



SENERGY-Ai



\*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	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.

# 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	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
	95	1.7	1.8	2.0	2.1	2.3	2.5	2.6	2.8
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
	95	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	

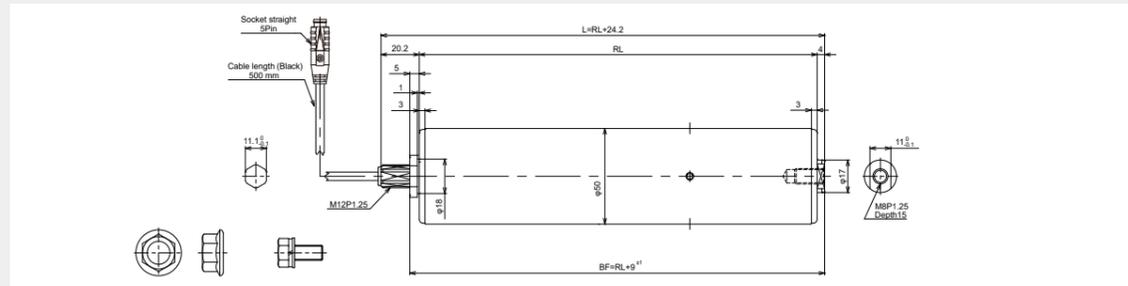
Unit: kg

# SENERGY-IDC

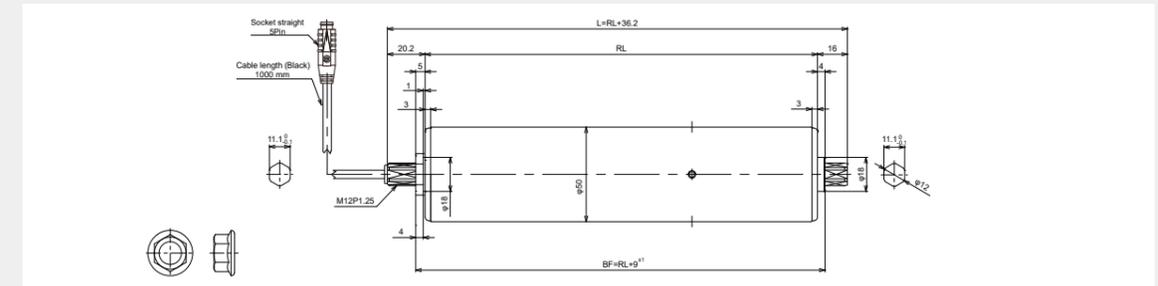


## Dimensions (Reference drawing)

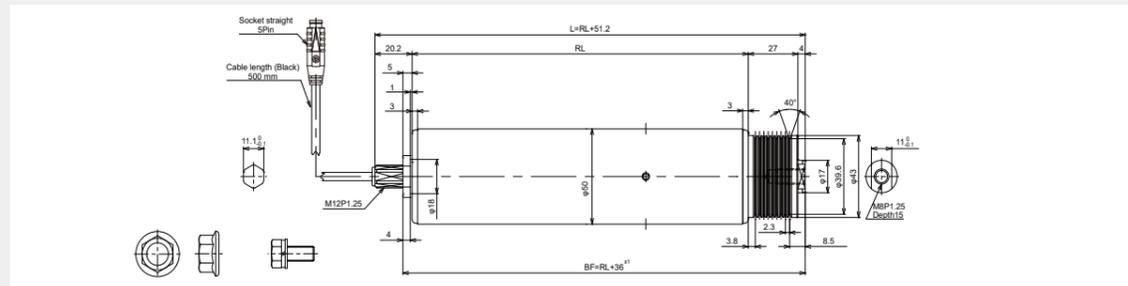
Plain straight



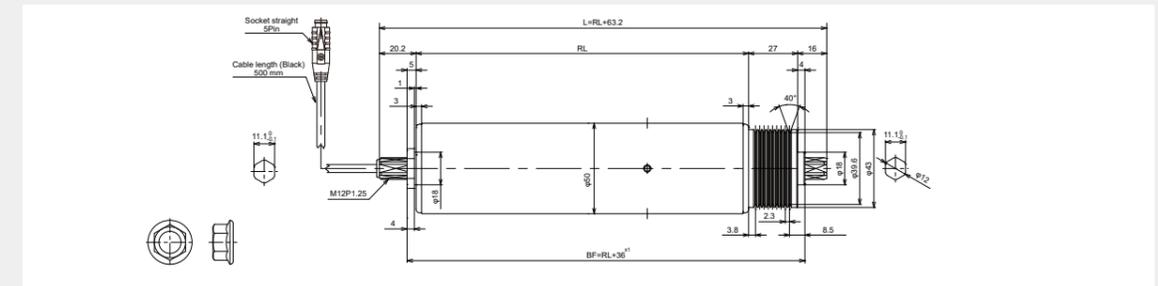
Plain straight



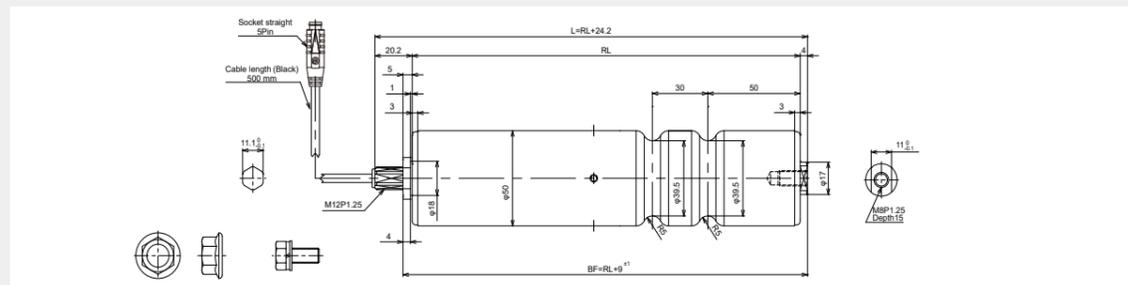
Micro V-Pulley



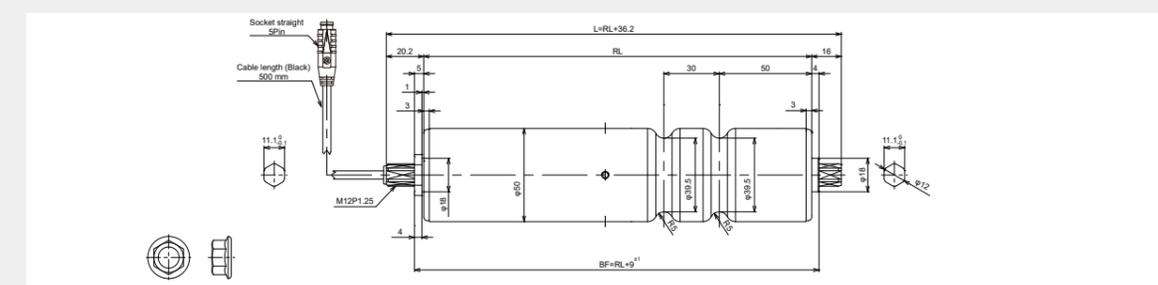
Micro V-Pulley



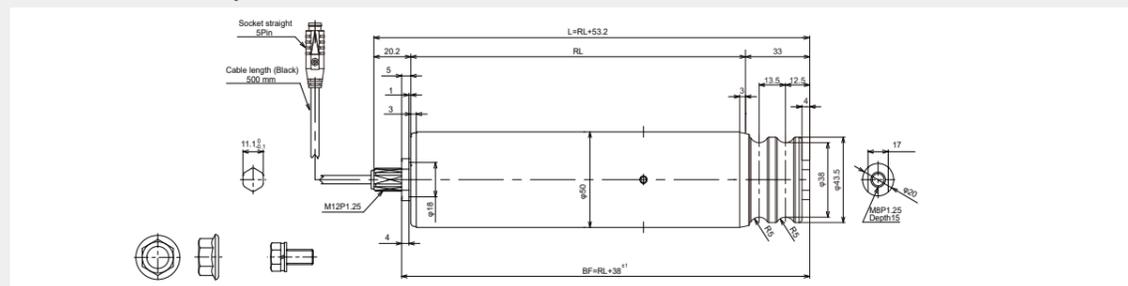
Round Grooves



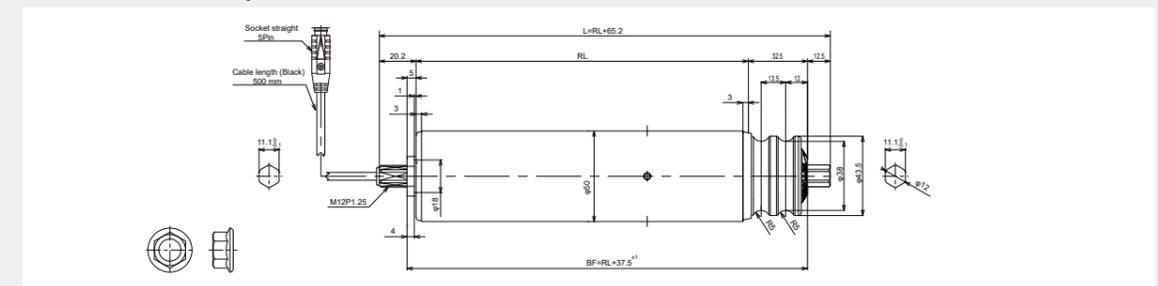
Round Grooves



Round Groove Pulley



Round Groove Pulley

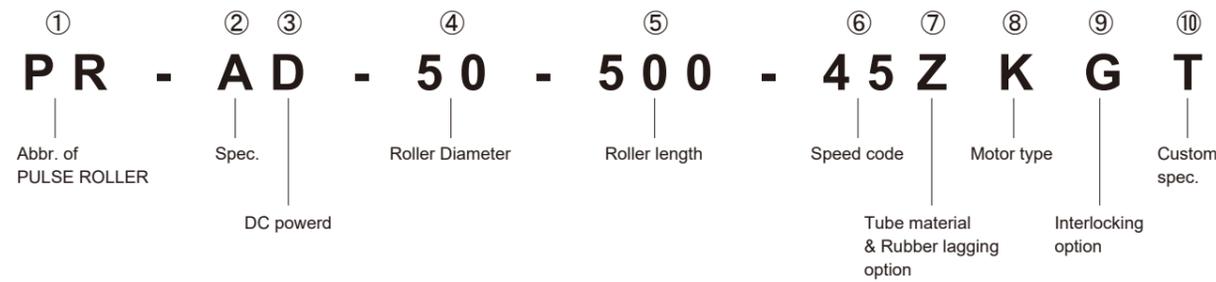


Drives

# 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	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.

# 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	<b>DC48V</b>				
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

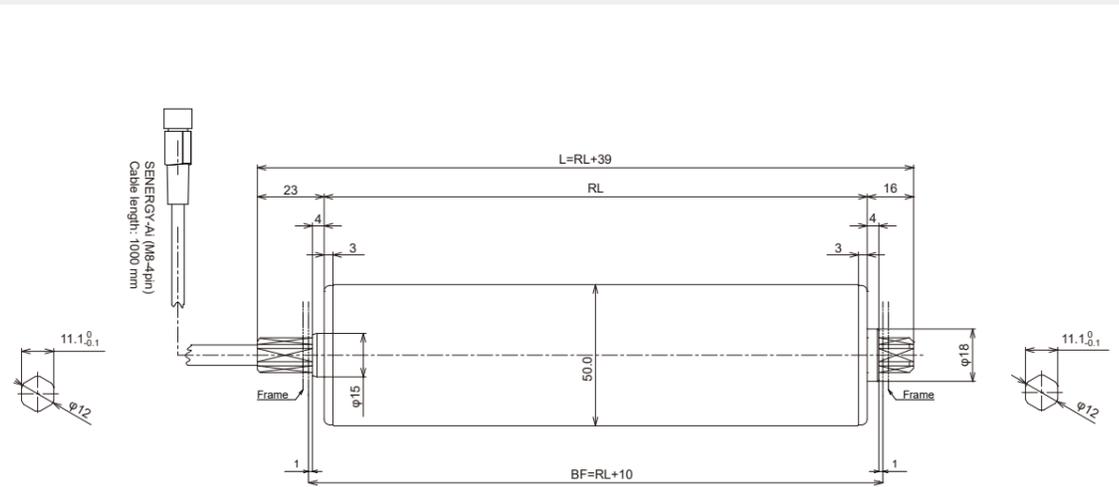
Drives

# SENERGY-Ai48



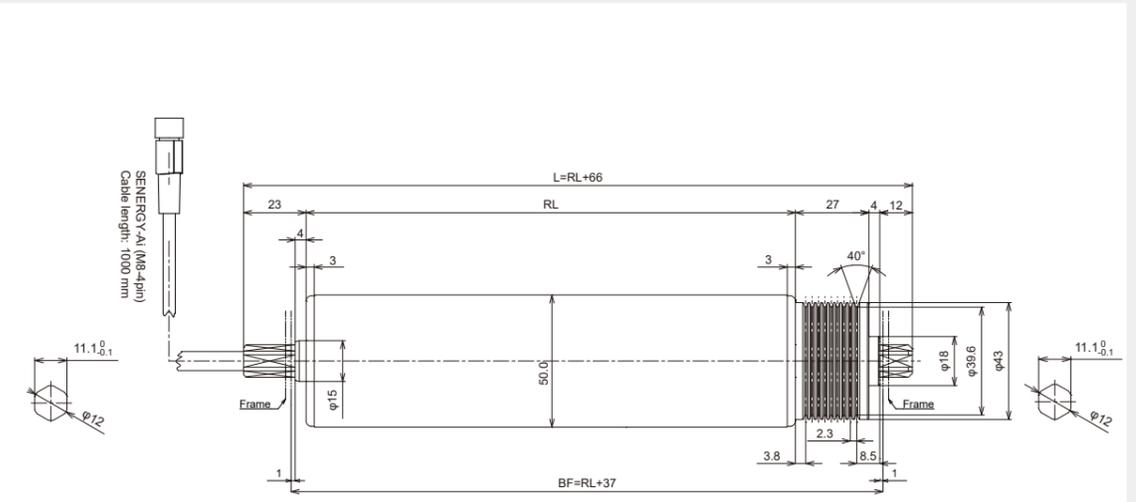
Dimensions (Metric)

Plain straight



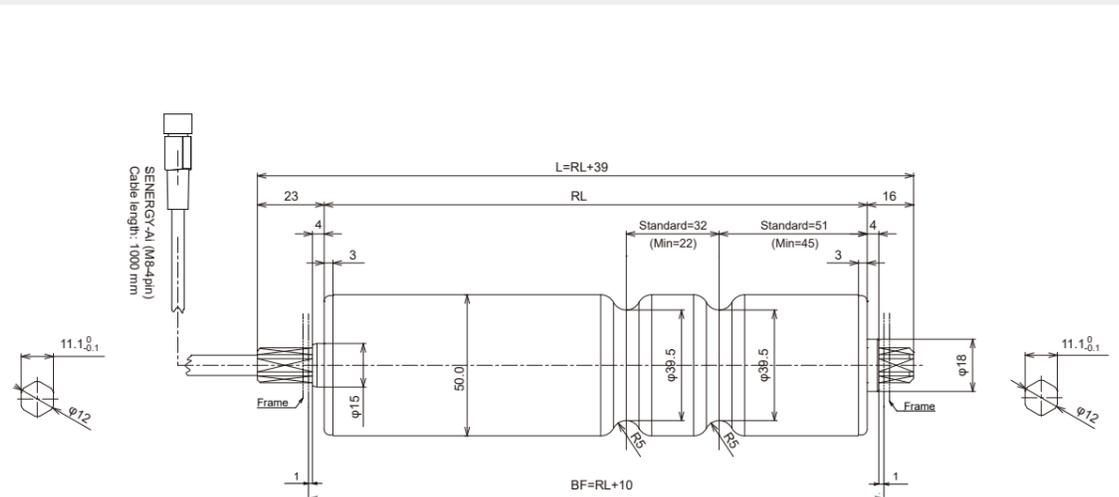
Note: \*2mm was added to the RL to provide proper clearance for the Between Frame Dimensions.

Micro-V pulley



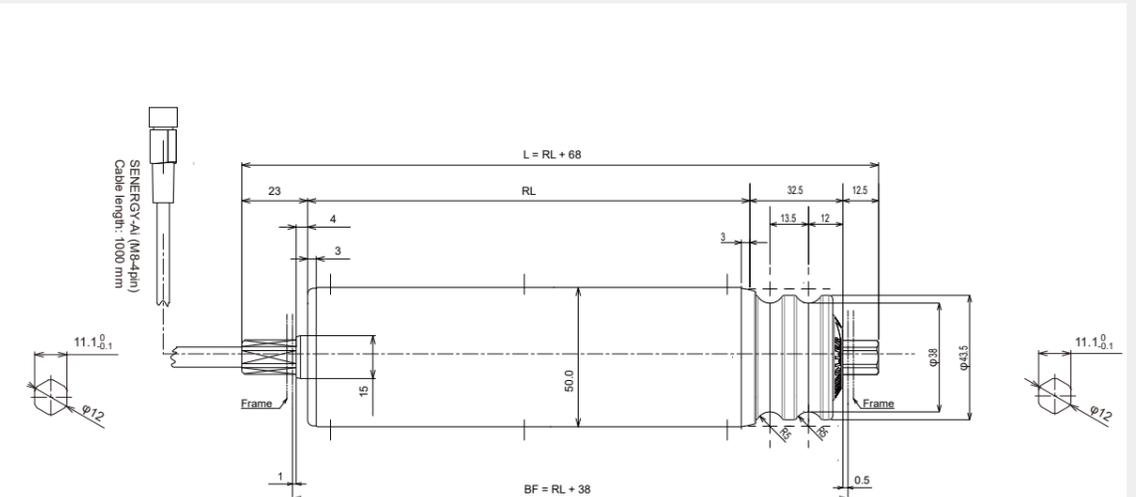
Note: \*2mm was added to the RL to provide proper clearance for the Between Frame Dimensions.

Round Groove



Note: \*2mm was added to the RL to provide proper clearance for the Between Frame Dimensions.

Round Groove pulley



Note: \*2mm was added to the RL to provide proper clearance for the Between Frame Dimensions.

# Drives

# SENERGY-Ai48

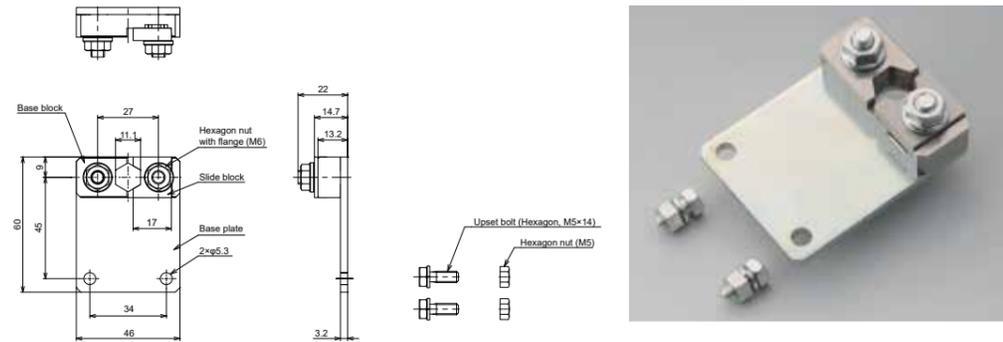


## Bracket

Standard accessory  
(Cable side)

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

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

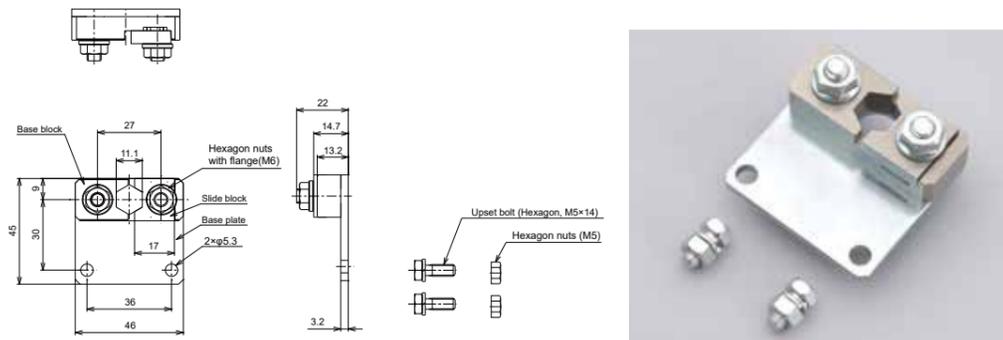


\*Drawing above depicts Point-up

\*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)

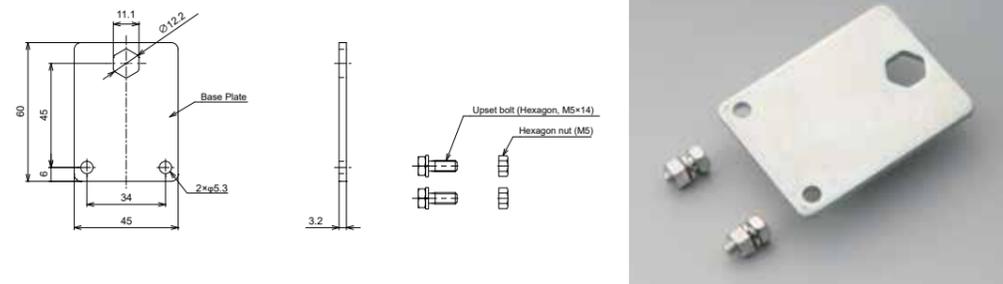


\*Drawing above depicts Point-up

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

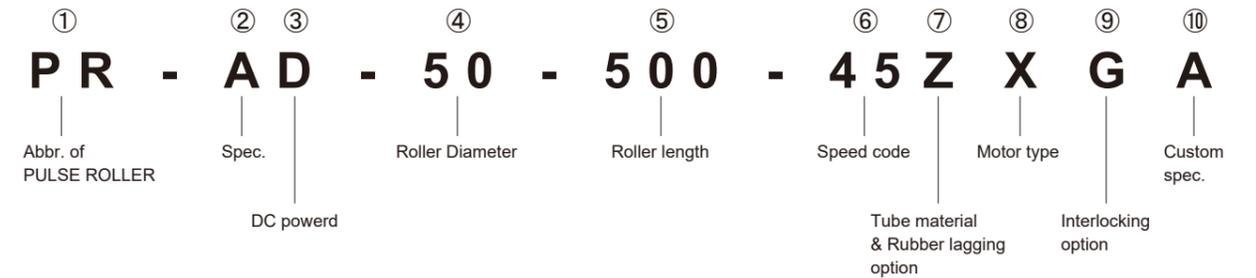
Optional accessory  
(Non-Cable side)

\*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
- 60** ---φ60.5
- 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

- 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	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.

# 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
- 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			31.4 ~ 229.5	2.19	3.59	8.69	9.8			
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

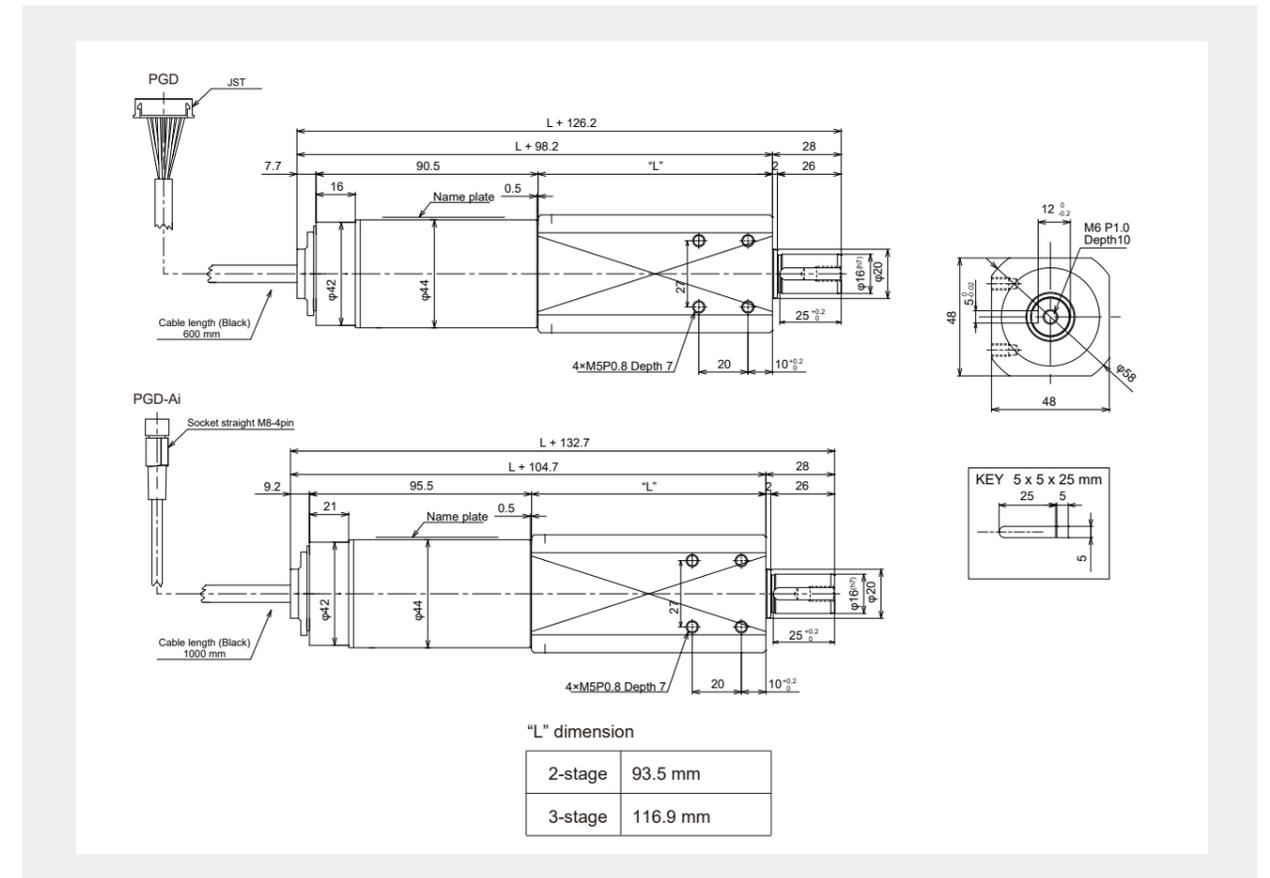
	ECO mode	BOOST mode	BOOST-8 mode
Voltage	DC24V		
Nominal output	40W	50W	50W
Rated current	2.5A	3.5A	3.5A
Starting current	3.0A	5.0A	8.0A
Ambient temperature	-10 ~ 40°C (No condensation)		
Ambient humidity	10 ~ 90% RH (No condensation)		

### 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)

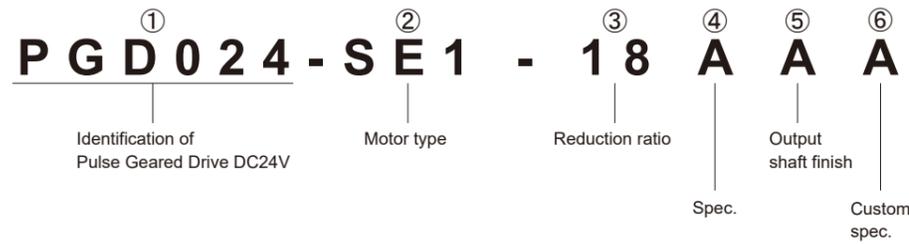


# Drives

## 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

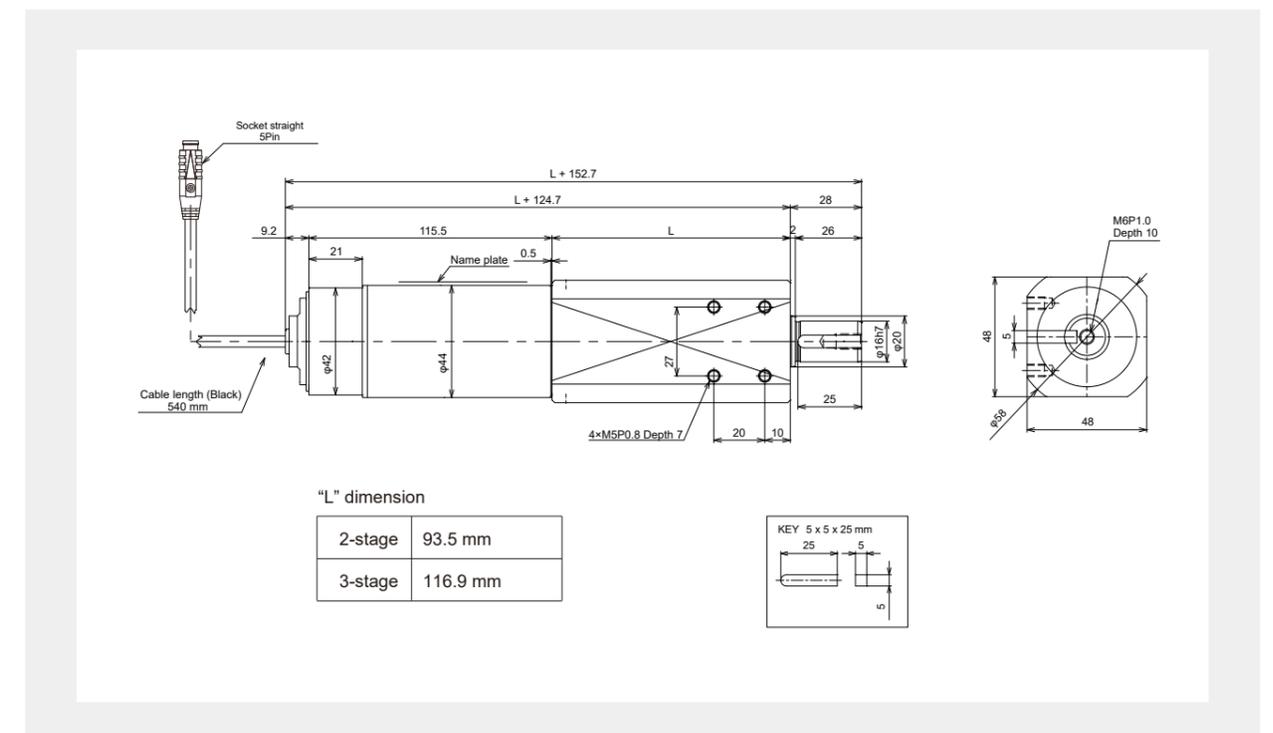
A --- Standard key-way shaft (No attachment)

#### 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	<b>DC48V</b>				
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

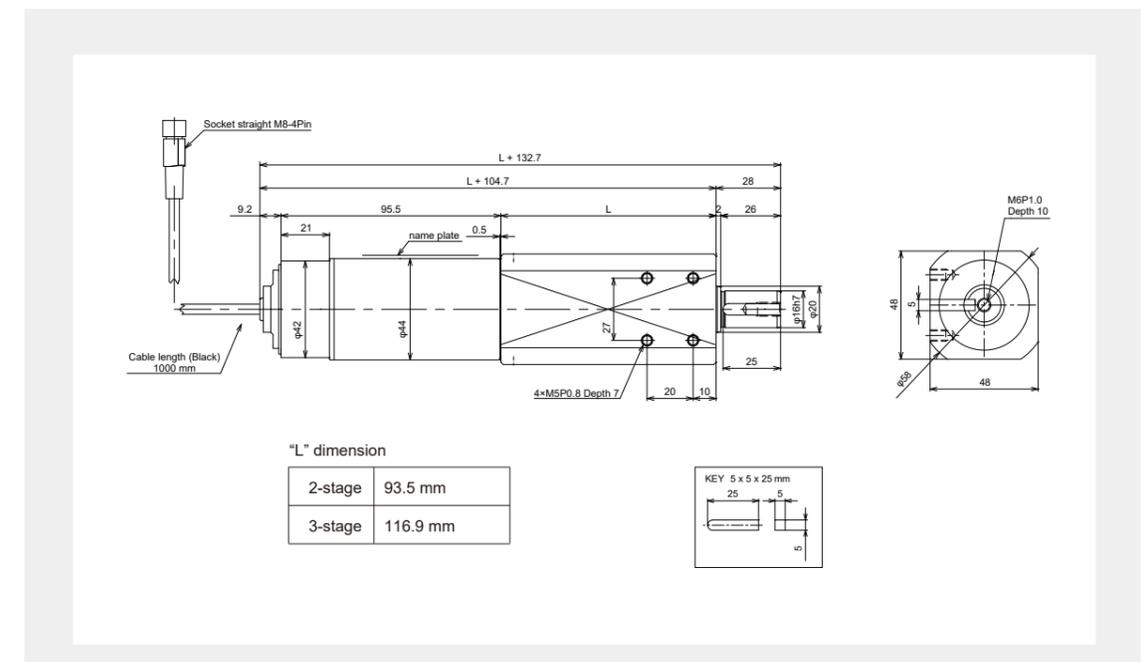
A --- Standard key-way shaft (No attachment)

### 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 (rpm)	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				
27	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 (rpm)	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				
27	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 (rpm)	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				
27	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 (rpm)	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				
27	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 (rpm)	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				
27	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 )

# 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

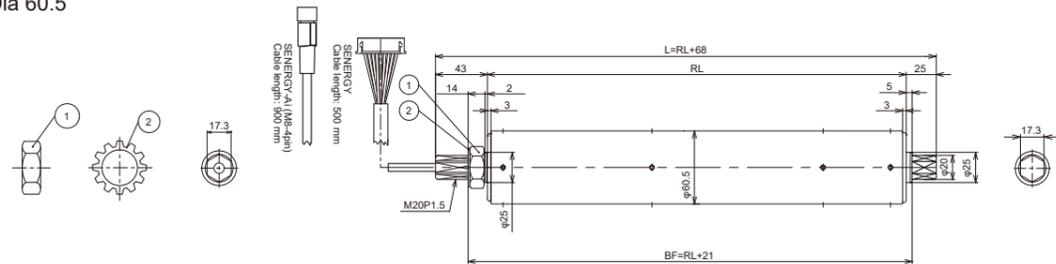
# Pallet handling



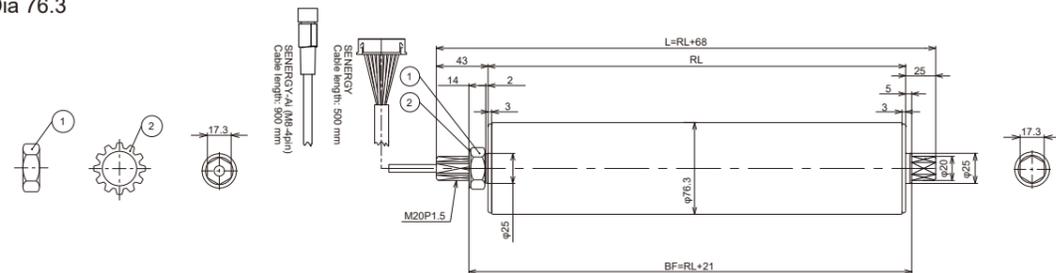
Dimensions (Metric)

Straight

Dia 60.5

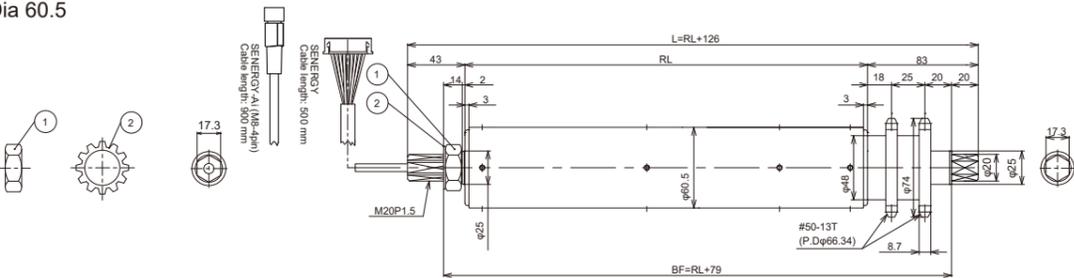


Dia 76.3

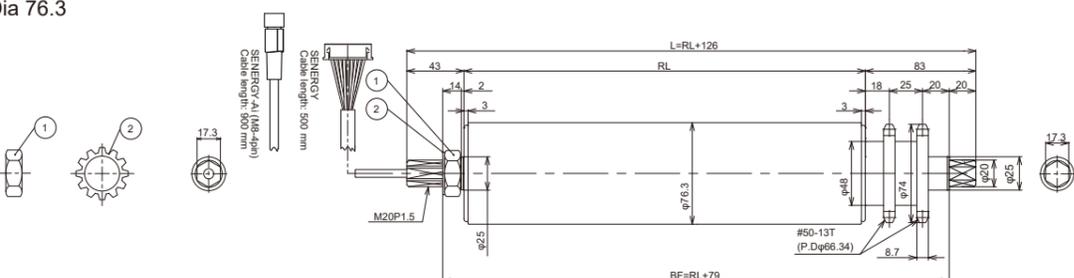


Sprocket

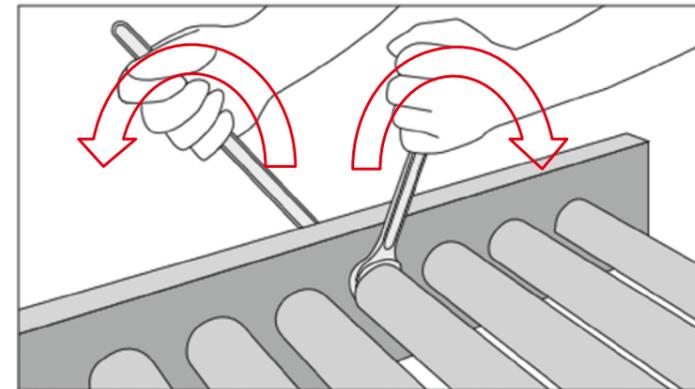
Dia 60.5



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**

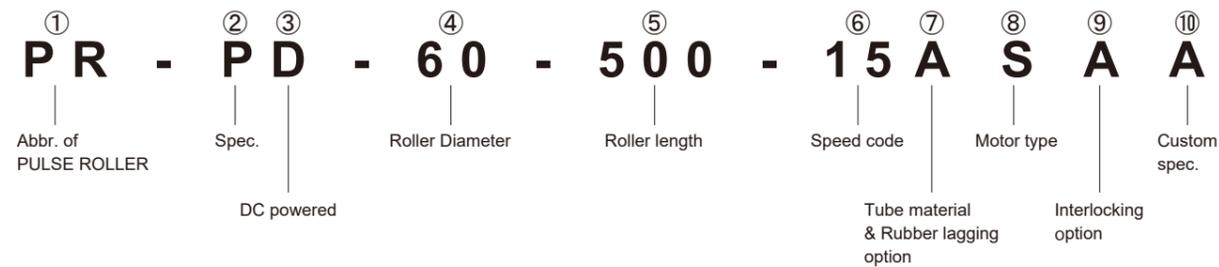
Tightening only one nut cannot fix the shaft properly.  
Loosened shaft may spin in the frame hole which may cause the cable to break.

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** ---  $\phi$  60.5
  - 76** ---  $\phi$  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

# Assemblies

## PDU90 -Pulse Divert Unit 90 degrees-



### Product Information

#### Features

- CE compliant, RoHS compliant
- Low profile design
- Easy installation by mounting directly underneath conveyor frame
- Easy maintenance
- 2 SENERGY rollers for belt drive and lift up & down (No pneumatics)
- Customizable (W, L dimensions and number of belt units)
- Strong and oversized mechanical design

**Compatible Control Technologies**

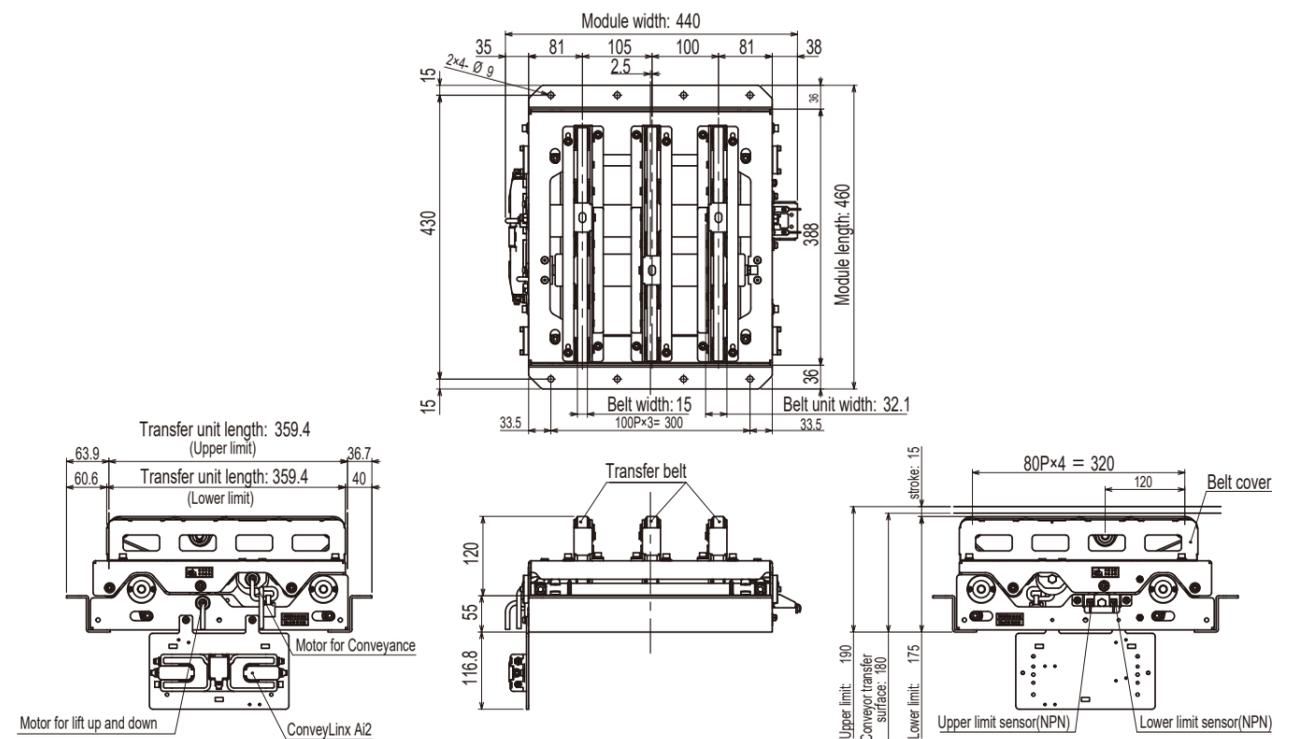
SENERGY	SENERGY - Ai
 EQUBE	 CONVEYLINX
 CONVEYLINX	 MOTIONLINX

#### Technical Data

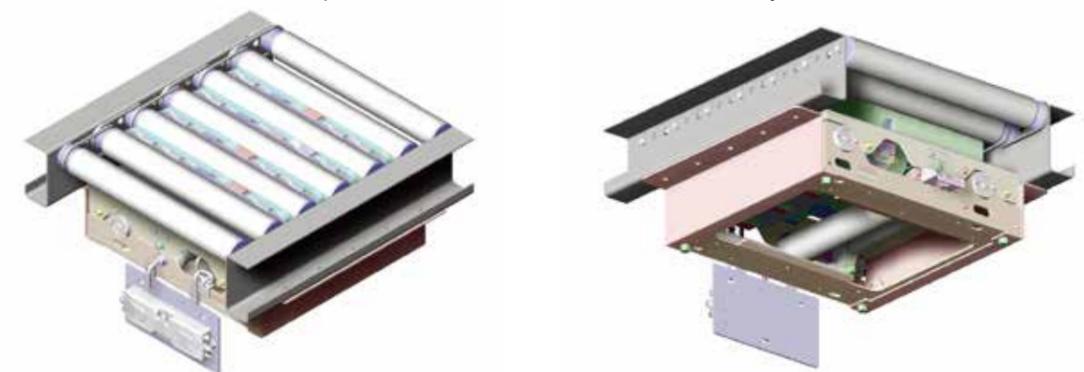
Voltage	DC24V
Roller Pitch Options <sup>1</sup>	75 mm and 100 mm
Max Load	50 kg
Belt Speed	45 m/min
Lift-up Stroke	15 mm
Through-put <sup>2</sup>	1500 / h
Minimum Dimensions	W360 x L380 (For BF 380 mm)
Maximum Dimensions	W960 x L800 (For BF 820 mm)
Ambient Temperature	-10°C ~ 40°C (No condensation)
Ambient Humidity	10 ~ 90% RH (No condensation)

### Dimensions

( Reference drawing for BF 400 mm conveyor)



Top and Bottom Views when Assembled to Conveyor



Fits 100 mm (4") or 75 mm (3") Roller Pitch

Capacity for 2, 3 or 4 Transfer Belt Units (4 are shown here)

Available with SENERGY or SENERGY-Ai motors and controls

<sup>1</sup> Contact PulseRoller for irregular or non standard roller pitch

<sup>2</sup> Through-put can vary depending upon product size and control algorithm

# Worksheet

## PDU90 -Pulse Divert Unit 90 degrees-

### How to Order a PDU-90

PDU-90 Units are made to order to fit your specific conveyor dimensions. When you contact Pulseroller for a quote or to place an order we will need to know the following dimensions and information:

#### Conveyor Dimensions (refer to Drawing on page 35)

(Please give all dimensions in mm)

- A – Roller Pitch of either 75 mm (3") or 100 mm (4")<sup>1</sup>
- B – Conveyor Between Frame (BF)
- C – Height of Side Frame
- D – Width of Bottom Flange of Side Frame
- E – Top of Side Frame to Top of Roller
- F – Length of Zone
- G – Roller Diameter of either 48.6 mm or 50 mm

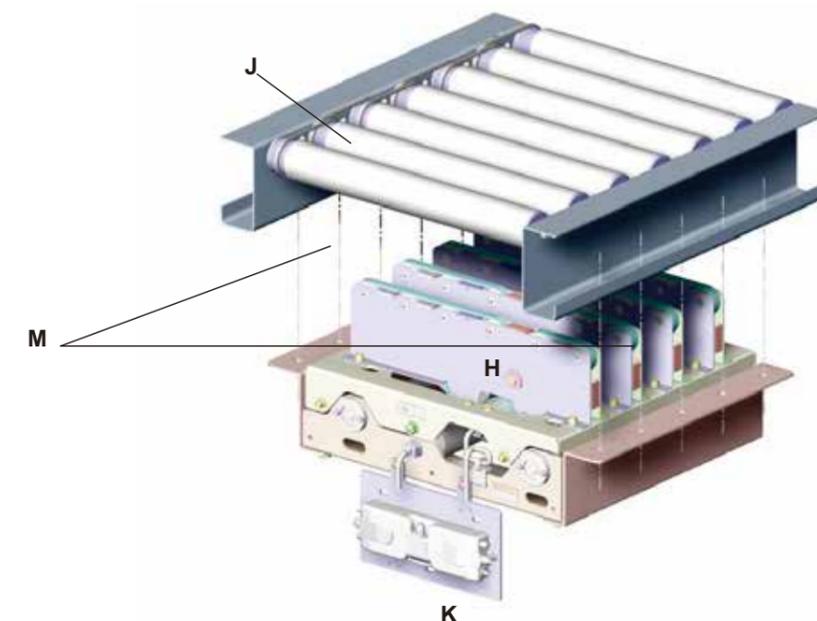
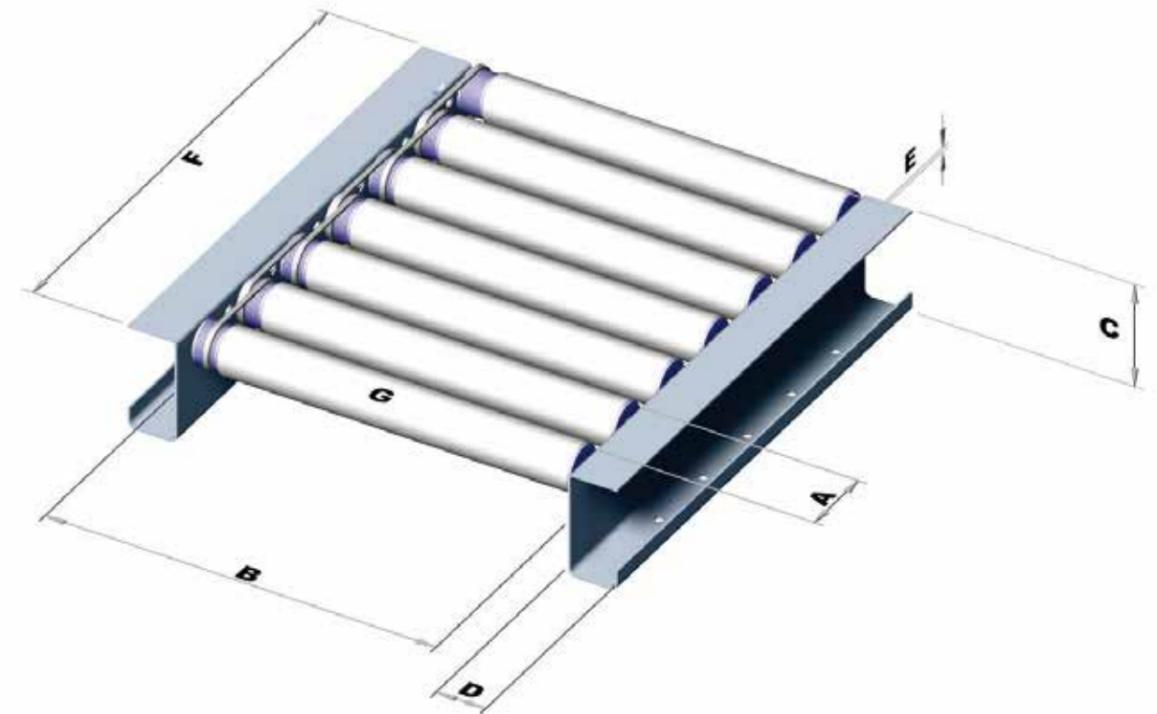
#### Other Options:

- H – Transfer Belt Units – specify whether you want 2, 3, or 4
- J – Interlocking – Specify whether your conveyor has Micro-V or Grooves with O-Bands. If using O-Bands, specify the dimension from the end of the roller to the centerline of the first groove and the dimension between groove centerlines.
- K – Motor/Control – Specify SENERGY (9 Pin JST) or SENERGY-Ai (4 Pin M8)<sup>2</sup>

#### Mounting Considerations:

- M<sup>3</sup> – Mounting holes on Side Frame Bottom Flanges are assumed to be 9 mm Dia.
- Mounting holes are assumed to be centered along the width of the Side Frame Bottom Flanges
- Mounting holes are assumed to be aligned with the conveyor's roller centers

Area under PDU-90 has to be free of any conveyor supports or cross-members



<sup>1</sup> Irregular Roller Pitches may be accommodated. Contact us for details

<sup>2</sup> For Senergy-Ai motor rollers, you can specify ConveyLinx-Ai2 or MotionLinx-Ai controllers

<sup>3</sup> Different mounting hole size and/or locations can be accommodated. Be sure to include the details when you contact us

# Assemblies

## PULSEPOPUP -30° / 45° diverter-



### Product Information

#### Features

- Choose 30 degree or 45 degree divert
- Compact design
- Bolt-in installation takes minutes
- Fully MDR driven (no pneumatics)
- Low maintenance – no lubrication requirements
- Effectively create a sortation conveyor

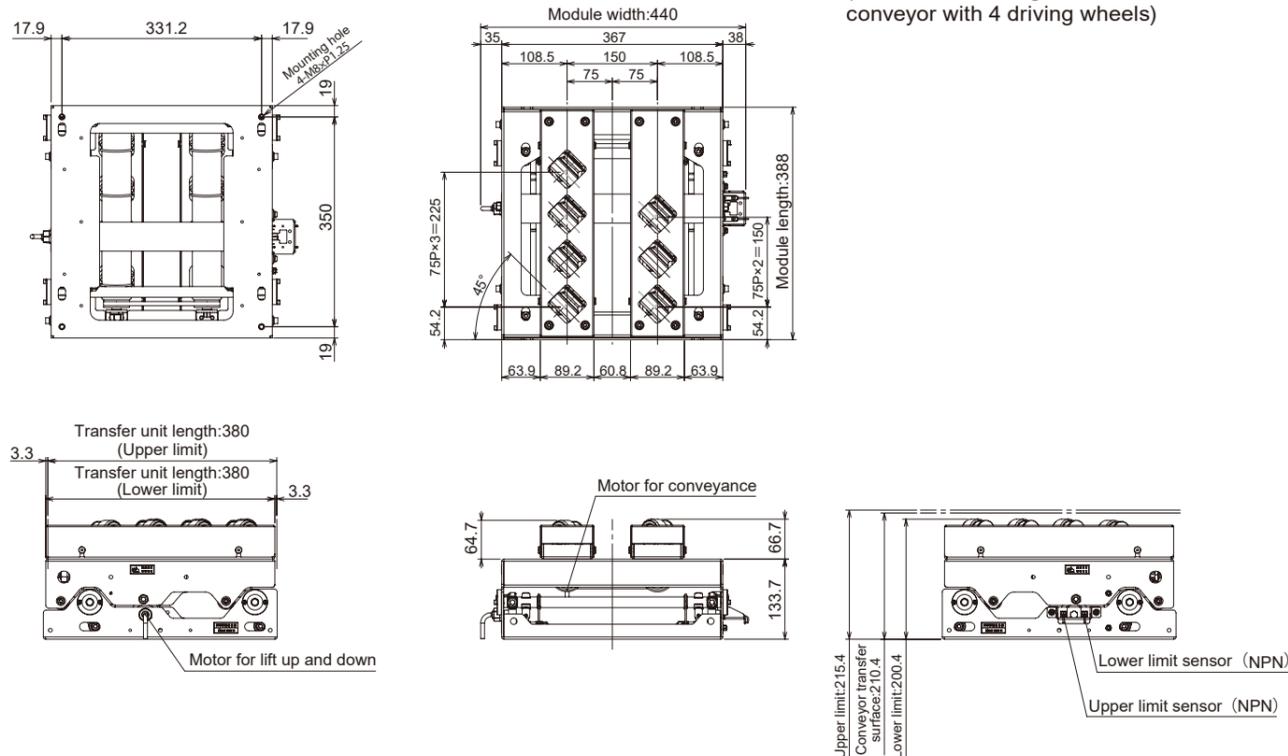
**Compatible Control Technologies**

SENERGY	SENERGY - Ai

### Technical Data

Dimensions (L x W mm)	# of Driving Wheels	Load Size Min (W x L mm)	Load Size Max (W x L mm)	Load Weight Max	Max Sorting Speed	Throughput
440 x 388 mm	4	300 x 200 mm	600 x 450 mm	30 kg	Up to 90 m/min with a 75 speed code	Up to 2400/hour depending on product size
440 x 488 mm	5					
440 x 588 mm	6					
440 x 688 mm	7					

### Dimensions



### Part Number Definition

① P P U - 4 5 - W 3 6 L 4 0 - 2 R 4 3 R - S 7 5 - ( ) ( )

PULSEPOPUP Family      Divert Angle      Size      Number of Transfer Row      Number of Transfer Wheels      Divert Direction      Motor Type      Speed Code      (For Future Use)      Custom Option

- ② Divert Angle  
**30** --- 30° degree      **45** --- 45° degree
- ③ Size  
**W36 L40** --- W440mm x L388mm      **W36 L50** --- W440mm x L488mm  
**W36 L60** --- W440mm x L588mm      **W36 L70** --- W440mm x L688mm
- ④ Number of Transfer Row  
**2R** --- 2 rows
- ⑤ Number of Transfer Wheels  
**43** --- 4 wheels x 3 wheels      **54** --- 5 wheels x 4 wheels  
**65** --- 6 wheels x 5 wheels      **76** --- 7 wheels x 6 wheels
- ⑥ Divert Direction  
**R** --- Right      **L** --- Left
- ⑦ Motor Type  
**S** ---SENERGY (JST connector)      **M** --- SENERGY-Ai (M8-4pin connector)
- ⑧ Speed Code  
**75**
- ⑨ Custom Option

### Installation



## Worksheet

# PULSEPOPOP -30° / 45° diverter-

### How to Order a PPU Unit

Even though you specify your part number as described on page 37, each unit is made to order and its mounting is custom made to match your particular conveyor dimensions. When you contact Pulseroller to place an order for the part number you want, we will need to know the following additional information to complete your order:

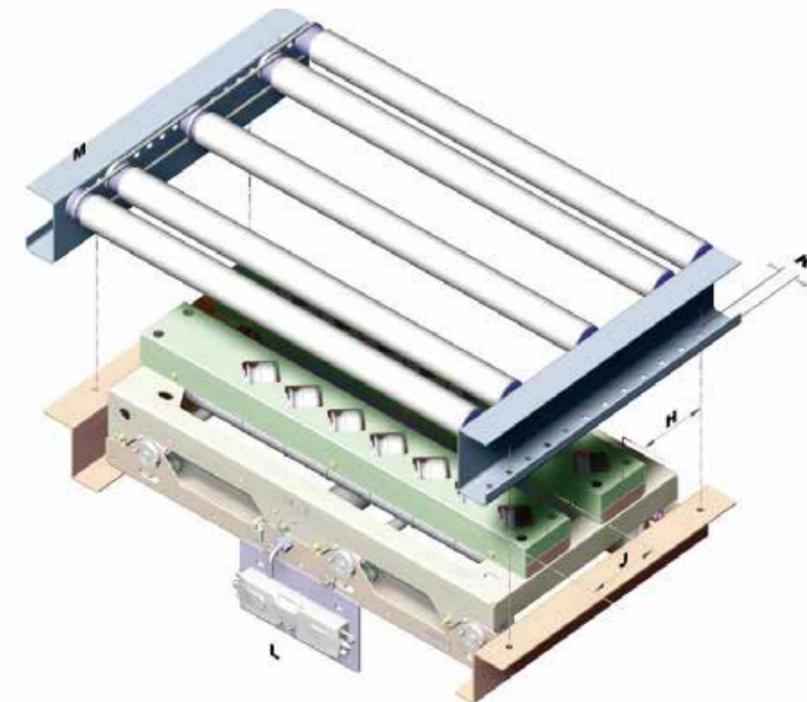
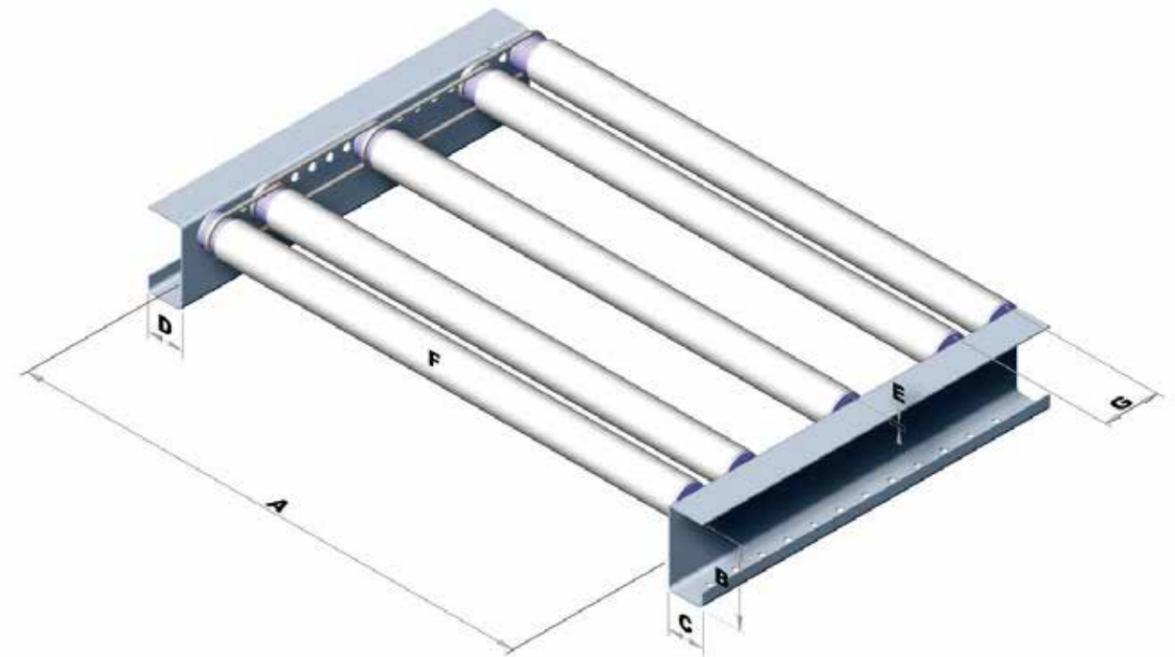
#### Conveyor Dimensions (refer to Drawing on page 39)

(Please give all dimensions in mm)

- A** – Conveyor Between Frame (BF)
- B** – Height of conveyor frame
- C** – Width of bottom flange of conveyor frame
- D** – Width of opposite conveyor frame flange (if different from C)
- E** – Distance from top of conveyor frame to top of roller
- F** – Roller Diameter (48.6 mm or 50 mm)
- G** – Roller center pitch
- H** – Distance from centerline of 1st PPU Lifting Unit to centerline of bottom frame flange mounting hole<sup>1</sup>
- J** – Distance from centerline of 2nd PPU Lifting Unit to centerline of bottom frame flange mounting hole<sup>1</sup>
- K** – Distance from edge of bottom flange to centerline of mounting holes<sup>1</sup>
- L** – Motor/Control – Specify SENERGY (JST) or SENERGY-Ai (4 Pin M8)<sup>2</sup>
- M** – Interlocking – Specify if your conveyor has Micro-V or Grooves with O-Bands

#### Mounting Considerations:

Area under PPU Unit has to be free of any conveyor supports or cross-members



<sup>1</sup> Irregular mounting hole pitches and locations may be accommodated. Contact us for details

<sup>2</sup> For Senergy-Ai motor rollers, you can specify ConveyLinx-Ai2 or MotionLinx-Ai controllers

# 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

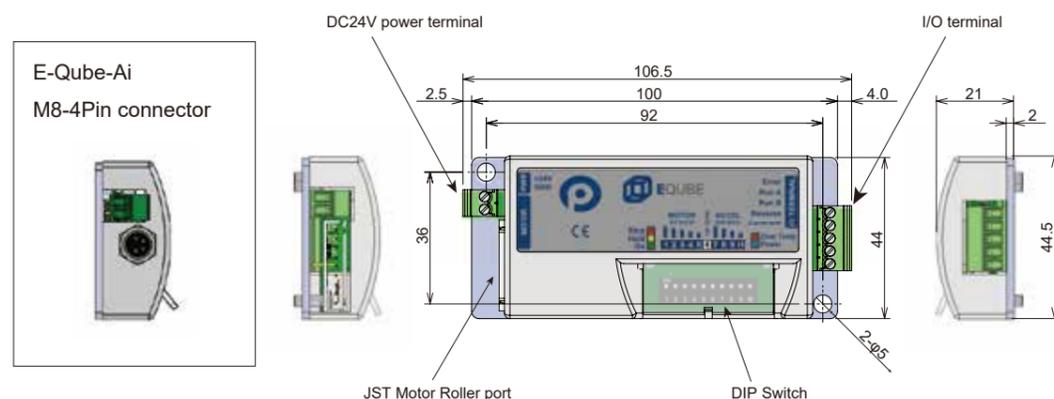
### Technical data

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

### Applicable environment

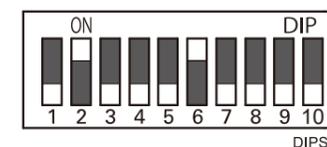
Operating ambient temp	-10 ~ 40°C
Operating ambient humidity	10 - 90% RH (No condensation)
Storage ambient temp	-10 ~ 75°C
Storage ambient humidity	10 - 90% RH (No condensation)
Vibration	1G or less

### Dimensions and parts



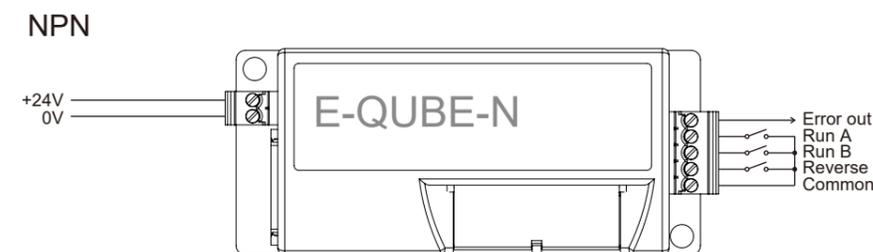
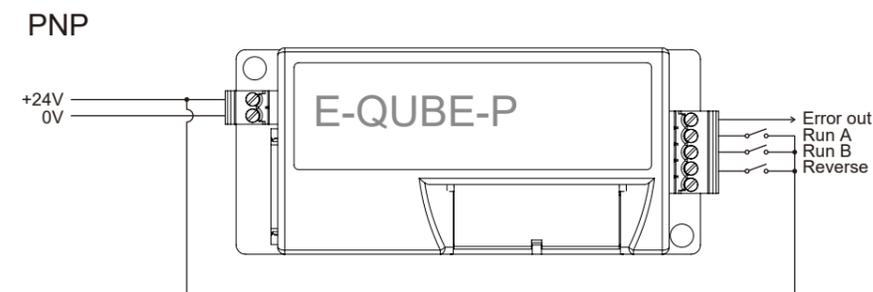
### DIP Switch setting

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

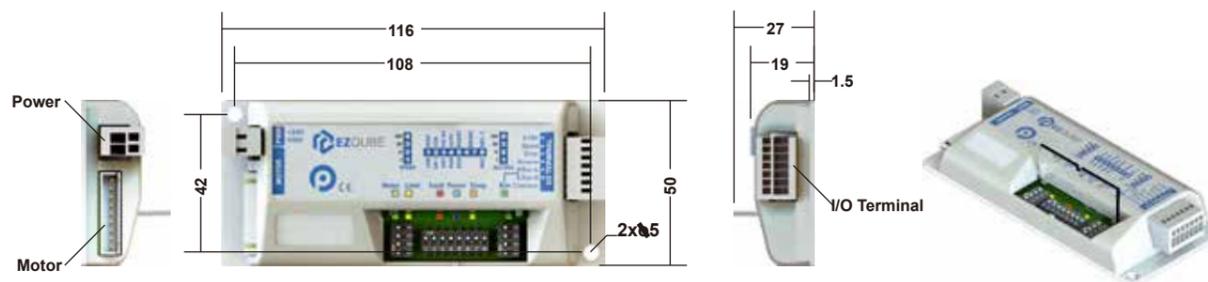
### Technical data

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)

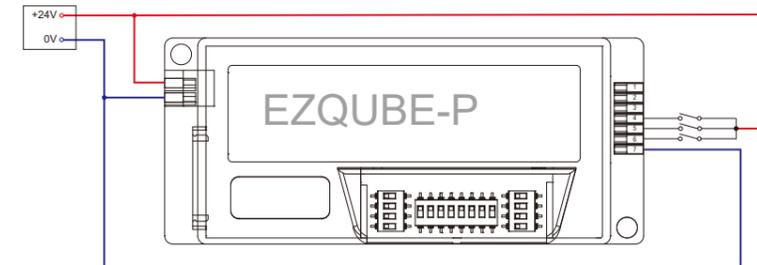


### DIP Switch Setting

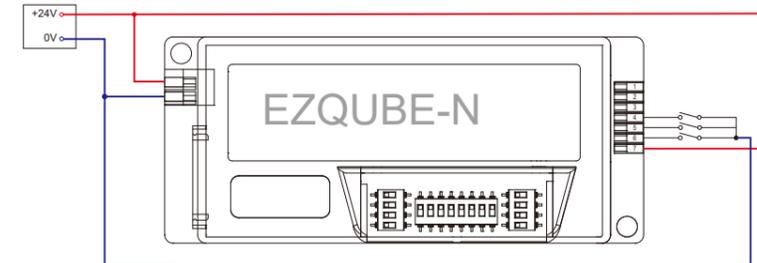
SWITCH SPEED	Function	OFF	ON	
1	Speed setting	32 fixed stages available with DIP switch combinations		
2				
3				
4				
SWITCH ACC/DCC	Function	OFF	ON	
1	Accel / Decel Setting	16 fixed timers (0.05 ~ 2.5 sec) available with DIP switch combinations		
2				
3				
4				
SWITCH CONFIG	Function	OFF	ON	
1	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

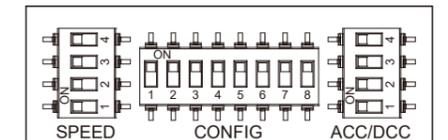
#### PNP



#### 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.

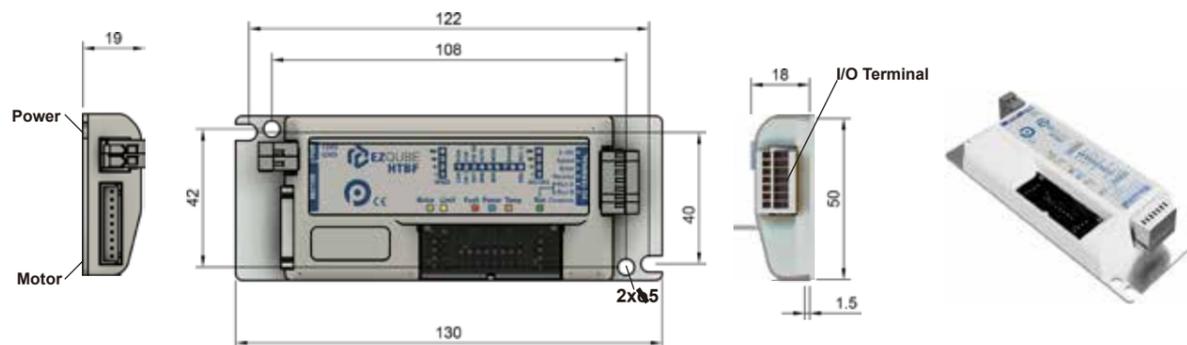
### Technical data

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)

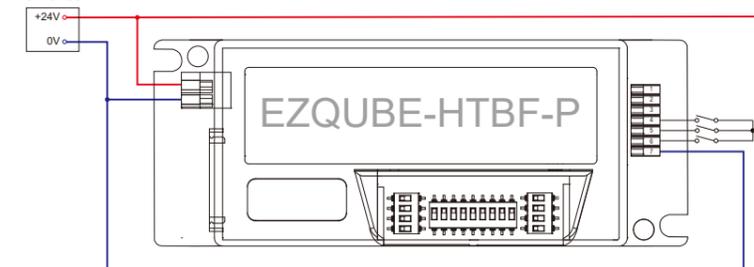


### DIP Switch Setting

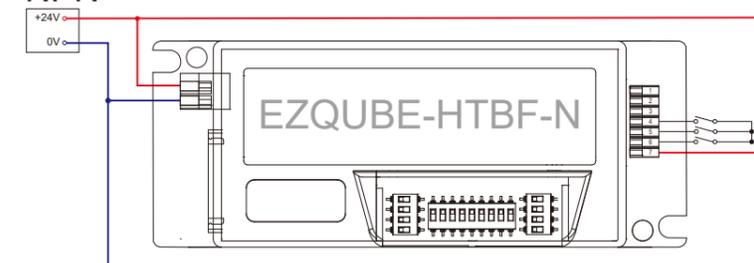
DIP Switch	Function	OFF	ON	
1	Speed setting	32 fixed stages available with DIP switch combinations		
2				
3				
4				
1	Accel / Decel Setting	16 fixed timers (0.05 ~ 2.5 sec) available with DIP switch combinations		
2				
3				
4				
1	Speed range setting	Low range	High range	
2	Direction of Rotation	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	ON	ON
		ON	OFF	OFF
9	Deceleration Time Adjustment	Decel Time = Accel Time	Decel time = 2 x Accel Time	

### Wiring

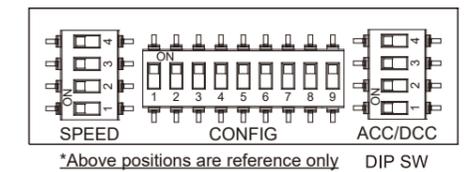
#### PNP



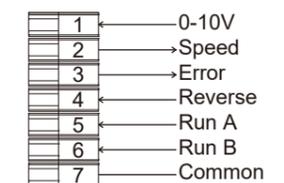
#### NPN



### 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



-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

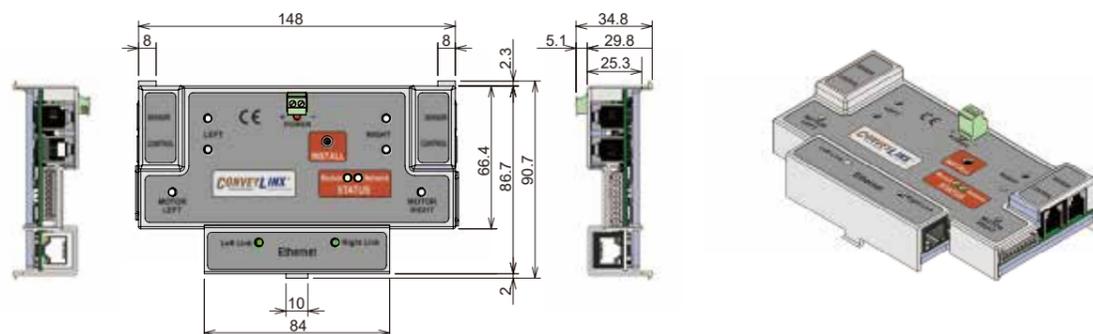
## Technical data

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

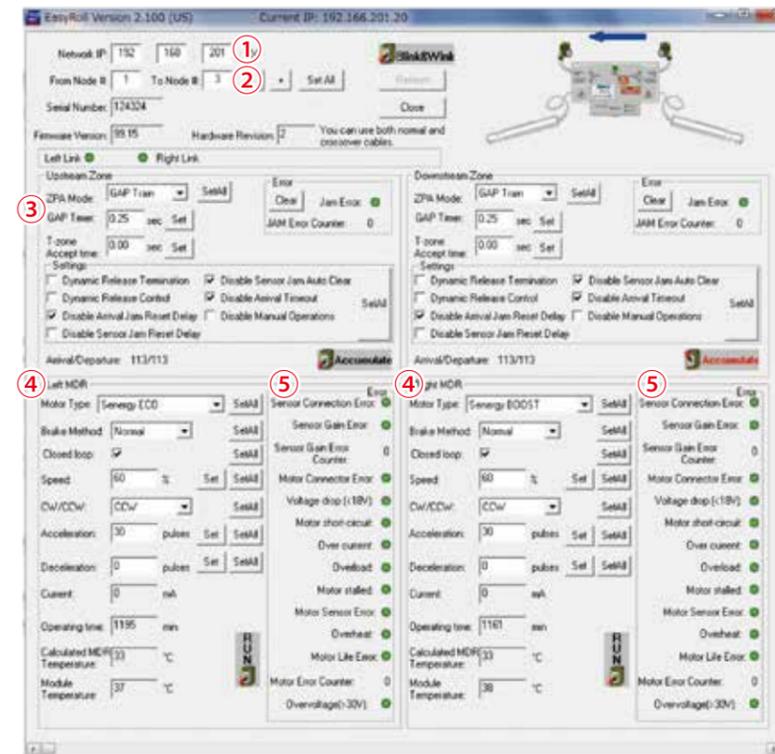
## Applicable environment

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)

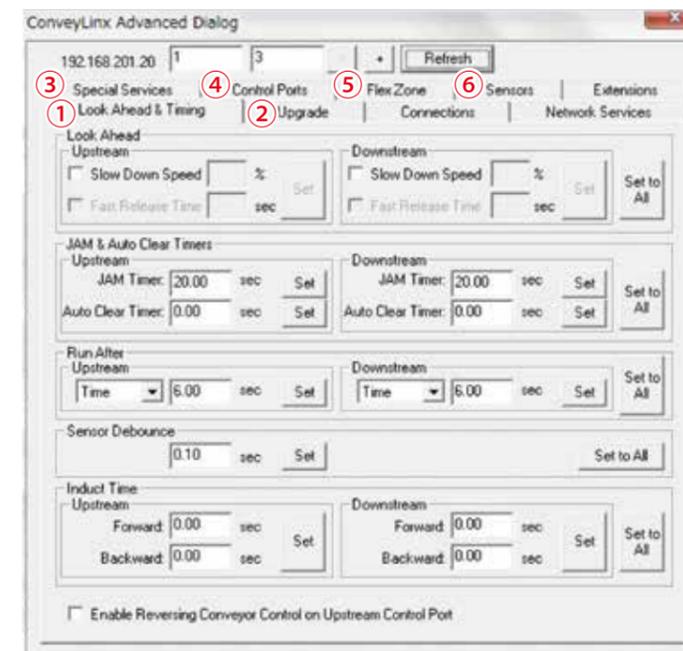


## EasyRoll Configuration Software



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](http://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)

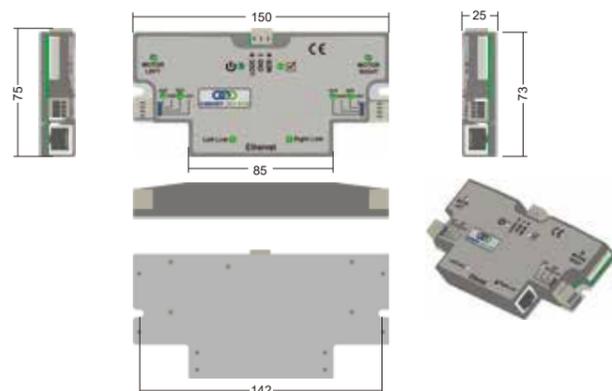
### Technical data

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

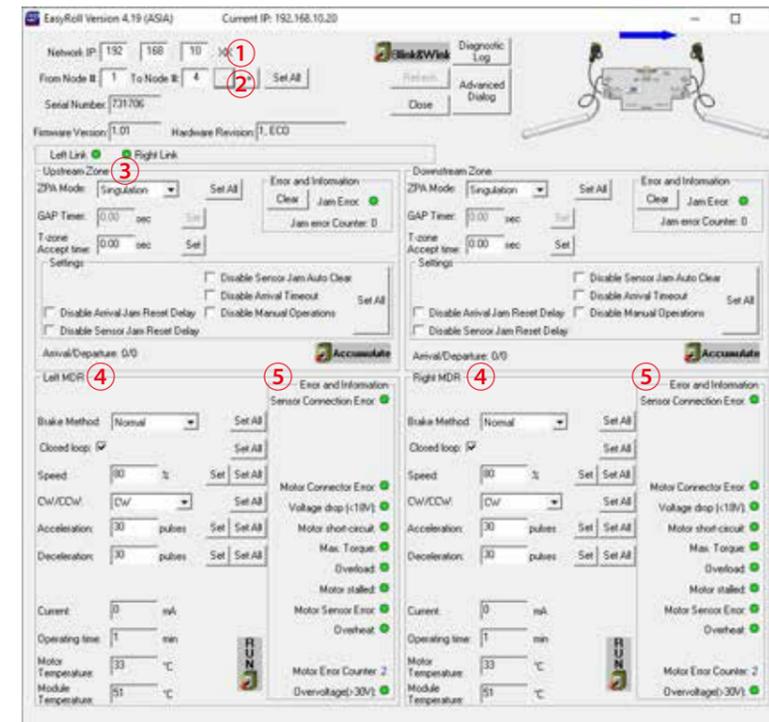
### Applicable environment

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

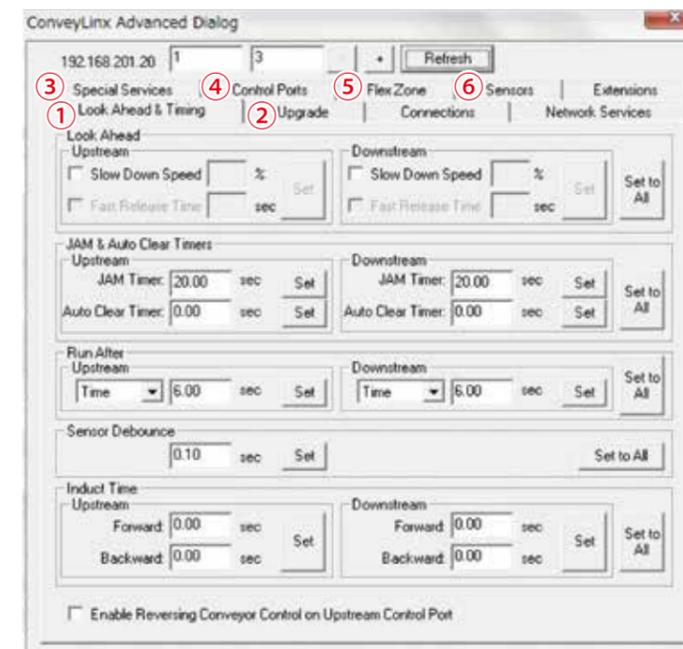


### EasyRoll Configuration Software



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

\*ConveyLinx provides many more functions and is the most advanced motor drive control in the market today. Visit [www.pulseroller.com](http://www.pulseroller.com) for more details.



### 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)

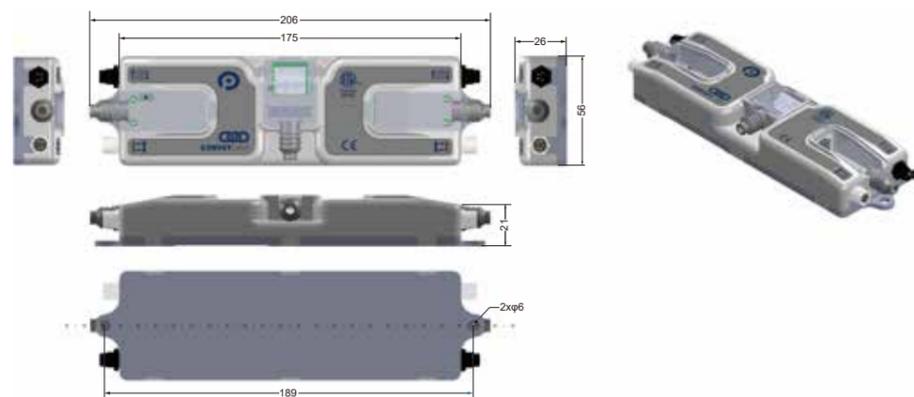
### Technical data

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

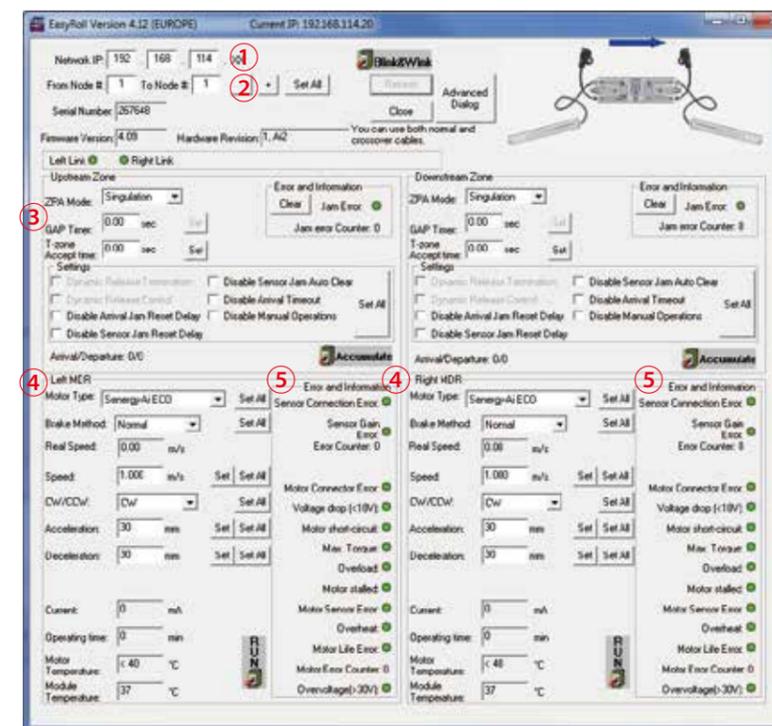
### Applicable environment

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

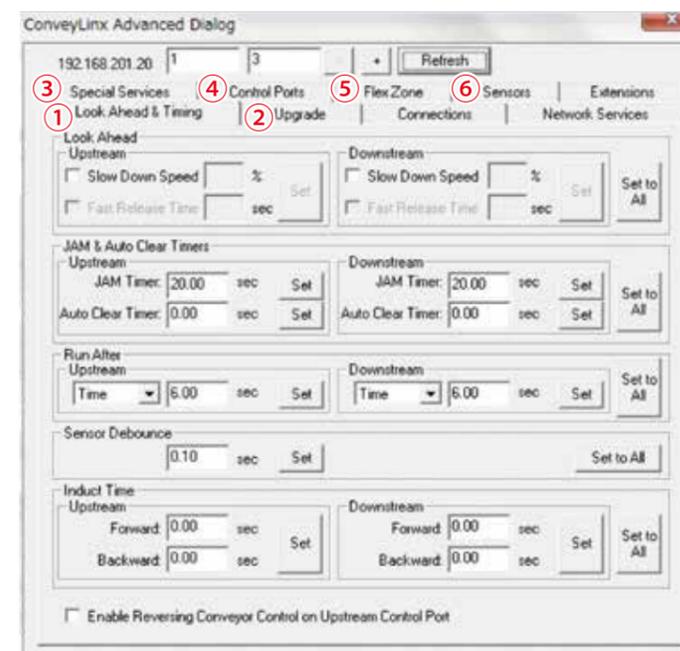


### EasyRoll Configuration Software



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

\*ConveyLinx provides many more functions and is the most advanced motor drive control in the market today. Visit [www.pulseroller.com](http://www.pulseroller.com) for more details.

# Control



## -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 mm<sup>2</sup> ASI flat cables or 6 mm<sup>2</sup> / 2.5 mm<sup>2</sup> round cables
- Separate base plate for 2.5 mm<sup>2</sup> ASI flat cables or 6 mm<sup>2</sup> / 2.5 mm<sup>2</sup> round cables

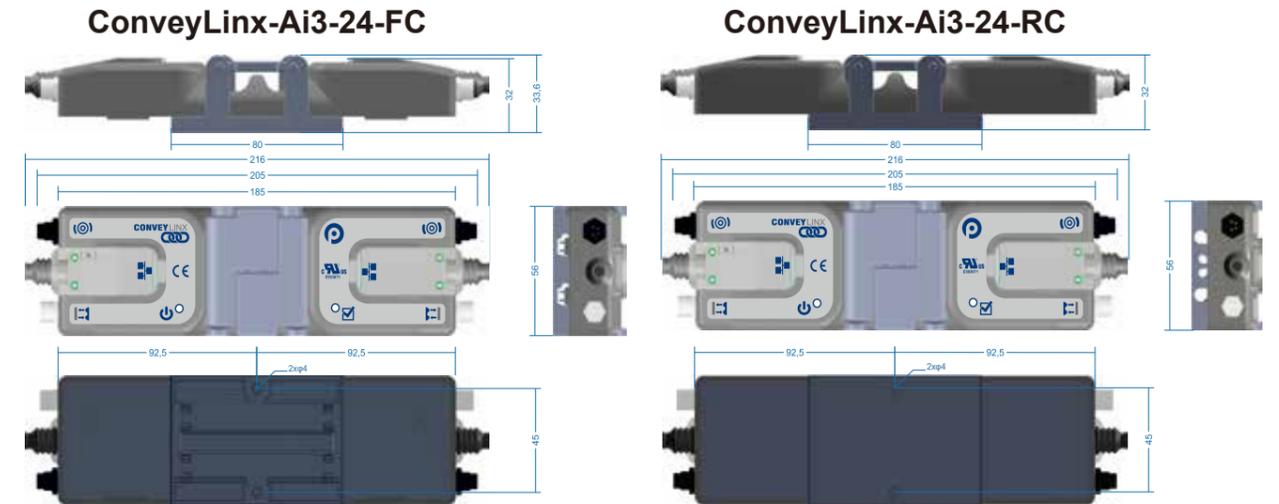
### Technical data

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

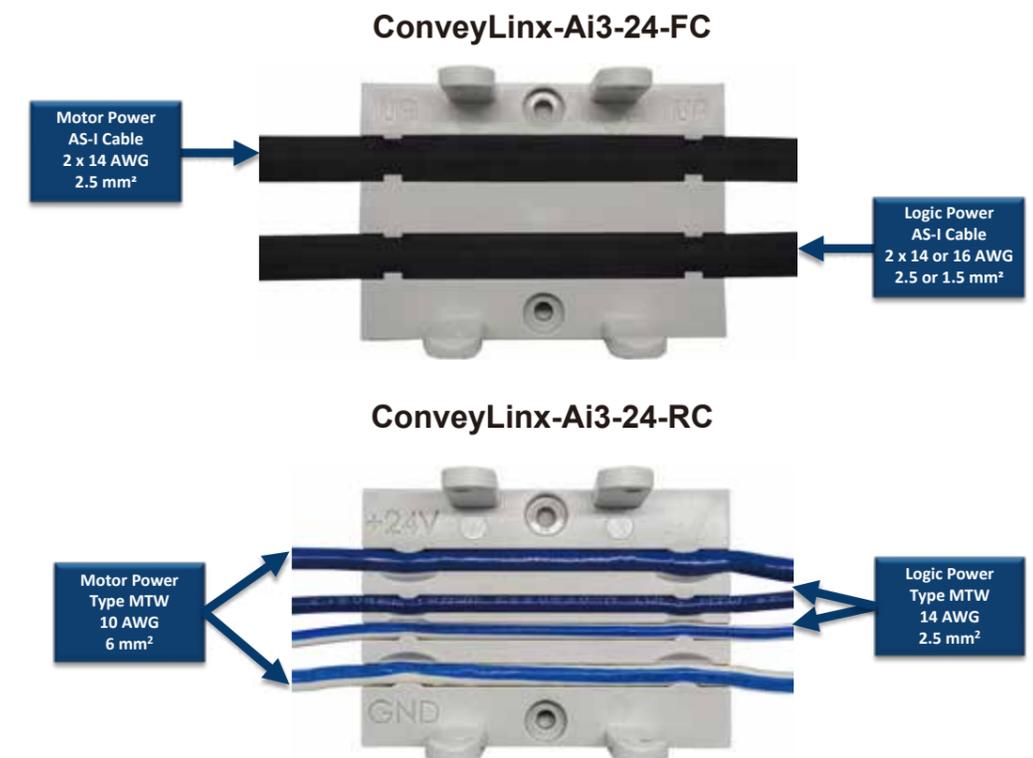
### Applicable environment

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



### 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

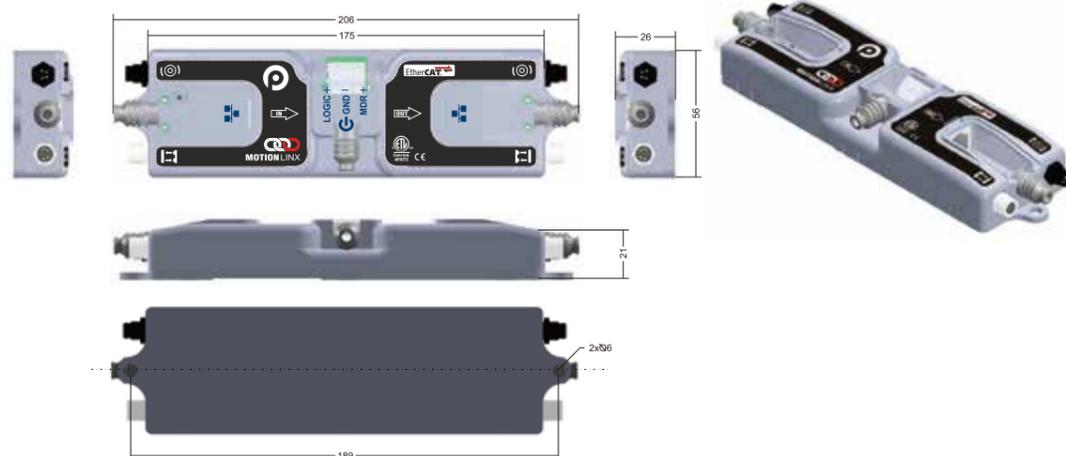
### Technical data

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

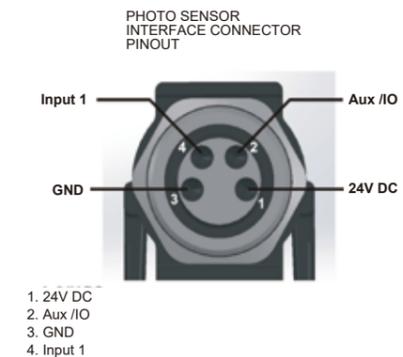
- Number of inputs:
- 2 M8 female connectors - 4 inputs
- PNP/NPN/Push-Pull Sensors

### 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

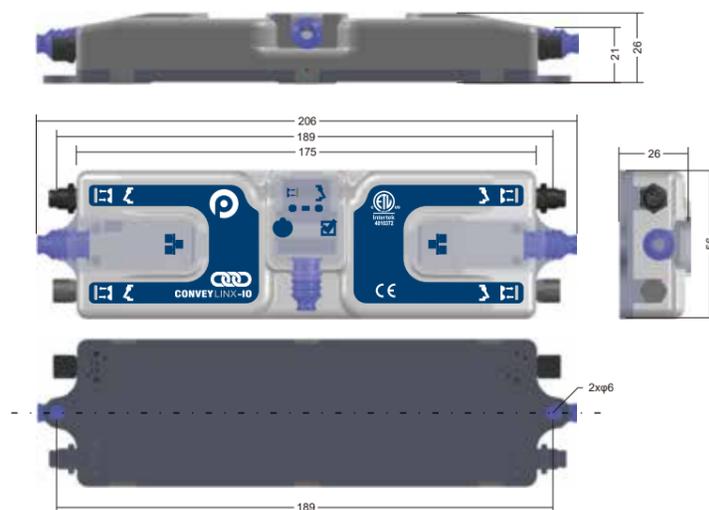
### Technical data

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

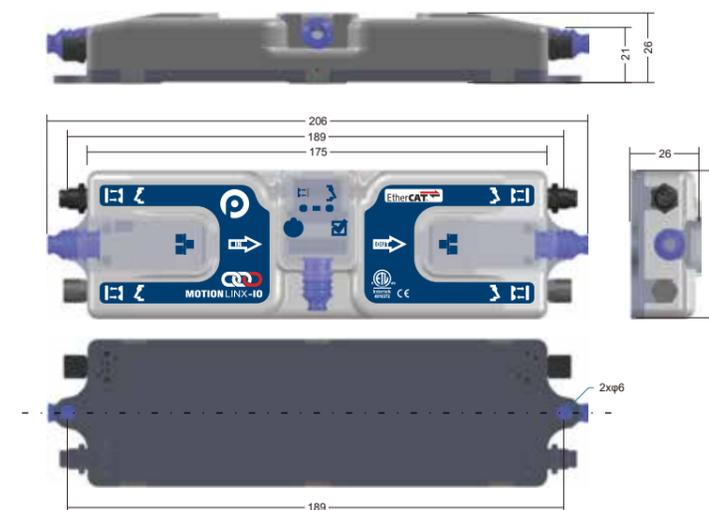
### Technical data

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 mm<sup>2</sup> ASI flat cables
- Active Power Management (Available on EasyRoll+ software only)

### Technical data

Voltage	<b>DC48V</b>
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)

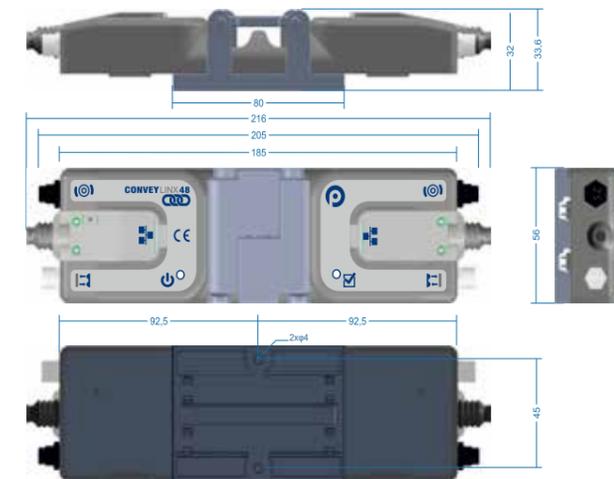
Active Power Management (hereinafter, this is called "APM"), is a system that fundamentally prevents power supply overloading. While configuring the system using EasyRoll+, a ConveyLinX Ai3-FC group is formed that is connected to one power supply, then the maximum amperage of this power supply is defined 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 mm<sup>2</sup>



Logic Power  
AS-I Cable  
2 x 14 or 16 AWG  
2.5 or 1.5 mm<sup>2</sup>

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