



**Catalogo**

# Motorulli



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# Senergy-Ai

## 24V



## The ingenious motor roller.

When it comes to the throughput and reliability of drives for roller conveyors, solid mechanical design and versatility of controls are equally important. Pulseroller offers both and much more.

With the Senergy-Ai motorised roller, Pulseroller sets a new standard in conveyor technology, proven in the field and ready for future applications.

Senergy-Ai is a motorised driven conveyor roller. It has an integrated 24V DC brushless motor with planetary gearbox which provides a most powerful and dynamic solution for the most demanding applications in any intralogistics conveyor installation. Based on a self-contained design, Senergy-Ai offers an incredibly quiet, highly efficient and maintenance free drive unit.

With a long stack high torque motor, Senergy-Ai has a significant high startup torque which is especially useful for roller curves, accumulation sectors and other critical applications. The additional torque offers an excellent advantage for conveyors starting up under load. The robust planetary gear box easily handles the specified torque and is designed for long life operation.

Senergy-Ai is the first external commutated motor roller which is connected to its controller by a reliable and proven M8 standard connector. Hall-Effect signals are coded inside the motor by a Microcontroller, which makes it possible to communicate through only one pin to our external motor controller. Motor temperature is monitored inside the motor and transmitted to the external controller which ensures that the motor temperature does not reach critical limits. Real time temperature measurements have significant benefit over heat detection models because it also takes environmental conditions into consideration.

Serial number, article number and manufacturing date are stored on the internal memory for later retrieval by the external controller.

**Benefits**

- **Reliable conveyor operation**
- **Increased throughput**
- **Precise positioning**
- **Excellent life expectancy**
- **Remote control versatility and diagnostics**

**Features**

- **Brushless 24V DC motor**
- **External motor controller**
- **High overload capacity**
- **High Acceleration Torque**
- **M8-4Pin standard connector**
- **Internal data memory**
- **IP54/IP66/IP69K**



M8-4Pin standard connector



M8-4Pin standard connector on ConveyLinX



## General Technical Data

- **Voltage:** 24V DC
- **Nominal Output:** 40W/50W
- **Protection Class:** IP54/IP66/IP69K
- **Rated Current:** ECO: 2,5A | BOOST: 3,5A | BOOST-8: 3,5A
- **Starting Current:** ECO: 3,0A | BOOST: 5,0A | BOOST-8: 8,0A
- **Connection:** M8 - 4Pin Connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Tube Material:** Zinc-plated steel, Stainless steel
- **Lagging Options:** Conical segments, Crowned tube, PVC, PU
- **Certifications:** UL, CE, UKCA, RoHS, REACH

## Static Load Capacity

Roller Length	300mm	400mm	500mm	600mm	700mm	800mm	900mm	1000mm
∅ 50mm	80 kg	70 kg	60 kg	55 kg	50 kg	45 kg	40 kg	35 kg

## Characteristics Data Eco-Mode and Boost-Mode

Speed Code	Gearbox	Speed m/s		Rated Torque Nm		Acceleration Torque Nm	
		Eco	Boost	Eco	Boost	Eco	Boost
15	3-stage	0,04-0,34	0,03-0,25	2,7	4,86	4,46	8,02
20		0,05-0,46	0,04-0,33	1,98	3,56	3,27	5,88
25		0,06-0,56	0,05-0,42	1,62	2,92	2,67	4,81
35	2-stage	0,08-0,83	0,06-0,58	1,2	2,16	1,98	3,56
45		0,1-1,01	0,08-0,75	1,0	1,8	1,65	2,97
60		0,14-1,38	0,1-1,0	0,73	1,32	1,21	2,18
75		0,17-1,69	0,13-1,25	0,6	1,08	0,99	1,78
95	1-stage	0,23-2,23	0,16-1,58	0,52	0,93	0,86	1,54
125		0,3-3,04	0,21-2,08	0,37	0,67	0,61	1,1
175		0,41-4,1	0,3-2,92	0,27	0,48	0,44	0,79
215		0,51-5,1	0,4-3,58	0,22	0,4	0,37	0,66

## Roller Weight Senergy-Ai

Diameter	Speed Code	Roller Length (Weight varies depending on Interlocking Options)								
		300mm	400mm	500mm	600mm	700mm	800mm	900mm	1000mm	1200mm
∅ 50mm	15, 20, 25	2,0	2,2	2,4	2,6	2,7	2,9	3,1	3,3	3,7
	35, 45, 60, 75	2	2,1	2,3	2,5	2,7	2,9	3,1	3,2	3,6
	95, 125, 175, 215	1,8	2	2,2	2,3	2,5	2,7	2,9	3	3,2

\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Weight in kg

## Min. Roller Length Senergy-Ai + Deep Freeze IP54

Diameter	Speed Code	Interlocking Options			
		Plain Straight (without Head)*	PolyV Head*	1 or 2 Groove Tube*	Roundbelt Head*
∅ 50mm	15, 20, 25	275	299	315	284
	35, 45, 60, 75	252	276	292	260
	95, 125, 175, 215	225	249	265	233

\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Length in mm

## Min. Roller Length Senergy-Ai IP66/69K

Diameter	Speed Code	Interlocking Options		
		Plain Straight (without Head)*	PolyV Head*	1 or 2 Groove Tube (50/75)*
∅ 50mm	15, 20, 25	325	314	349
	35, 45, 60, 75	301	290	326
	95, 125, 175, 215	274	263	299

\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Length in mm

## Min. Roller Length Senergy-Ai Dual Drive

Diameter	Speed Code	No Interlocking Options
∅ 50mm	15, 20, 25	503
	35, 45, 60, 75	456
	95, 125, 175, 215	402

Length in mm

# Senergy-Ai

## 48V



## **Double the voltage – Multiple advantages**

With a supply voltage of 48V the established Senergy-Ai motorised roller reaches a new level. Based on reliable and proven mechanical components, a motorised roller for conveyor systems has been created that impresses with its outstanding performance and efficiency.



M8-4Pin standard connector

The 48V concept is available for Senergy motor rollers, PGD-Ai geared drives and PDU90 and PPU30/45 transfer units.

**An inherent structural overdesign of all mechanical components results in unparalleled robustness and durability. This provides the basis for maximum system availability and minimum downtime.**

**Combined with the ConveyLinX Ai3-FC 48V network controller, the result is an unrivalled drive system capable of meeting any conveyor challenge.**

The use of 48V as supply voltage results in clear advantages compared to 24V:

- Significantly increased torque of the drive giving stronger acceleration of heavy goods and higher throughput.
- More precise and smooth acceleration due to high power output, allowing better controllability of the drive when positioning and braking.
- Larger and more powerful PDU90 transfer units allowing an increase in quantity and length of belts.
- Halving the current in the power supply cables allows significantly longer cables from the power supply unit to the individual motorised rollers and thus more flexibility in the cabling.
- Reduction in the number of power supplies in a system means savings in procurement, cabling and installation.

#### Benefits

- Excellent acceleration of heavy goods
- Longer cables feasible
- Less power supplies needed
- More precise and smooth acceleration
- Larger, more powerful transfers possible
- Excellent longevity
- Remote visibility and diagnostics

#### Features

- Brushless 48V DC motor
- External motor controller
- High overload capacity
- High Acceleration Torque
- M8-4Pin standard connector
- Internal data memory
- IP54/IP66/IP69K

## General Technical Data

- **Voltage:** 48V DC
- **Nominal Output:** 50W
- **Protection Class:** IP54/IP66/IP69K
- **Rated Current:** 1,6A
- **Adjustable Starting Current Limitation:** 1,7A | 2,0A | 2,5A | 3,5A | 4,0A
- **Connection:** M8 - 4Pin Connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Tube Material:** Zinc-plated steel, Stainless steel
- **Lagging Options:** Conical segments, Crowned tube, PVC, PU
- **Certifications:** UL, CE, UKCA, RoHS, REACH

## Static Load Capacity

Roller Length	300mm	400mm	500mm	600mm	700mm	800mm	900mm	1000mm
∅ 50mm	80 kg	70 kg	60 kg	55 kg	50 kg	45 kg	40 kg	35 kg

## Characteristics Data Senergy-Ai 48V

Speed Code	Gearbox	Gear Ratio	Speed m/s		Torque (in Nm)						Output (W)	Output (W)	Current (A)	
			Min	Max	Rated Torque	Acceleration Torque @ Limitation					Holding Torque	Perma- nent	Max	Rated Current
						1,7 A	2,0 A	2,5 A	3,5 A	4,0 A				
60	2-stage	11:1	0,14	1,67	0,75	1,12	1,20	1,40	1,80	1,99	1,86	50W	118W (4,0A)	1,6A
45		15:1	0,10	1,22	1,02	1,53	1,64	1,91	2,45	2,71	2,54			
35		18:1	0,08	1,00	1,25	1,86	2,00	2,33	2,99	3,30	3,10			
20	3-stage	33:1	0,05	0,56	2,16	3,36	3,60	4,19	5,40	5,96	5,82	50W	118W (4,0A)	1,6A
15		45:1	0,03	0,41	2,95	4,58	4,91	5,72	7,36	8,12	7,94			

## Roller Weight Senergy-Ai 48V

Diameter	Speed Code	Roller Length (Weight varies depending on Interlocking Options)								
		300mm	400mm	500mm	600mm	700mm	800mm	900mm	1000mm	1200mm
Ø 50mm	15, 20, 25	2,0	2,2	2,4	2,6	2,7	2,9	3,1	3,3	3,7
	35, 45, 60	2	2,1	2,3	2,5	2,7	2,9	3,1	3,2	3,6

\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Weight in kg

## Min. Roller Length Senergy-Ai + Deep Freeze 48V IP54

Diameter	Speed Code	Interlocking Options			
		Plain Straight (without Head)*	PolyV Head*	1 or 2 Groove Tube*	Roundbelt Head*
Ø 50mm	15, 20, 25	275	299	315	284
	35, 45, 60	252	276	292	260

\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Length in mm

## Min. Roller Length Senergy-Ai 48V IP66/69K

Diameter	Speed Code	Interlocking Options		
		Plain Straight (without Head)*	PolyV Head*	1 or 2 Groove Tube (50/75)*
Ø 50mm	15, 20, 25	325	314	349
	35, 45, 60	301	290	326

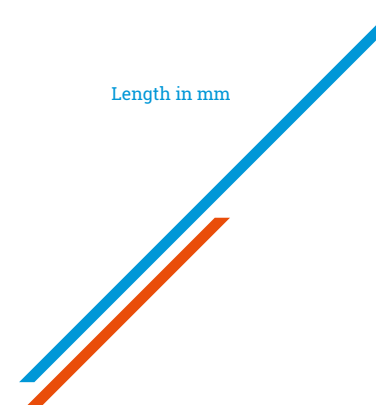
\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Length in mm

## Min. Roller Length Senergy-Ai 48V Dual Drive

Diameter	Speed Code	No Interlocking Options
Ø 50mm	15, 20, 25	503
	35, 45, 60, 75	456

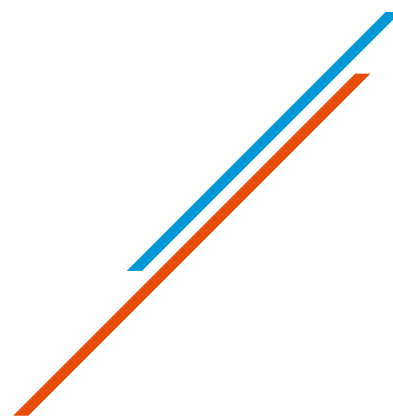
Length in mm





# Senergy

## IDC



## **24V motorised roller with integrated commutation electronics and I/O-Link interface.**

Based on proven and robust mechanical components, the Senergy-IDC opens up new control options that significantly expand the range of applications for motorised rollers.

By using the analogue 0-10V standard, the Senergy-IDC can be connected to a wide range of third-party controllers. In addition to analogue control, the Senergy-IDC offers complete I/O-Link integration.

This enables complex control with positioning function and precise drive diagnostics. The Senergy-IDC can be connected to any I/O-Link master via a special connection cable and can be controlled from there.



5-Pin standard connector



## General Technical Data

- **Voltage:** 24V DC
- **Nominal Output:** 38W
- **Protection Class:** IP54/IP66/IP 69K
- **Rated Current:** 2,4A
- **Starting Current:** 3,0A
- **Connection:** 5-Pin Connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Tube Material:** Zinc-plated steel, Stainless steel
- **Lagging Options:** Conical segments, Crowned tube, PVC, PU
- **Certifications:** UL, CE, UKCA, RoHS, REACH

## Static Load Capacity

Roller Length	300mm	400mm	500mm	600mm	700mm	800mm	900mm	1000mm
∅ 50mm	80 kg	70 kg	60 kg	55 kg	50 kg	45 kg	40 kg	35 kg

## Characteristics Data Senergy-IDC

Speed Code	Gearbox	Speed m/s	Rated Torque Nm	Acceleration Torque Nm
95	1-stage	0,22 – 2,23	0,4	0,75
60	2-stage	0,14 – 1,38	0,6	1,1
45		0,1 – 1,01	0,9	1,51
35		0,08 – 0,83	1,1	1,84
20	3-stage	0,05 – 0,46	2,0	3,03
15		0,03 – 0,34	2,7	4,15

## Roller Weight Senergy-IDC in kg

Diameter	Speed Code	Roller Length (Weight varies depending on Interlocking Options)								
		300mm	400mm	500mm	600mm	700mm	800mm	900mm	1000mm	1200mm
Ø 50mm	15, 20, 25	2,0	2,2	2,4	2,6	2,7	2,9	3,1	3,3	3,7
	35, 45, 60, 75	2	2,1	2,3	2,5	2,7	2,9	3,1	3,2	3,6
	95	1,8	2	2,2	2,3	2,5	2,7	2,9	3	3,2

\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Weight in kg

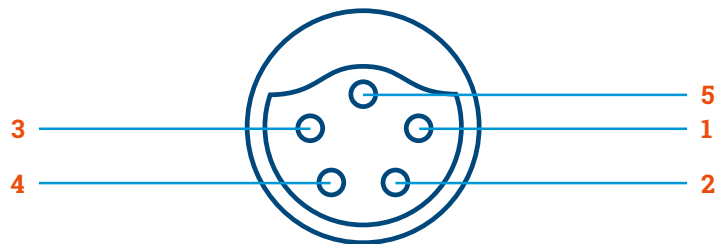
## Min. Roller Length Senergy-IDC

Diameter	Speed Code	Interlocking Options			
		Plain Straight (without Head)*	PolyV Head*	1 or 2 Groove Tube*	Roundbelt Head*
Ø 50mm	15, 20	295	319	335	303
	35, 45, 60	272	296	312	289
	95	244	268	285	253

\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Length in mm

## Senergy-IDC connector pinout

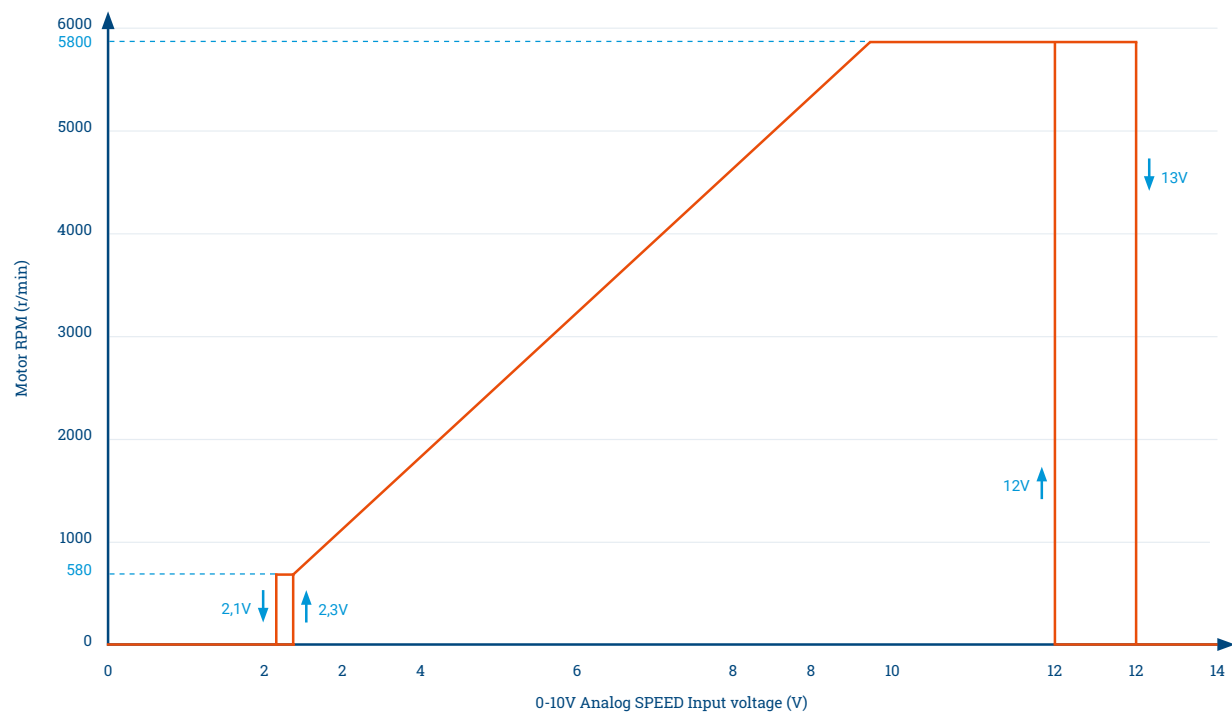


Pin	Function	Value
1	Power supply input (+)	Rated voltage: 24V DC Voltage range: 18V to 28V DC
2	Direction of rotation, seen from the cable end of SENERGY-IDC	< 4.5 V = Counter clockwise > 6.5 V = Clockwise
3	Earth for power supply and signal (-)	Ground
4	Error output	Open Collector Error = High Signal No error = Low Signal
5	Speed input voltage	See table and chart on next page

## Speed input voltage versus motor RPM Data

Input Voltage (V)	Motor RPM (rpm)
13~	0
10 ~ 12	5800
9.5	5800
9.3	5655
9.1	5510
8.9	5365
8.7	5220
8.5	5075
8.3	4930
8.1	4785
7.9	4640
7.7	4495
7.5	4350
7.3	4205
7.1	4060
6.9	3915
6.7	3770
6.5	3625
6.3	3480
6.1	3335

Input Voltage (V)	Motor RPM (rpm)
5.9	3190
5.7	3045
5.5	2900
5.3	2755
5.1	2610
4.9	2465
4.7	2320
4.5	2175
4.3	2030
4.1	1885
3.9	1740
3.7	1595
3.5	1450
3.3	1305
3.1	1160
2.9	1015
2.7	870
2.5	725
2.3	580
2 ~ 0	0



Speed Input Voltage	Target motor RPM
0 - 2.3V	0 [r/min] (Stop: Brake Mode)
2.3V - 9.5V	580 - 5800 [r/min] (Linear resolution)
9.5V - 13V	5800 [r/min] (Max. Speed)

# Get to know our test loop in our Sales Office!

Experience it  
in our german  
Sales Office.



# Holding Brake Roller



**Mechanical holding brake roller for  
incline and decline conveyors.**

The reliable brake roller with a gearbox and  
an electromechanical holding brake.



Available only in gear ratio 18:1, the HBR is well equipped with enough holding torque for a variety of applications. The HBR is controlled by a ConveyLinx controller which must be also connected to a motorised roller. The motorised roller is connected to one motor connection and the holding brake roller is connected to the other motor

connection. ConveyLinx coordinates and controls the brake completely automatically. This ensures that the conveyor system functions reliably. No package or container can travel downhill on inclines or inclines in the event of a power failure or emergency stop. The HBR reliably keeps the rollers braked.

#### Benefits

- **Automatically controlled holding brake**
- **Design identical to the motorised roller**
- **Strong holding torque**

#### Features

- **Spring-mounted holding brake**
- **Intrinsically safe operation**
- **M8-4Pin standard connector**



PolyV stainless steel head

M8-4Pin standard connector



## General Technical Data

- **Voltage:** 24V DC (for Brake)
- **Protection Class:** IP54/IP66/IP69K
- **Current Consumption:** 0,25 ~ 0,30A
- **Connection:** M8-4Pin Connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Tube Material:** Zinc-plated steel, Stainless steel
- **Lagging Options:** Conical segments, Crowned tube, PVC, PU
- **Certifications:** RoHS, REACH

## Static Load Capacity

Roller Length	300mm	400mm	500mm	600mm	700mm	800mm	900mm	1000mm
∅ 50mm	80 kg	70 kg	60 kg	55 kg	50 kg	45 kg	40 kg	35 kg

## Holding Torque Holding Brake Roller

Gear Ratio	Holding Torque
18:1	4,5 Nm

## Roller Weight Holding Brake Roller

Diameter	Gear Ratio	Roller Length (Weight varies depending on Interlocking Options)							
		300mm	400mm	500mm	600mm	700mm	800mm	900mm	1000mm
∅ 50mm	18:1	1,8	2,0	2,2	2,4	2,5	2,7	2,9	3,0

\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Weight in kg

## Min. Roller Length Holding Brake Roller

Diameter	Gear Ratio	Interlocking Options (RL in mm)			Roundbelt Head*
		Plain Straight (without Head)*	PolyV Head*	1 or 2 Groove Tube*	
∅ 50mm	18:1	289	279	292	319

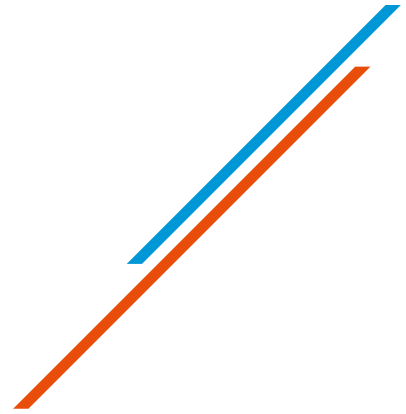
\* Varies depending on the respective head version spring axle / internal thread; Special versions on request

Length in mm



# Pallet

## Ai



## **24V Motorised Roller especially for Pallet Transport.**

Equipped with robust mechanical components, the Senergy Pallet-Ai motorised roller is an ideal solution for transporting pallets in difficult spatial conditions.

In situations where a conventional geared motor is not suitable, the use of a motorised roller offers a practical alternative. This motorised roller has sufficient torque to move pallets weighing up to 1000 kg (please check

the weight again) and both, chain as well as PolvV versions are available to drive the travelling conveyor rollers. Due to their compatibility with the entire range of the "Ai-controller family", integration into higher-level control

systems can be realised effortlessly. Numerous functions and configuration options are available to meet individual requirements.



## General Technical Data

- **Voltage:** 24V or 48V DC
- **Nominal Output:** 50W
- **Protection Class:** IP54/IP66/IP69K
- **Rated Current:** **BOOST:** 3,5A | **BOOST-8:** 3,5A
- **Starting Current:** **BOOST:** 5,0A | **BOOST-8:** 8,0A
- **Connection:** M8-4Pin Connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Tube Material:** Zinc-Plated steel, Stainless steel
- **Lagging Options:** 3mm Black Rubber, 3mm Urethane
- **Max. Tube Length:** 1800mm
- **Certifications:** UL, CE, UKCA, RoHS, REACH

## Static Load Capacity

Roller Length	500 mm	600 mm	700 mm	800 mm	900 mm	1000 mm	1100 mm	1200 mm	1300 mm	1400 mm	1500 mm
∅ 60,5mm	300 kg	300 kg	300 kg	300 kg	260 kg	210 kg	170 kg	150 kg	130 kg	120 kg	110 kg

## Characteristics Data Pallet-Ai

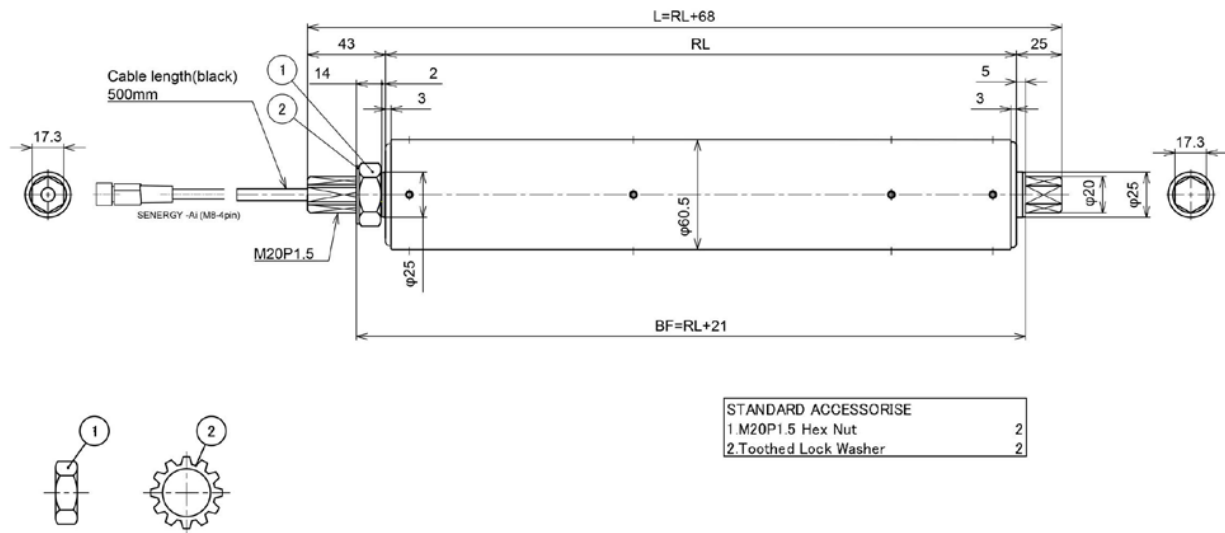
Diameter	Speedcode	Gearbox	Speed m/s	Rated Torque (Nm)	Acceleration Torque (Nm)
∅ 60,5 mm	8	3-stage	0,02-0,14	10,9	49,3
	10		0,04-0,2	8,0	36,1
	15		0,05-0,3	5,4	24,3
	20		0,07-0,4	3,9	17,7

## Roller Weight Pallet-Ai

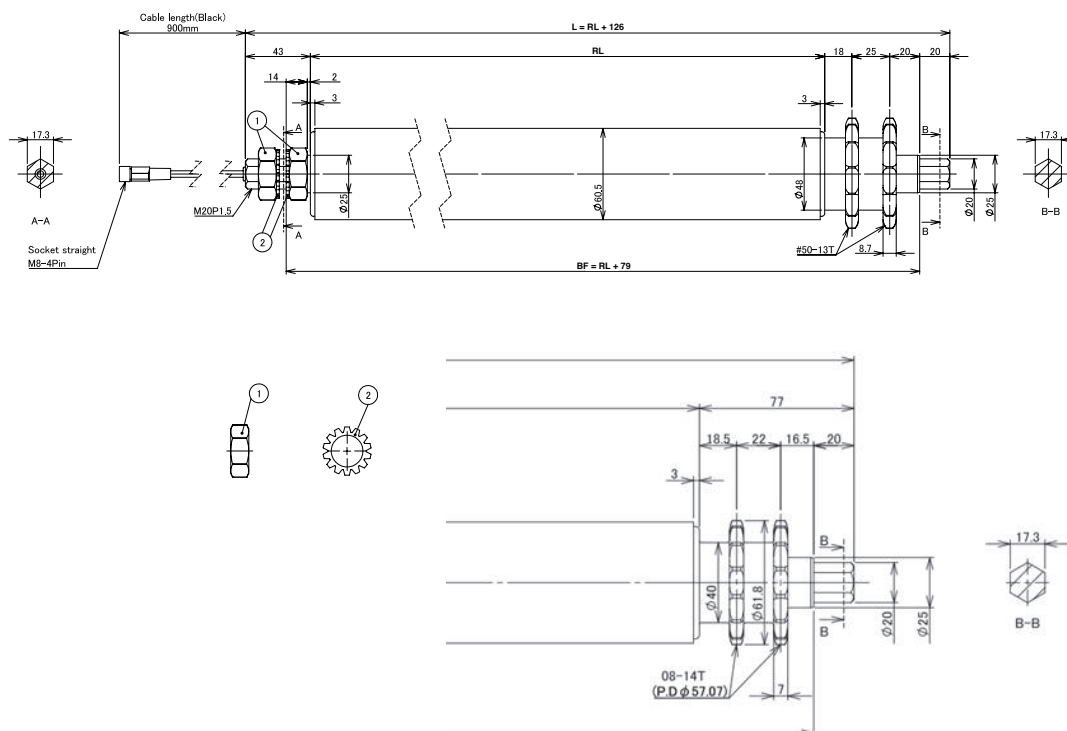
Roller Length	500 mm	600 mm	700 mm	800 mm	900 mm	1000 mm	1100 mm	1200 mm	1300 mm	1400 mm	1500 mm
∅ 60,5mm	8,1	8,6	9,0	9,5	9,9	10,4	10,8	11,2	11,7	12,1	12,6

Weights in kg

## Reference Drawing of Pallet-Ai Plain Straight



## Reference Drawing of Pallet-Ai Dual Sprockets



# Tube Versions

Senergy powered motor rollers can be used either as a standalone powered roller, or for driving slave rollers utilizing most common types of belt transmission.

Additionally, there is a IP66/IP69K washdown option as a full stainless steel Senergy-Ai available and also a freezer option with IP54. Special tube options are possible on request.



**Stainless steel**  
**50 x 1,5mm**



**Zinc-Plated steel**  
**50 x 1,5mm**



**Conical segments  
with 1,8° conicity  
for roller curves**



**Crowned  
51 x 1,5mm**



**2 mm Polyurethane  
Tube: 50 x 1,5mm**



**2 mm PVC  
Tube: 50 x 1,5mm**



# Torque Transmissions



**Poly-V head for  
use with standard  
Poly-V belts.**

M8 internal thread  
Spring-loaded hex shaft



**Motor roller  
without torque  
transmission**

M8 internal thread  
Spring-loaded hex shaft



**Poly-V IP66/69K head  
for use with standard  
Poly-V belts.**

M8 internal thread  
Spring-loaded hex shaft



**IP66/69K rated  
without torque  
transmission**

M8 internal thread  
Spring-loaded hex shaft



**Roundbelt  
head for  
round belts.**

M8 internal thread  
Spring-loaded hex shaft



**Single or double groove  
tube for round belts.  
(available in IP66/69K)**

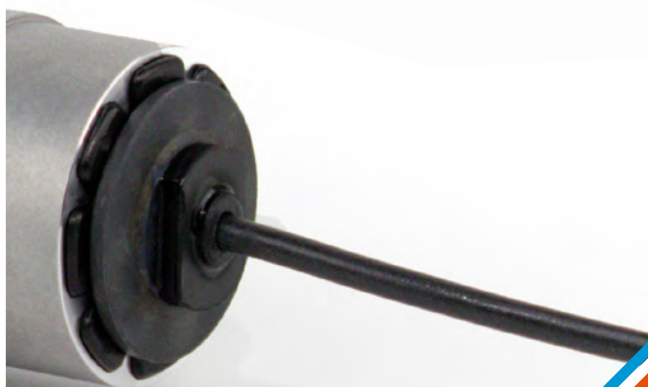
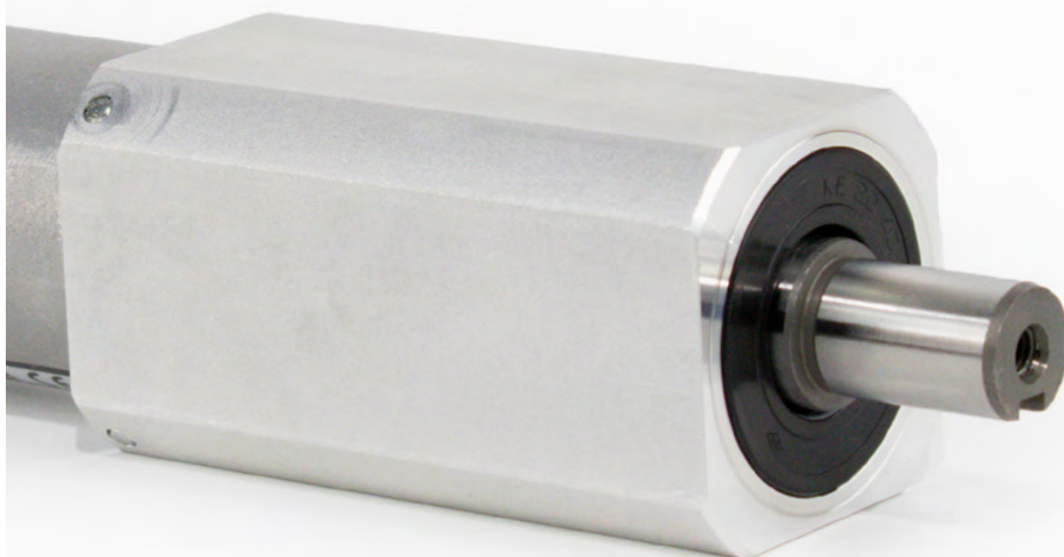
M8 internal thread  
Spring-loaded hex shaft





# Geared Drives

**There is more to drive  
than just the rollers.**



# PGD-Ai

24V | 48V



## **High torque and efficiency in a small package.**

The totally enclosed, Pulse Geared Drive-Ai can replace pneumatics and AC drives in most conveyor applications. This means project engineers can standardize controls and bus systems for higher efficiency and simplification of complex projects. PGD-Ai is available in 24V and 48V.



### Benefits

- Servomotor for conveyor applications
- Replaces pneumatics
- Versatile application
- Same control as Senergy-Ai
- One control for all motion in conveyor
- Space saving design



### Features

- Brushless 24V DC motor
- Double bearing output shaft
- Full Ai-Technology
- External motor controller
- High overload capacity
- High Acceleration Torque
- M8-4Pin standard connector
- Internal data memory



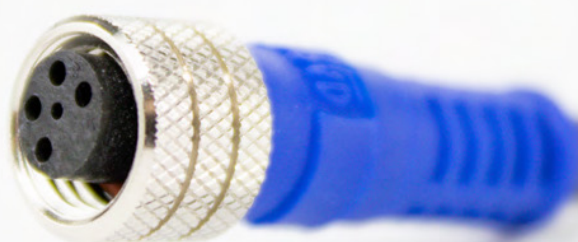
Purchasing of Pulseroller products such as powered rollers, geared motors, transfer units and controls from one source means reduced purchase and design time as well as associated costs. No pneumatics or any secondary communication bus required.

Due to one shop sourcing, the mechanical and electrical design of

conveyors will be less expensive, easier to maintain and more straight forward. Virtually all functionality required in conveyors can be controlled and driven by Pulseroller products. In most cases pneumatic actuators can be completely replaced. Compactness is the key for PGD-Ai which can be applied in many different applications including its use as a servomotor for pop up wheels, or

as a belt drive and lift motor in transfer units. Used in combination with the positioning control of ConveyLinX, it is the perfect solution.

PGD-Ai can't be mounted vertically in order to avoid unexpected product failures. Pulseroller PGD-Ai opens up a new world of cost effective, reliable servo drive applications.



## General Technical Data

- **Voltage:** 24V DC
- **Nominal Output:** 40 – 50W
- **Protection Class:** IP54
- **Rated Current:** ECO: 2,5A | BOOST: 3,5A
- **Starting Current:** ECO: 3,0A | BOOST: 5,0A
- **Connection:** M8-4Pin connector, 9-Pin JST connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Certifications:** UL, CE, UKCA, RoHS, REACH

## Characteristics Data PGD-Ai and PGD-JST 24V in Eco-Mode and Boost-Mode

Gear Ratio	Gearbox	Speed min-1		Rated Torque Nm		Acceleration Torque Nm	
		Eco	Boost	Eco	Boost	Eco	Boost
67:1	3-stage	86	62	4,02	7,24	6,63	11,94
45:1		129	93	2,70	4,86	4,46	8,02
33:1		176	127	1,98	3,56	3,27	5,88
27:1		215	156	1,62	2,92	2,67	4,81
18:1	2-stage	316	229	1,20	2,16	1,98	3,56
15:1		387	280	1,00	1,80	1,65	2,97
11:1		527	382	0,73	1,32	1,21	2,18
9:1		644	467	0,60	1,08	0,99	1,78

## Characteristics Data PGD-Ai 48V

Gear Ratio	Gearbox	Speed min -1 (Rotational speed [rpm])		Torque (in Nm)						Output (W)	Output (W)	Strom (A)	
		Max	Min	Rated Torque	Acceleration @ Current limit					Holding Torque	Permanent	Max	Rated Current
					1,7 A	2,0 A	2,5 A	3,5 A	4,0 A				
11:1	2-stage	637,5	52,6	0,75	1,12	1,20	1,40	1,80	1,99	1,86	50W	116W (4,0A)	1,6A
15:1		466,7	38,5	1,02	1,53	1,64	1,91	2,45	2,71	2,54			
18:1		382,5	31,6	1,25	1,86	2,00	2,33	2,99	3,30	3,10			
33:1	3-stage	212,5	17,6	2,16	3,36	3,60	4,19	5,40	5,96	5,82			
45:1		155,6	12,8	2,95	4,58	4,91	5,72	7,36	8,12	7,94			



## General Technical Data

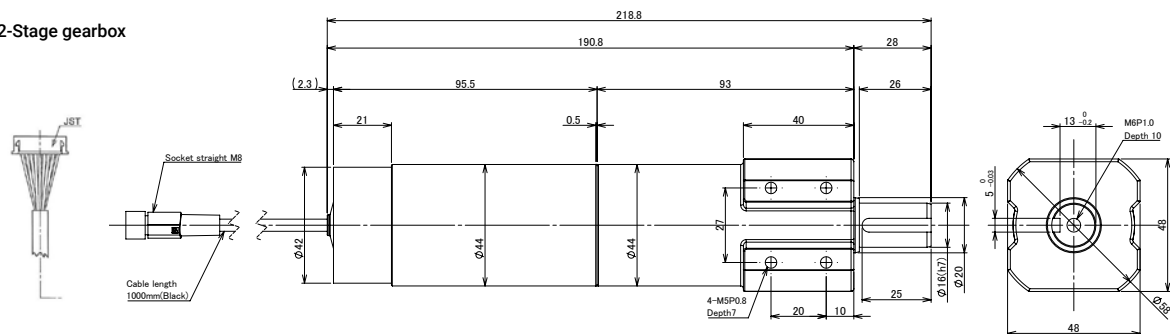
- **Voltage:** 48V DC
- **Nominal Output:** 50W
- **Protection Class:** IP54
- **Rated Current:** 1,6A
- **Adjustable Starting Current Limitation:** 1,7A | 2,0A | 2,5A | 3,5A | 4,0A
- **Connection:** M8 - 4Pin Connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Certifications:** UL, CE, UKCA, RoHS, REACH

## Weight of PGD-Ai 24V | 48V and PGD-JST 24V

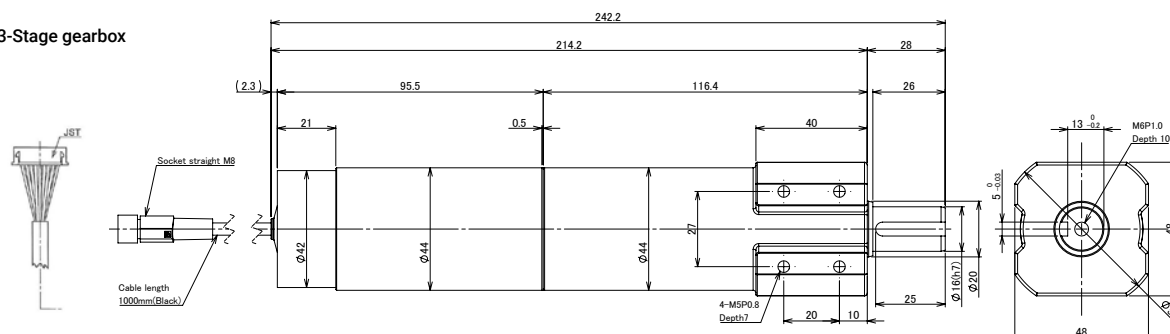
Gear Ratio	Gearbox	Weight (in kg)
67/45/33/27:1	3-stage	1,5
18/15/11/9:1	2-stage	1,2

## Dimensions of PGD-Ai 24V | 48V and PGD-JST 24V

2-Stage gearbox



3-Stage gearbox

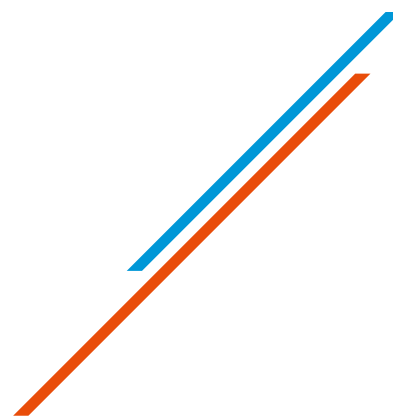


# PGD-Ai WashDown

24V | 48V



# PGD IDC



## **Our geared motor with integrated motor control.**

The PGD-IDC is based on the principle of a brushless DC motor with integrated commutation electronics. This advanced technology allows it to be seamlessly connected to control systems that use the analogue setpoint principle in the 0 to 10 volt range.

### Benefits

- Compact design
- High compatibility
- Robust mechanical design



### Features

- 2- or 3-stage gearbox
- IDC technology
- 5Pin connector

The IDC principle makes it possible to connect this robust and reliable geared motor to third-party control systems as well as to control systems developed

in-house. This results in a compact and extremely reliable drive solution that has been specially developed for this area of application.



## General Technical Data

- **Voltage:** 24V DC
- **Nominal Output:** 38W
- **Protection Class:** IP54
- **Rated Current:** 2,4A
- **Starting Current:** 3,0A
- **Connection:** 5Pin connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Certifications:** UL, CE, UKCA, RoHS, REACH

## Characteristics Data PGD-IDC

Gear Ratio	Gearbox	Speed min-1		Rated Torque (Nm)	Acceleration Torque (Nm)	Starting Torque (Nm)
11:1	2-stage	52	528	0,6	1,10	2,5
15:1		38	386	0,9	1,5	3,4
18:1		31	316	1,1	1,84	4,2
33:1	3-stage	17	176	2,0	3,03	7,5
45:1		12	128	2,7	4,15	10,3

## Weight of PGD-IDC

Gear Ratio	Gearbox	Weight (in kg)
45/33:1	3-stage	1,6
18/15/11:1	2-stage	1,4



# Controls

Complexity simplified.



# ConveyLinx-Ai2

## 24V



ConveyLinx-Ai2 opens a wide range of applications, from simple zero-pressure accumulation to complex servo drive applications.

This is achieved using one compact controller with unprecedented technical diversity. With just one controller almost every motion in conveyor technology can be meticulously controlled.



# Two Zone Network Controller for 24V Motor Roller.

A zero-pressure accumulation conveyor can be controlled by ConveyLinX-Ai2 fully autonomously without the use of a PLC. Alternatively, if a higher-level control is preferred, a PLC can be integrated using ProfiNet, Ethernet IP, Modbus TCP and CCLink. However, the PLC does not need to control every zone, it need only control a limited number of decision points. If the application is to be fully controlled by a PLC, the configuration and control of all ConveyLinX-Ai2's can be made using the Topology from TIA Portal or STEP

7. Nevertheless, the use of ConveyLinX-Ai2's internal logic is still possible and thus relieves the source code of the PLC.

ConveyLinX-Ai2 offers extensive diagnostic tools for the drives. This enables a cost-effective preventive maintenance program drastically reducing unplanned downtime. Senergy-Ai and PGD-Ai are easily connected via proven and robust standard M8-4Pin connectors for a plug-in safe and fast mechanical installation.

## Benefits

- Small footprint for easy installation inside frame
- 4 Ethernet protocols
- Control of all motion on conveyor
- High flexible application
- Significant reduction of PLC source code
- Fast module replacement

## Features

- Two zone controller
- Profinet and ODVA approved
- Connection for 2 motors and 4 sensors
- Fully integrated in topology configuration
- Tracking data handling
- Internal ZPA logic
- Advanced diagnostic functions
- IP54



4-Pin M8 standard connector



4-Pin M8 standard connector on ConveyLinX



## General Technical Data

- **Voltage:** 24V DC
- **Protection Class:** IP54
- **Rated Current:** ECO: 5,0A | BOOST: 7,0A with two drives
- **Starting Current:** ECO: 6,0A | BOOST: 10,0A with two drives
- **Connection:** M8 - 4Pin Connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Certifications:** UL, CE, UKCA, RoHS, REACH

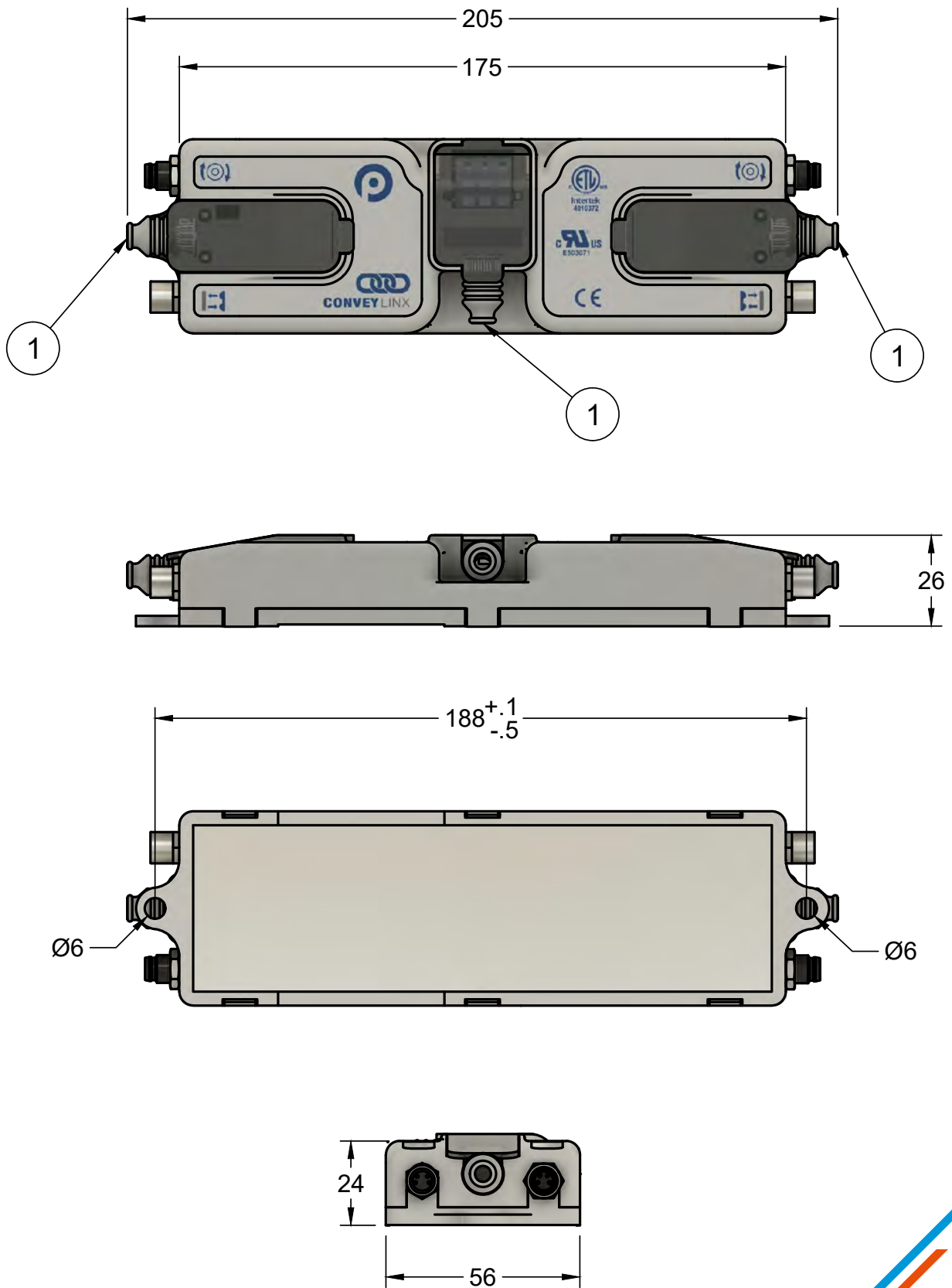
## Supported Fieldbus systems



All four above mentioned field busses of ConveyLinx family operate on one hardware. Pulseroller provides for each of those field busses required driver software individually designed for respective PLCs.



## Dimensions of ConveyLinx-Ai2



1 - Cable Shrouds are shipped unattached and are field installed.

# ConveyLinx-Ai2

## 48V



ConveyLinx-Ai2 48V opens up a spectrum of applications ranging from simple zero-pressure accumulation conveyor technology to complex servo drives. This means that an unprecedented variety of applications can be achieved with one control unit in the most compact installation space.

Every type of movement in conveyor technology can be controlled with just one type of controller.

# ConveyLinx-Ai2-F

## 24V



## Two-Zone Network Controller for the Freezer Area.

The ConveyLinx-Ai2-F was developed to operate Pulseroller motorised rollers and geared drives in deep-freeze environments with the same functions and benefits.



# MotionLinx-Ai

## 24V



MotionLinx-Ai is Pulseroller's EtherCAT two zone high speed controller. Designed for a wide variety of applications in conveyor industry and general machine building, it can drive two Senergy-Ai or two PGD-Ai motors. A maximum of four sensors can be connected by two M8 connectors.

# Convey Proxy



**Gateway for systems with  
ConveyLinx to reduce the  
number of IP addresses.**





# EQUBE-Ai

## 24V



## Motor control for a drive without bus connection.

EQUBE-Ai is the basic motor controller for Senergy-Ai and PGD-Ai using robust and dependable M8 standard connection.

Using DIP-switches, many parameters like acceleration, deceleration, direction of rotation and speed can be quickly selected or changed. The speed can also be set by digital inputs from an external control. With a motor error output, the motor condition can be

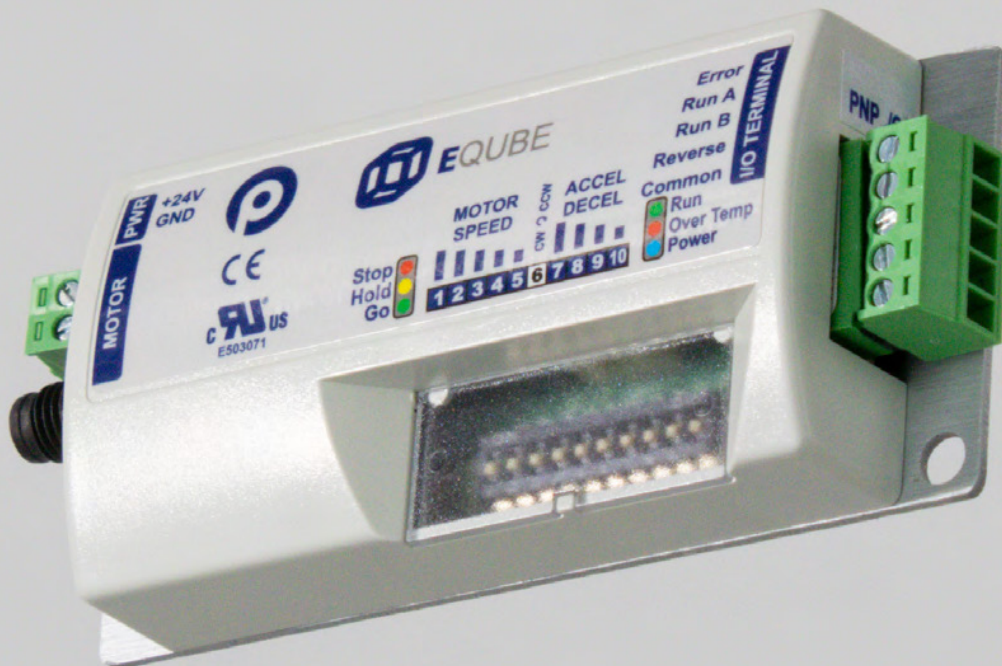
monitored continuously in real time. All external signal wires are connected via simple in-line clamps. Due to its small size, EQUBE-Ai can be installed in areas of limited space and in virtually all conveyor side frames.

**Benefits**

- **Very small footprint**
- **Excellent integration**
- **Acceleration and deceleration setting**

**Features**

- **Motor controller for Senergy Ai and PGD Ai**
- **DIP switches for configuration**
- **Speed selection via two I/Os**
- **Failure output**
- **Status LEDs**
- **IP20**

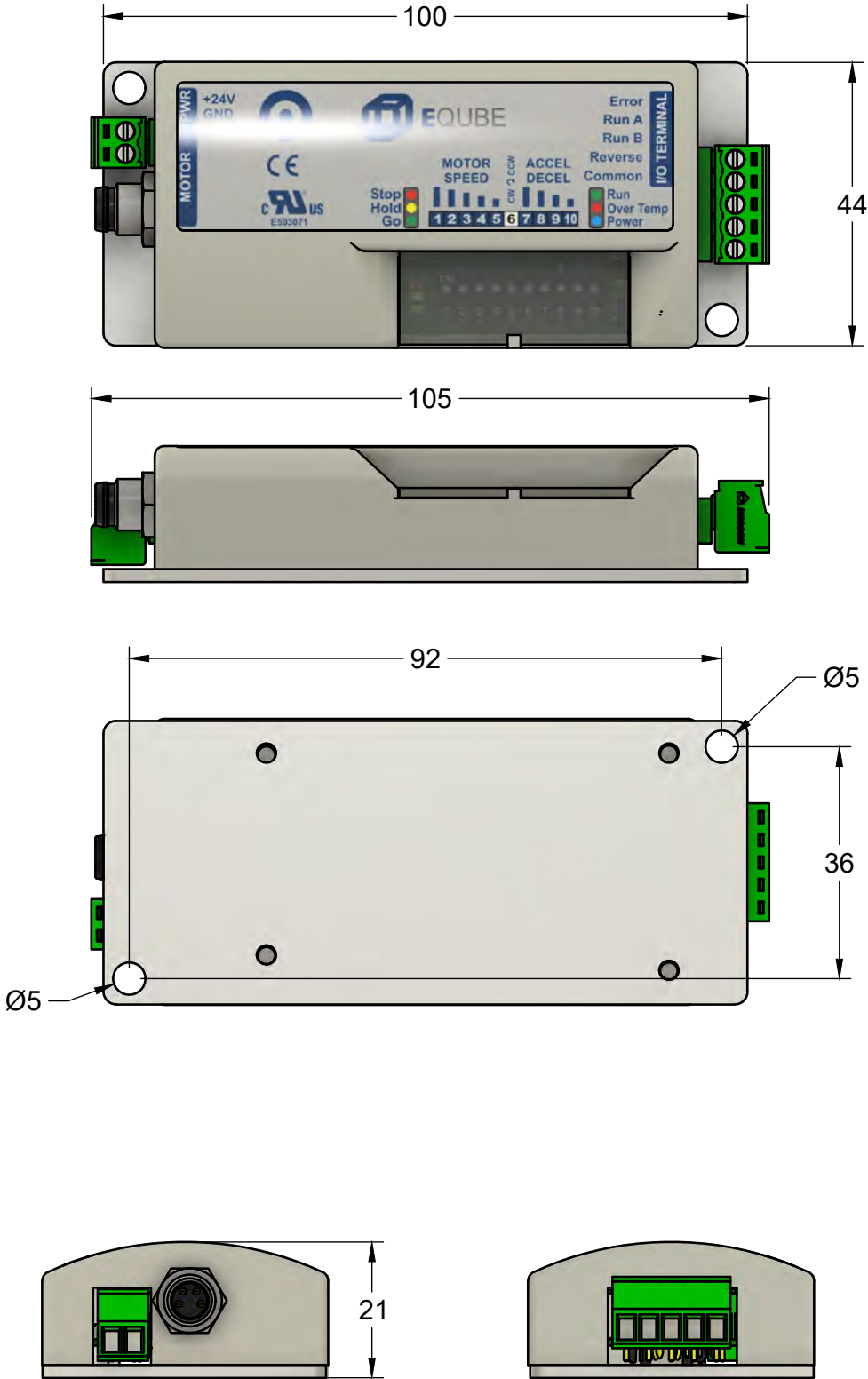


## General Technical Data

- **Voltage:** 24V DC
- **Protection Class:** IP20
- **Rated Current:** ECO: 2,5A
- **Starting Current:** ECO: 3,0A
- **Connection:** M8 - 4Pin Connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Certifications:** UL, CE, UKCA, RoHS, REACH



# Dimensions of EQUBE-Ai



# PDU 90

24V | 48V



## **Customized design based on standardized functionality.**

The 90-degree transfer Pulse Divert Unit 90 is the ideal transfer unit for advanced Intralogistics. Based on 24V technology costly pneumatic actuators are made completely obsolete. The PDU90 is available for 24V, 48V and IDC drives.



PDU90 is a well proven right angle transfer design which has a robust construction and reliable technology. Every PDU90 is specifically configured based on customer's individual needs and conveyor design. The Pulse Divert Unit 90 offers a complete bespoke solution for any transfer requirement.

The PDU90 transfer is controlled by Pulseroller's ConveyLinx-Ai or

MotionLinx-Ai controllers and ensures seamless and easy integration into any conveyor system. There is no need for an additional control bus or pneumatics. Everything is driven and controlled by Pulseroller components creating a high degree of standardization and modularization. Design, integration, and commissioning time is cut significantly freeing up valuable resources.

- Minimum dimensions: 360 x 360mm
- Maximum dimensions: 800 x 800mm
- Minimum roller pitch: 75mm
- Maximum number of belts: 5
- Maximum weight: 50kg
- Transfer height: 15mm

#### Benefits

- **Seamless integration in Pulseroller applications**
- **Transfer independent from conveyor**
- **Low profile design**
- **High throughput**
- **Simple maintenance**

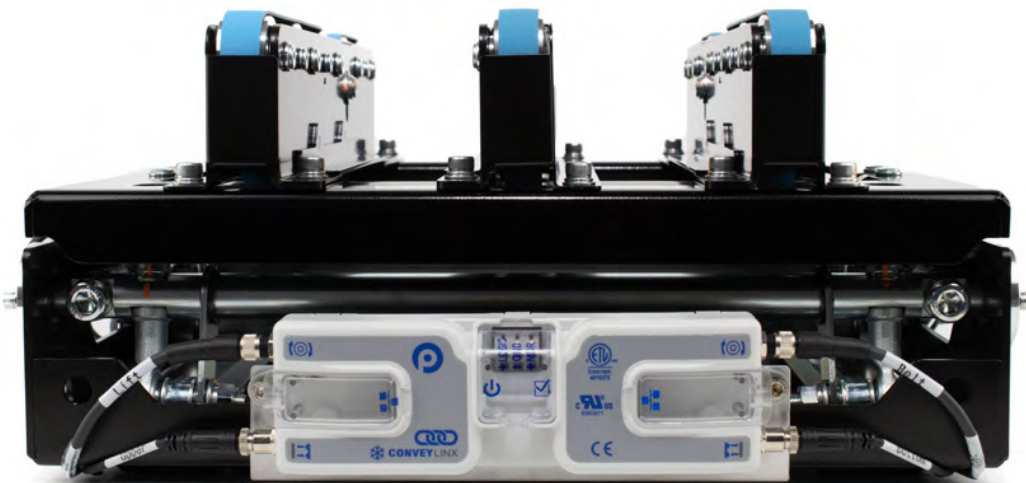
#### Features

- **Belt transfer featuring Ai-Technology**
- **Lift- and belt drive utilises Senergy Ai Motor rollers**
- **ConveyLinx integrated control**
- **Modular design**
- **Simple but robust mechanical design**



M8-4Pin standard connector

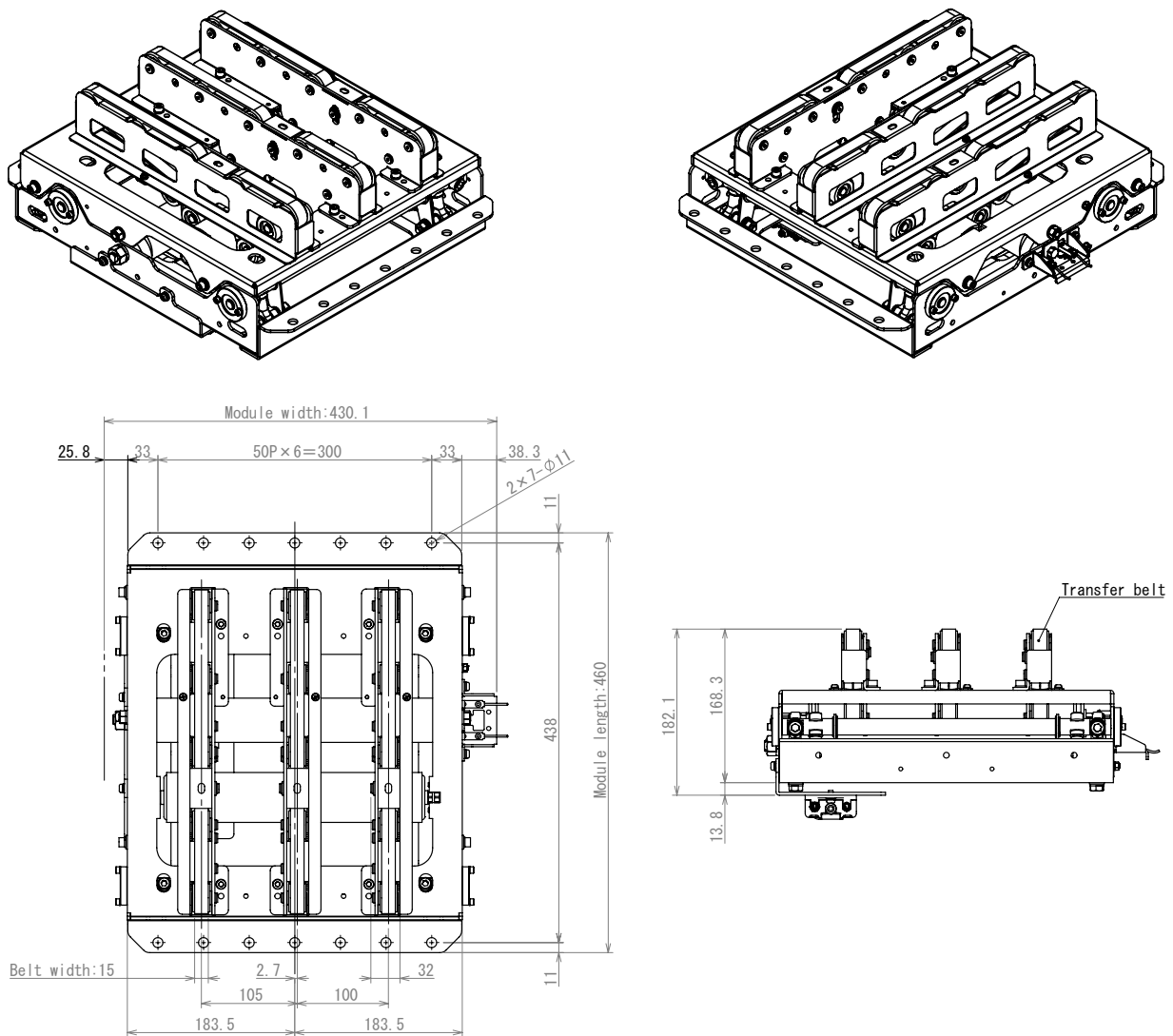
M8-4Pin standard connector on ConveyLinx

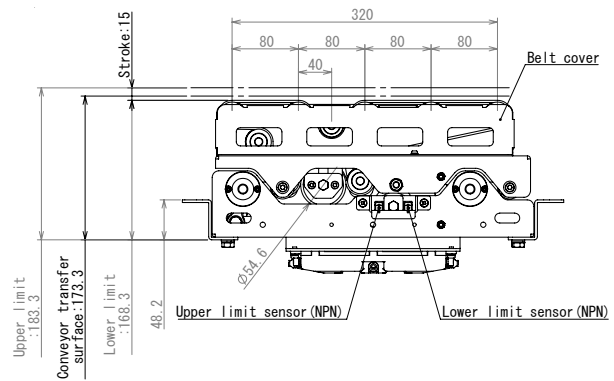
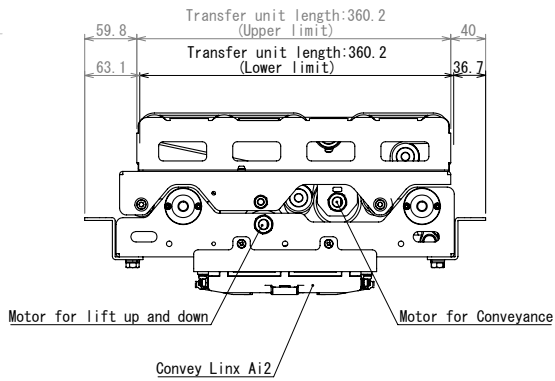


# General Technical Data

- **Voltage:** 24V and 48V DC
- **Minimal Roller Pitch Option:** 75mm
- **Min. Dimensions:** 360x360mm
- **Maximum Load:** 50kg
- **Lift-Up Stroke:** 15mm
- **Connection:** M8 - 4Pin Connector, 9-Pin JST connector
- **Ambient Temperature:** -10 – +40°C
- **Ambient Humidity:** 10 – 90% (No Condensation)
- **Certificates:** UL, CE, UKCA, ROHS, REACH

## Reference Drawing (for 400mm conveyor)

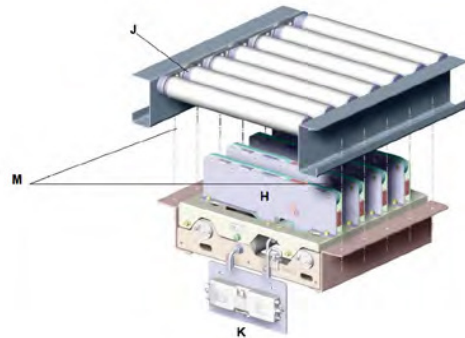
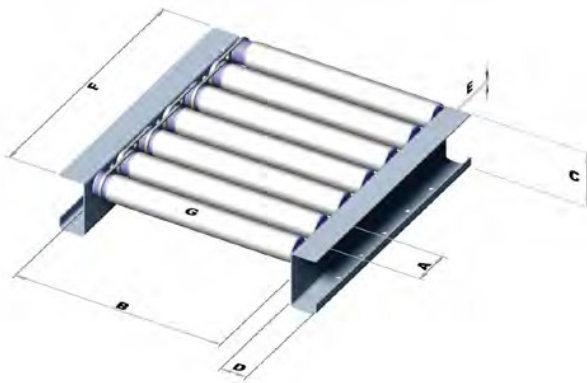




## How to Order a PDU90?

PDU90 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 *(Please give all dimensions in mm)*

- A** Roller Pitch of either 75mm or 100mm<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 50mm or 54mm

### Other Options

- H** Transfer Belt Units - Specify if 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 JST (9Pin) or Senergy-Ai (4Pin)<sup>2</sup>

### Mounting Considerations

- Mounting holes on Side Frame Bottom Flanges are assumed to be 9mm Dia.
- M**<sup>3</sup> 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 PDU90 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/or locations can be accommodated. Be sure to include the details when you contact us.



# PPU 30/45

24V | 48V



## Highly adaptable and powerful.

If diversion at high speed is required, the Pulse Popup Unit 30/45 is exactly the right choice.

Available in 24V or 48V it is perfectly adapted to any conveyor system and controlled by Pulseroller's ConveyLinx-Ai or MotionLinx-Ai.

**The PPU30/45 provides a highly efficient and compact solution for transferring goods in any material handling application.**

The design of PPU30/45 is perfectly adaptable for a wide variety of roller conveyors. The fast dynamic operating speed of the unit enables extremely high transfer rates to be achieved ensuring maximum conveyor throughput. The angle of the wheels is selectable and can be adapted to the layout of the conveyor from the outset. Left-hand or right-hand options are available at time of order.

By using Pulseroller's ConveyLinx or MotionLinx the PPU30/45 fits perfectly into the control environment of any

roller conveyor system. As the lifting movement of the transfer is conducted by means of a motor roller the unit can operate completely without pneumatics. This creates a high degree of flexibility coupled with low operating costs.

The control technology of ConveyLinx allows full stand-alone operation whereby the function program is stored directly in the control system. Alternatively, the entire control can be managed centrally via the PLC. This makes the PPU30/45 another key component of our product portfolio.

#### Benefits

- **Seamless integration in Pulseroller applications**
- **Transfer independent from conveyor**
- **High throughput**
- **Easy installation**

#### Features

- **Popup wheel transfer with Ai-technology**
- **Lift and wheel drive utilises Senergy Ai motor rollers**
- **ConveyLinx or MotionLinx integrated control**
- **30° or 45° divert angle**

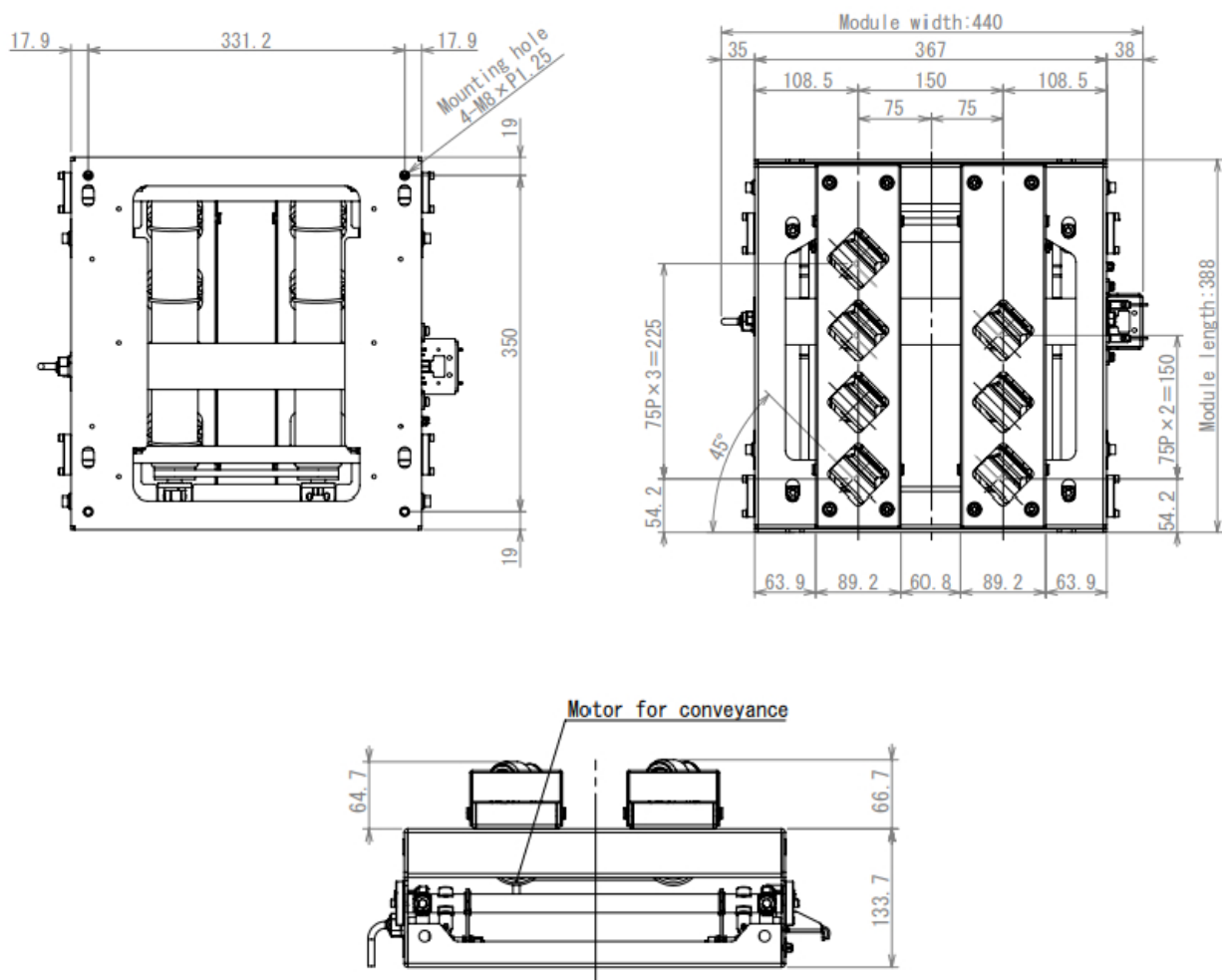


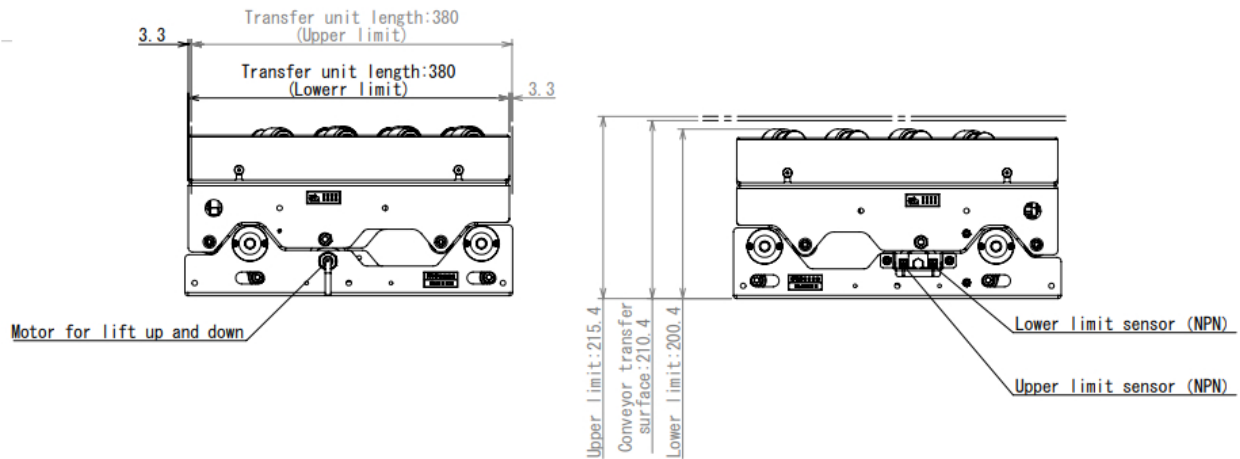
4-Pin M8 standard connector

# General Technical Data

- **Voltage:** 24V and 48V DC
- **Number of Drive Wheels:** 4 - 7 per stroke
- **Min. Dimensions:** 440x388mm
- **Max. Dimensions:** 440x688mm
- **Max. Load Capacity:** 30kg
- **Lift-Up Stroke:** 15mm
- **Connection:** M8 - 4Pin Connector, 9-Pin JST connector
- **Ambient Temperature:** -10°C – +40°C
- **Ambient Humidity:** 10% – 90% (No Condensation)
- **Certificates:** UL, CE, UKCA, ROHS, REACH

## Reference Drawing (for 400mm conveyor)





## How to Order a PDU30/45?

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:

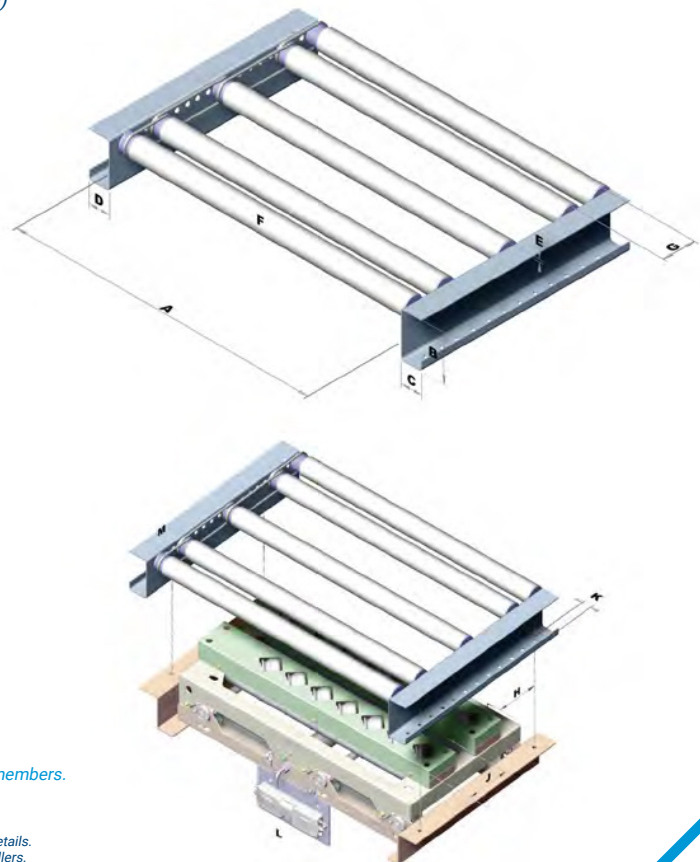
### Conveyor Dimensions *(Please give all dimensions in mm)*

- 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 50mm or 54mm
- 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 2st 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 (M8 - 4Pin)<sup>2</sup>
- M** Interlocking - Specify if your conveyor has Micro-V and Grooves with O-Bands.

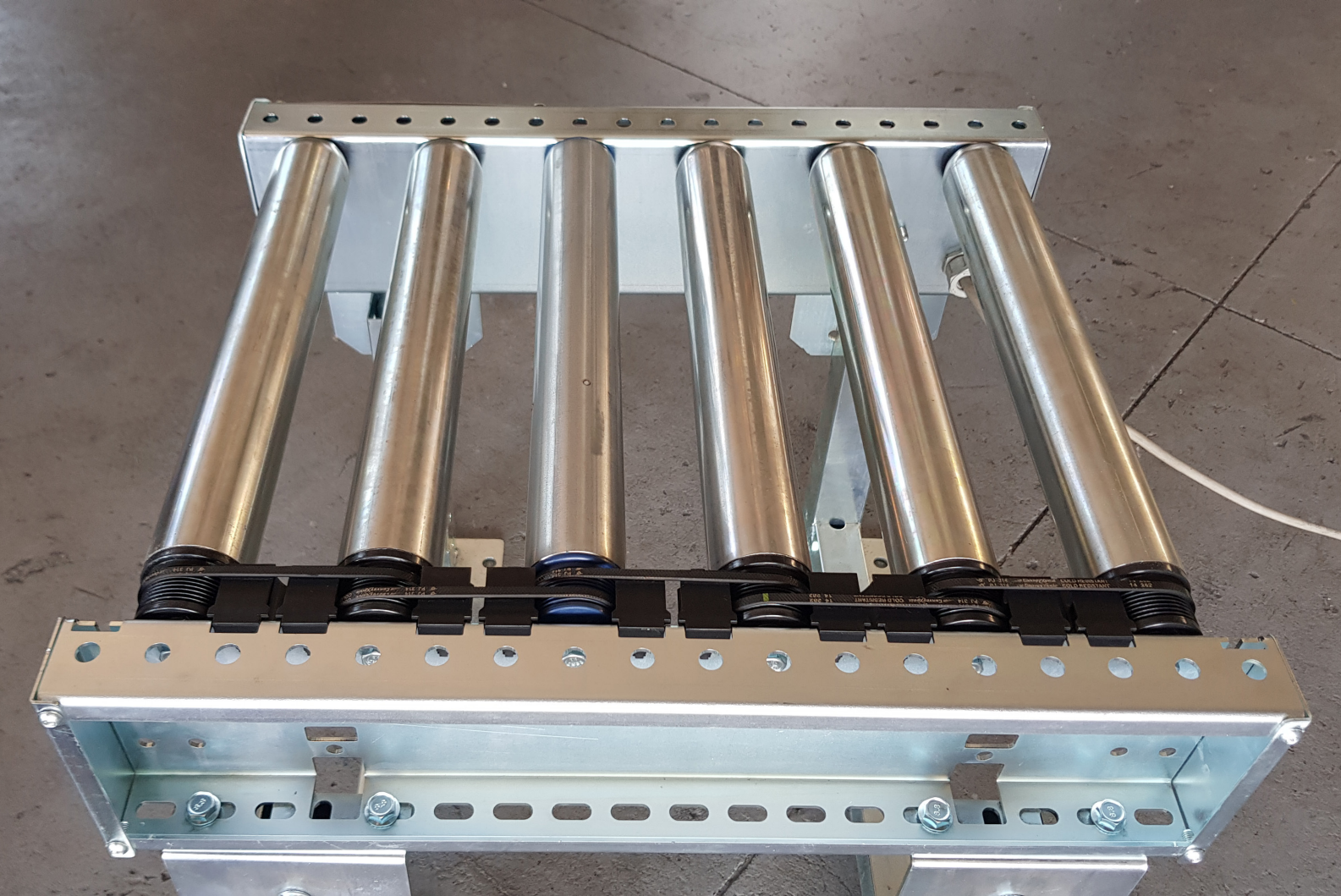
### Mounting Considerations

*Area under PDU90 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.









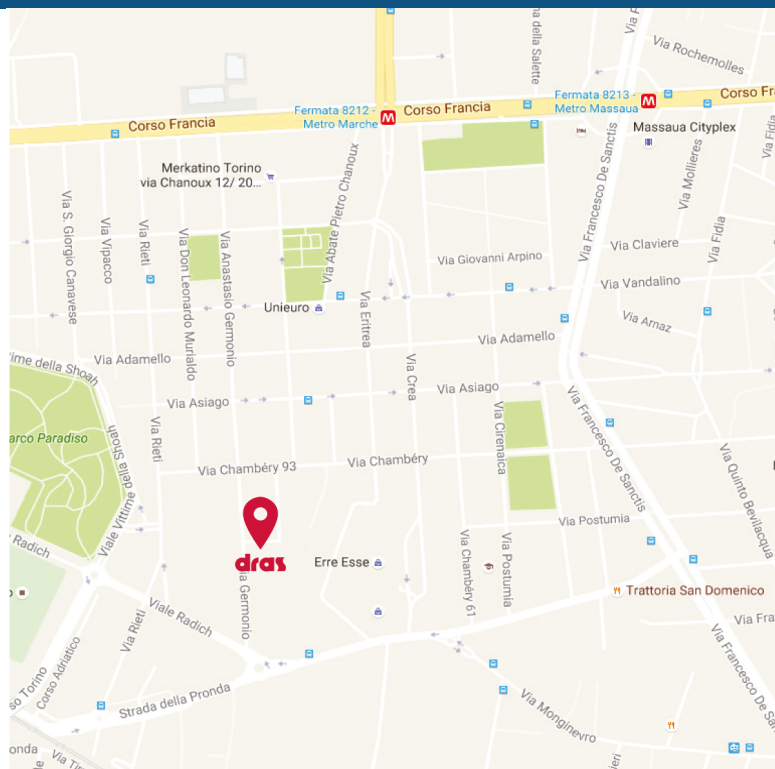


SOLUZIONI PER LA MOVIMENTAZIONE

Via Chambéry 93/107 V - 10142, Torino

TEL: 011.770.13.41

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