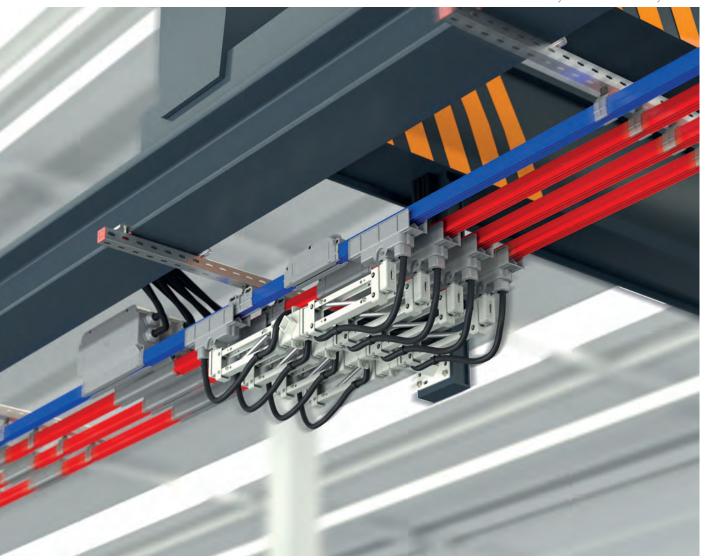


# E-LINE URC Dynamic Busbar Systems



# **E-LINE URC**

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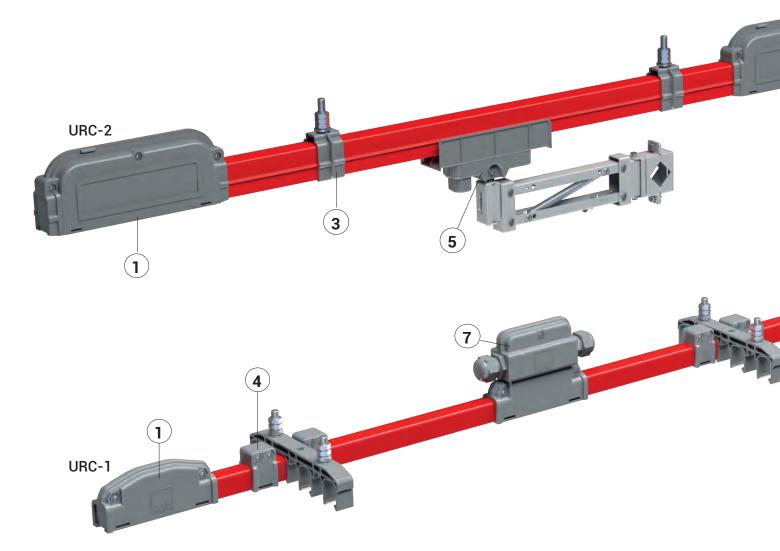


The E-Line URC range is designed to supply continuous power to moving machines. The system is easy to install and can be used in both indoor and outdoor installations. The E-Line URC system offers a safe solution for long runs because there are no moving cables. This eliminates the possibility of accidents and malfunctions associated with moving cables.

**Operating Speed** : Maximum 200m/min.

#### **System Components:**

The E-Line URC comprises an end feed unit which supplies power to the conductors which are manufactured from either, aluminium with stainless steel contact surface. The power is conducted to the machine through a moving collector which runs along the length of the conductors. An expansion unit protects the installed system from external mechanical stresses. End caps are fitted to each end of the busbar run to safely complete the installation. The system is supported by sliding hangers.



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#### **Personnel Safety:**

- Personnel safety is assured by the insulation of the conductors.
- Protection Degree is IP23.

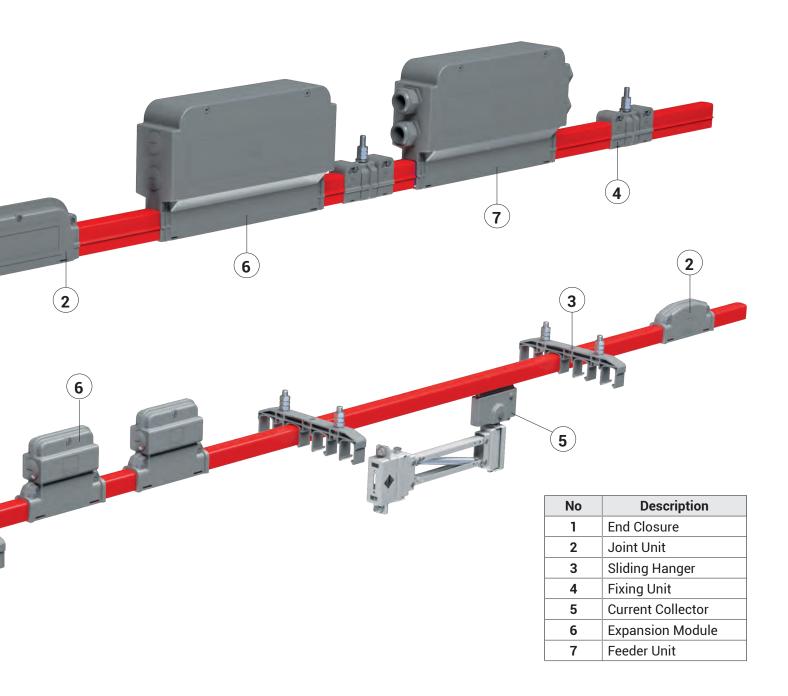
Standard Length : 4m (Aluminium Conductor URC-1) 6m (Aluminium Conductor URC-2)

## **E-LINE URC**



#### Safety:

- The E-Line URC system offers a safe solution for long runs because there are no moving cables.
- This eliminates the possibility of accidents and malfunctions associated with moving cables.
- The system can used safely for outdoor applications, the component materials used give a long life solution.



#### **Functionality:**

- The system has a long life. On higher current versions the conductors are aluminium with a stainless steel V conductor surface.
- The system can carry serial collectors to allow for more than one machine to be fed from the same busbar.

## E-LINE URC ▶►Introduction



#### **Dynamic Busbar Systems:**

The E-Line URC range is designed to supply continuous power to moving machines. The E-Line URC system offers a safe solution for long runs. The system is easy to install and can be used in both indoor and outdoor installations.

#### **Applications**

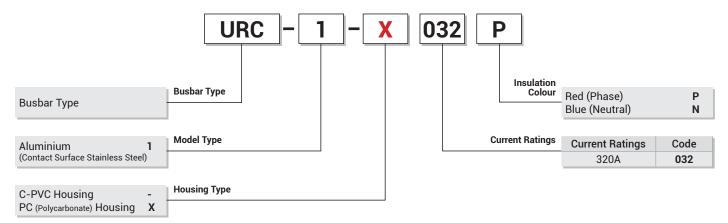
- Port, construction and cranes
- AS/RS storage systems
- Moving playground systems
- Moving Ceiling and Door Systems
- Assembly and test lines
- Monorail systems
- Elevator and lift systems





## E-LINE URC ► Order Coding System

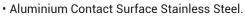




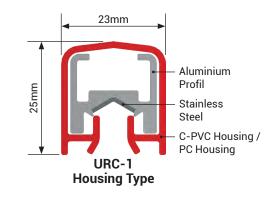
-40°C +55°C for the temperature range C-PVC Housing.

-40°C +100°C for the temperature range PC (Polycarbonate) Housing must be used.

Busbar Code		032
Rated Current	А	320
Conductor Cross-section Area	mm²	120
Rated Voltage	AC - V	1000
Resistance (20°C)	R <sub>20</sub> (mΩ/m)	0,286
Resistance (32°C)	R <sub>35</sub> (mΩ/m)	0,353
Reaktance	X (mΩ/m)	0,160
Impedance	Z (mΩ/m)	0,388
Weight	kg/m	0,580



- Protection Degree IP23.
- Standard length is 4m.

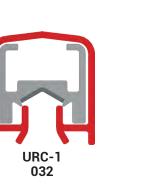


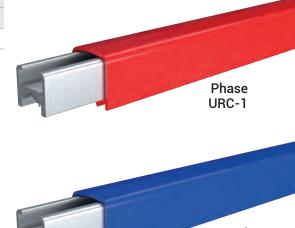
Ambient temperature is :

- C-PVC for housing -40°C +55°C
- PC Polycarbonate) is for housing -40°C +100°C

#### ► Standard Straight Length

Aluminium Conductor	URC-1 (C-PVC Housing)		URC-1-X (F	PC Housing)
	(-40°C +55°C)		(-40°C ·	+100°C)
	Phase	Neutral	Phase	Neutral
URC-1 032 (320A)	3271455	3271457	3271454	3271456





## **E-LINE URC** Current Collector



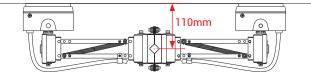
#### ►URC-1 Current Collector

Description	Order Code
URC-1 100A Current Collector (Y)	3233907

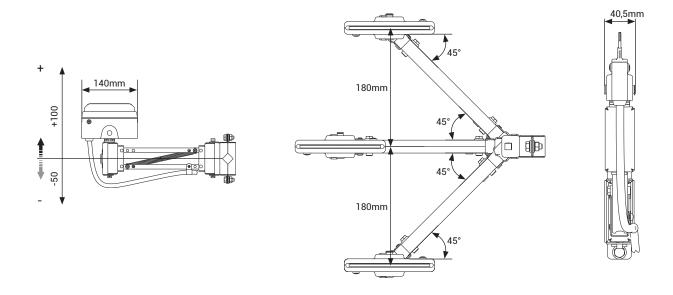
#### **URC-1** Technical Features:

- Copper-Graphite Brush
- 200m/min. maximum operating speed
  100A 1x16mm<sup>2</sup> H01N2-D 2m standard cable length



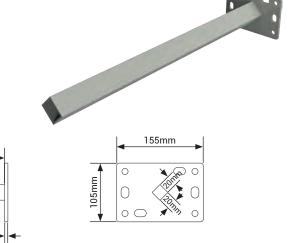


- The distance between busbar and current collectors support should be 110mm.
- The contact pressure of current collector is 10N.

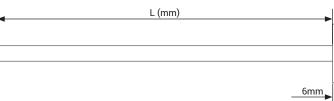


#### ► URC-1 Current Collectors Support

Description	L (mm)	Order Code
URC-1 Current Collectors Support	400	3034551
URC-1 Current Collectors Support	600	3188390

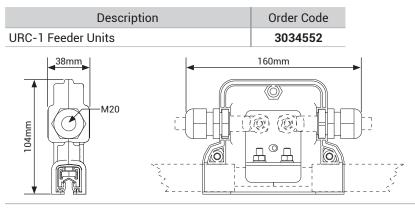


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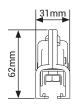
#### ►URC-1 Feeder Units

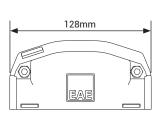


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#### ►URC-1 Joint Unit

Description	Order Code
URC-1 Joint Unit	3034582

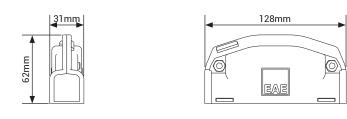






#### ►URC-1 End Closure

Description	Order Code
URC-1 End Closure	3034571





#### ►URC-1 Fixing Unit

Description	Order Code
URC-1 Fixing Unit	3034581







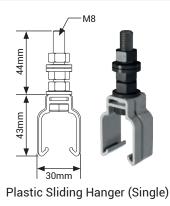


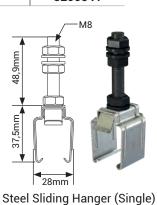
Description	Order Code
URC-1 Current Collector Brush Set	3158598

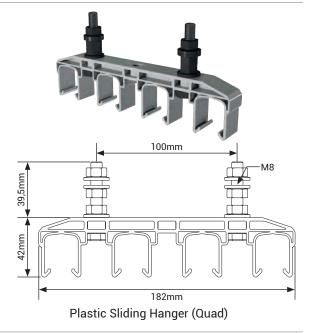


#### ►URC-1 Sliding Hanger

Description	Order Code
URC-1 Plastic Sliding Hanger (Single)	3034558
URC-1 Plastic Sliding Hanger (Quad)	3034559
URC-1 Steel Sliding Hanger (Single)	3200541



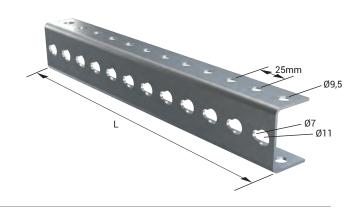




### ►URC-1 Hanger Bracket

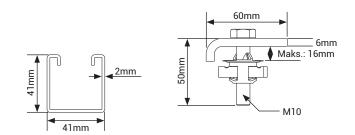
31,5mm

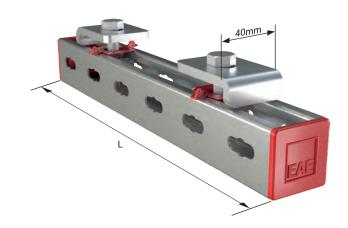
Description	L (mm)	Order Code
URC-1 Hanger Bracket	500	3034560
URC-2 Hanger Bracket	750	3025382
2mm		



#### ► URC-1 BR Hanger Bracket Set

Description	L (mm)	Order Code
URC-1 BR Hanger Bracket Set	600	3178917
URC-2 BR Hanger Bracket Set	800	3178918



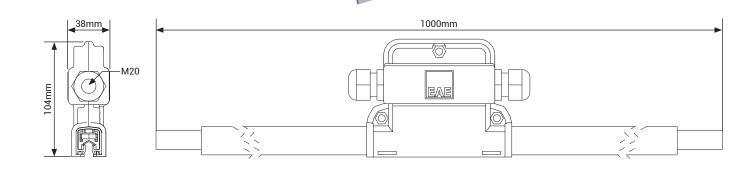






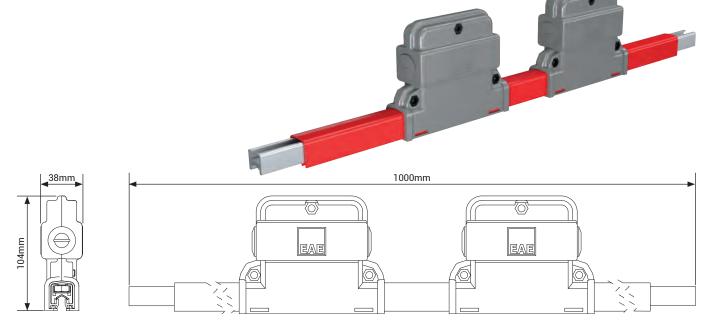
#### ►URC-1 Repair Zone Module

	C-PVC	Housing	PC (Polycarbo	nate) Housing
Aluminium Conductor	(-40°C +55°C)		(-40°C +100°C)	
	Phase	Neutral	Phase	Neutral
URC-1 Repair Zone Module	3271445	3271448	3271444	3271446



#### ►URC-1 Expansion Module

	C-PVC I	Housing	PC (Polycarbo	nate) Housing
Aluminium Conductor	(-40°C	+55°C)	(-40°C	+100°C)
	Phase	Neutral	Phase	Neutral
URC-1 Expansion Module	3271450	3271453	3271449	3271452



The expansion module should be used every 50 meters between the fixed points in order to protect the system from being damaged by the expansion that may occur due to heat.

lectric.com

## E-LINE URC ►► Voltage Drop



The voltage drop in the busbar lines shall be inspected as per the busbar type selected according to the total current calculated based on the ambient temperature and operating period of the system. Maximum acceptable value for voltage drop is 3%.

For Direct Current	$\Delta U = 2.L_t.I_g.R$	∆U =	Voltage Drop [V]
		I <sub>G</sub> =	Total Current [A]
For Mono-Phase Alternative Current	$\Delta U = 2.L_{t}.I_{g}.Z$	R =	Resistance of The Busbar [ $\Omega/m$ ]
		Z =	Impedance of The Busbar [ $\Omega/m$ ]
For Three-Phase Alternative Current	$\Delta U = \sqrt{3}.L_{t}.I_{g}.Z$	L <sub>t</sub> =	Calculated Hole Length [m]

Note : Calculation of the current drawn during first start in various motor types;

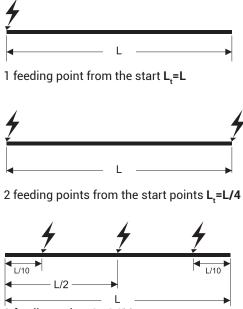
 $I_A$  = Total current drawn in the first start of the motors [A]

For the starting current;

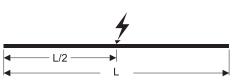
Three-phase asynchronous drive in direct start	I <sub>A</sub>	=	I <sub>g</sub> x 5 to 6
Slip ring rotor motor	I <sub>A</sub>	=	I <sub>G</sub> x 2 to 3
Frequency converter	I <sub>A</sub>	=	l <sub>g</sub> x 1,20 to1,50

#### ►► Calculation of Feeding Points

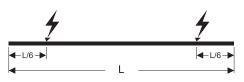
When we take L as the length of the line, feeding points may be selected as shown in the diagrams below to keep the  $L_t$  voltage drop at minimum and it may be used as the hole length for the calculation of  $L_t$  voltage drop.



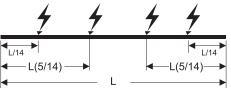
3 feeding points L,=L/10



1 feeding point from the center L,=L/2



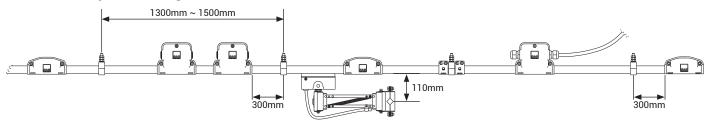
2 feeding points L<sub>t</sub>=L/6



4 feeding points L<sub>t</sub>=L/14

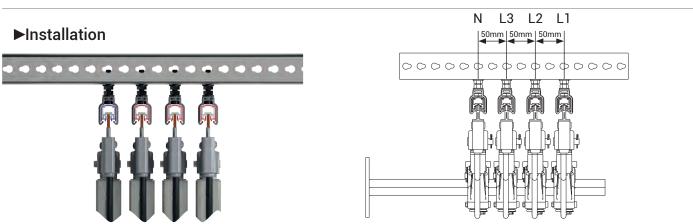


#### ► General System Usage Metrics



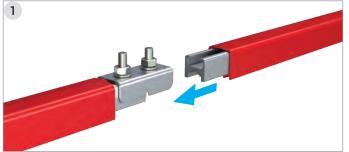
• Distance between the sliding hangers should be 1300 ~ 1500mm.

• Distance between sliding hanger and other units (joint unit, feeder, expansion etc.) should be minimum 300mm.



• For horizontal installation distance at least 50mm ,should be between sliding hanger axes.

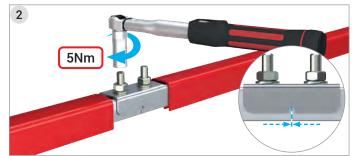
#### ► URC-1 Joint Unit Installation Manual



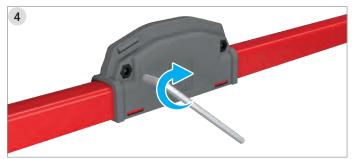
Place the joint unit between the two busbar lengths to be joined with their bolts facing upwards as shown. The notch of the joint unit should be centered at the junction of the two busbars.



Place the joint unit covers facing each other. Put the bolts and nuts in the sockets



The notch of the joint unit should be centered at the junction of the two busbars. Tighten the nuts with torque wrench adjusted to **5Nm**.

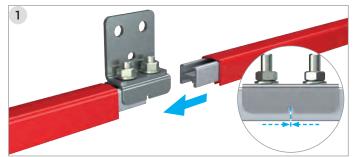


Tighten the the bolt with 5 allen wrench.

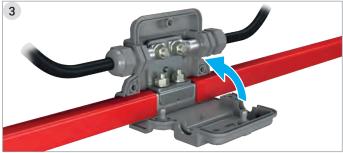
## E-LINE URC ▶▶Installation Manual



#### ► URC-1 Feeder Unit Installation Manual



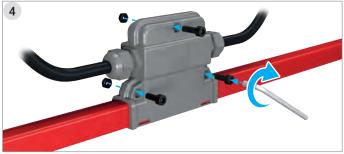
Place the joint unit between the two busbar lengths to be joined with their bolts facing upwards as shown. The notch of the joint unit should be centered at the junction of the two busbars.



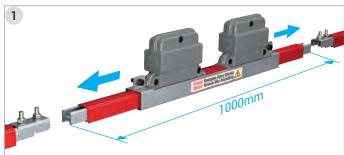
Place the feeder unit covers facing each other.



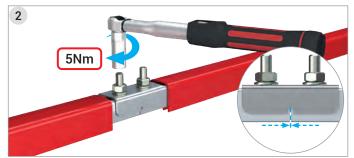
Pass the cables feeding the system through cable gland, tighten the nuts of the connecting plate with a torque wrench adjusted to 12Nm.



Put the bolts and nuts in the sockets. Tighten the the bolt with 5 allen wrench.



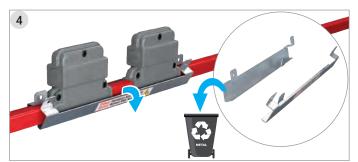
Installation of the expansion module in accordance with the joint unit installation instructions.



The notch of the joint unit should be centered at the junction of the two busbars. Tighten the nuts with torque wrench adjusted to **5Nm**.



Do not open the expansion module covers. After assembly unscrew the bolts of the alignment part and remove it.



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Throw the steel alignment jig into the recycling bin.

Note: If the alignment part is removed before assembly, the distances of the module should be adjusted as shown in the Figure 1.

#### ► URC-1 Expansion Unit Installation Manual

## E-LINE URC ►►Offer Request Form



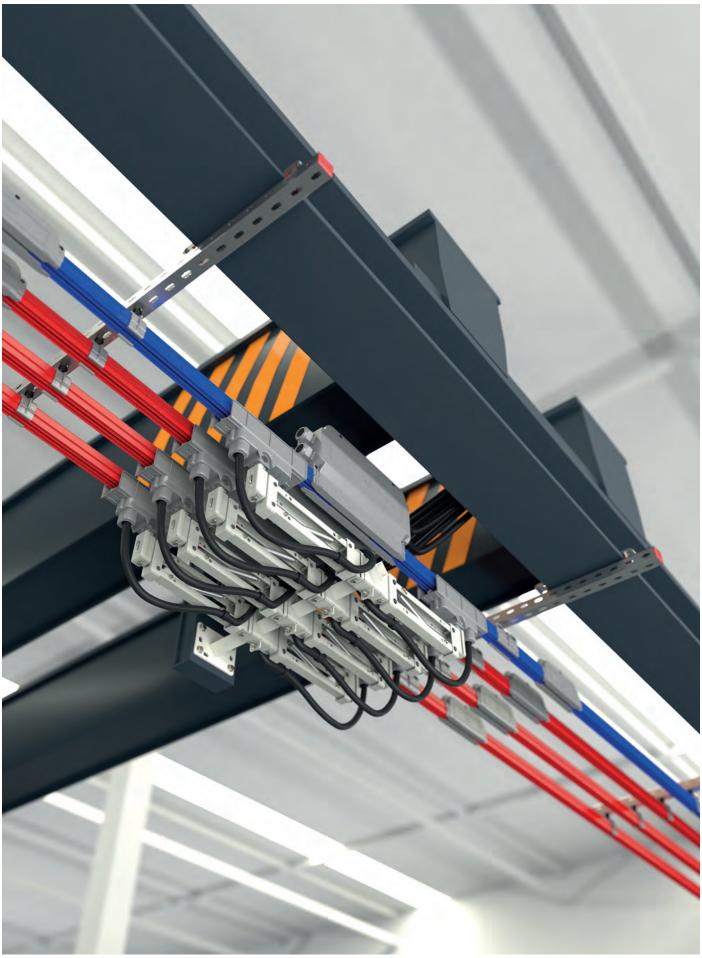
Date

:

Project Name :	
Company :	
Name Surname :	
Tel :	
E-Mail :	
Address :	
General Data	
Track Length :	
Number of Cranes on Track :	
Crane Travel Speed :	
Environmental Data	
Operating Environment : Indoor Outdoor	
Ambient Temperature   :   °C min.   °C max.	
Other Operating Conditions : (Humidty, Dust, Chemical Influence, etc.)	
Electirical Data	
Operating Voltage : Volts AC DC	
Phases N PE	
Position and Number of Feeder : from End from Middle	
Duty Cycle (%)       :       50%       60%       70%       80%       90%       100%	)
Crane - 1 Crane - 2 Crane - 3	
Motor Specifications         Power (kW)         Current (A)         Power (kW)         Current (A)         Power (kW)         Current (A)	: (A)
Hoist motors :	
Auxiliary motor :	
Long travel :	
Cross travel :	
Options	
Brackets Required : Yes No	
Repair Zone Required   :   Yes   Oty   No	
Collector Replacement Required: Yes Oty No	
Descriptions :	

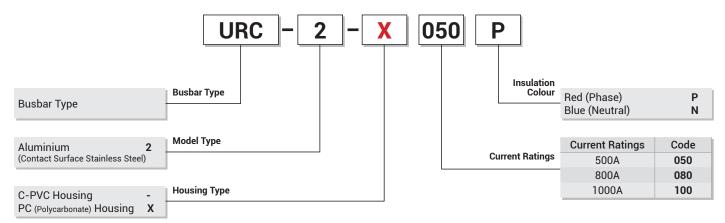
# **E-LINE URC**





## E-LINE URC ►●Order Coding System

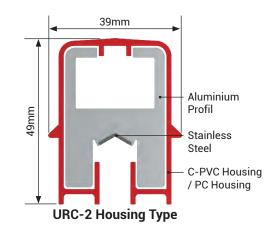




-40°C +55°C for the temperature range C-PVC Housing.

-40°C +100°C for the temperature range PC (Polycarbonate) Housing must be used.

Technical Features				
Busbar Code		050	080	100
Rated Current	А	500	800	1000
Conductor Cross-section Area	mm <sup>2</sup>	275	460	625
Rated Voltage	AC - V	1000	1000	1000
Resistance (20°C)	$R_{20}$ (m $\Omega$ /m)	0,125	0,080	0,062
Resistance (32°C)	$R_{_{35}}(m\Omega/m)$	0,148	0,099	0,076
Reaktance	X (mΩ/m)	0,133	0,139	0,140
Impedance	Z (mΩ/m)	0,198	0,171	0,157
Weight	kg/m	1,150	1,700	2,050



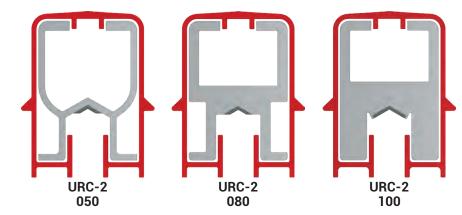
- · Aluminium Contact Surface Stainless Steel.
- Protection Degree IP23.
- Standard length is 6m.

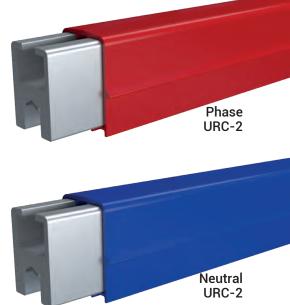
Ambient temperature is:

- C-PVC for housing -40°C +55°C
- PC Polycarbonate) is for housing -40°C +100°C

#### ► Standard Straight Length

	URC-2 (C-PVC Housing)		URC-2-X (PC Housing)			
Aluminium Conductor	(-40°C +55°C)		(-40°C +55°C)		(-40°C +100°C)	
	Phase	Neutral	Phase	Neutral		
URC-2 050 (500A)	3033991	3033992	3164914	3164913		
URC-2 080 (800A)	3033993	3033994	3164916	3164915		
URC-2 100 (1000A)	3033971	3033972	3164918	3164917		





## E-LINE URC ►Current Collector



#### ►URC-2 Current Collector

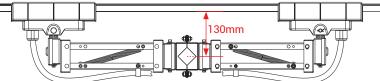
Description	Order Code
URC-2 300A Current Collector (Y)	3233908

#### **URC-2** Technical Features:

- Current collector capacity is 300A
- Copper-Graphite Brush
- 200m/min. maximum operating speed
- 1x95mm<sup>2</sup> H01N2-D 3m standard cable length

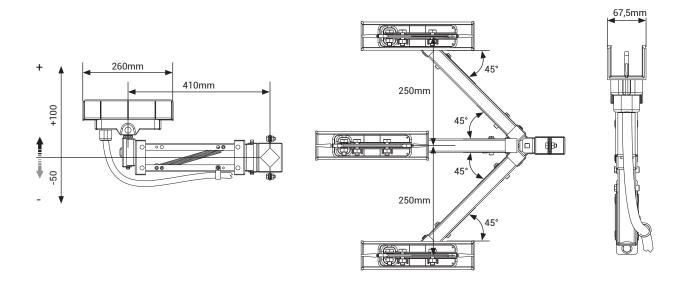


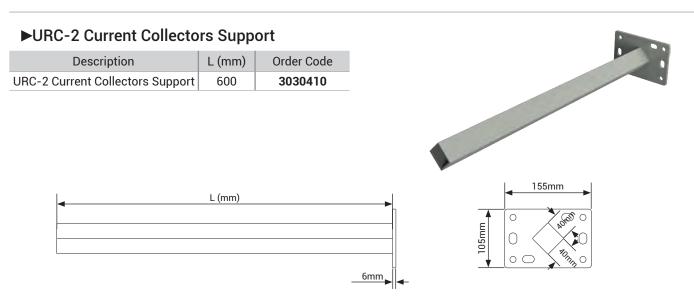
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• The distance between busbar and current collectors support should be 130mm.

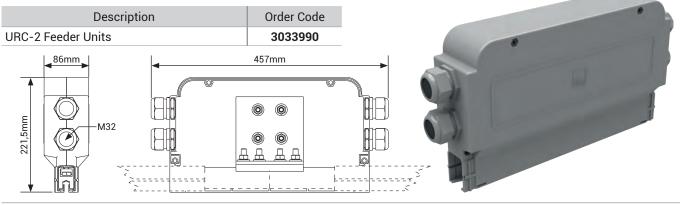
• The contact pressure of current collector is 50N.



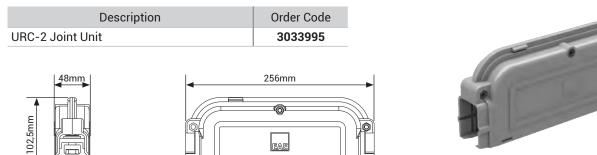




#### ►URC-2 Feeder Units



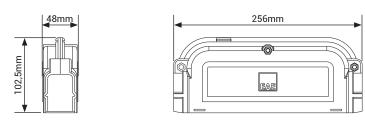
#### ►URC-2 Joint Unit



EAE

#### ►URC-2 End Closure







#### ►URC-2 Fixing Unit

Description	Order Code
URC-2 Fixing Unit	3033987







ctric.com



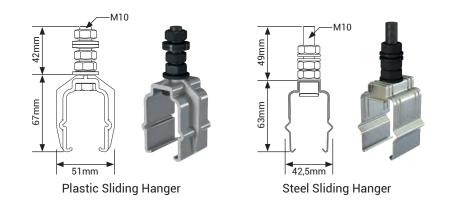
#### ► URC-2 Current Collector Brush

Description	Order Code
URC-2 Current Collector Brush (300A)	1003516



#### ►URC-2 Sliding Hanger

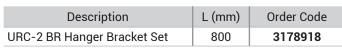
Description	Order Code
URC-2 Plastic Sliding Hanger	3033986
URC-2 Steel Sliding Hanger	3132893

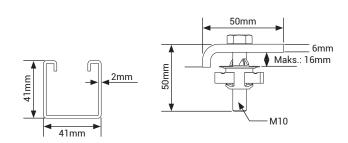


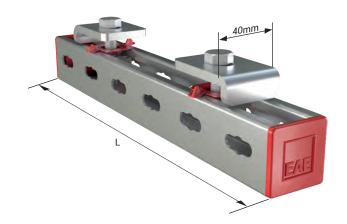
#### ►URC-2 Hanger Bracket



#### ► URC-2 BR Hanger Bracket Set

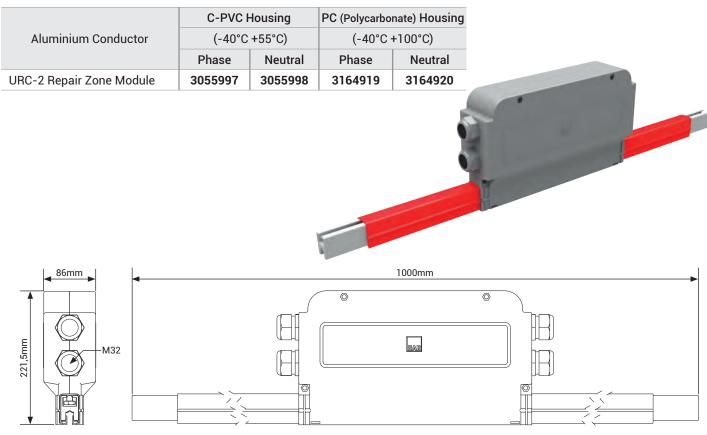






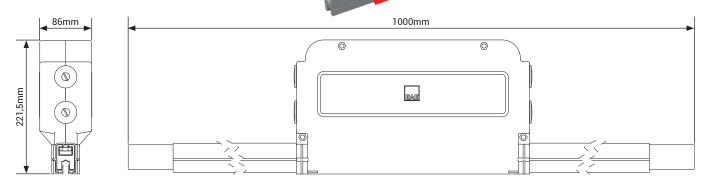


#### ►URC-2 Repair Zone Module



#### ►URC-2 Expansion Module

	C-PVC I	lousing	PC (Polycarbo	nate) Housing
Aluminium Conductor	(-40°C	+55°C)	(-40°C	+100°C)
	Phase	Neutral	Phase	Neutral
URC-2 050 Expansion Module	3033983	3033984	3164925	3164926
URC-2 080 Expansion Module	3033981	3033982	3164923	3164924
URC-2 100 Expansion Module	3033979	3033980	3164921	3164922



The expansion module should be used every 50 meters between the fixed points in order to protect the system from being damaged by the expansion that may occur due to heat.

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## E-LINE URC ►► Voltage Drop



The voltage drop in the busbar lines shall be inspected as per the busbar type selected according to the total current calculated based on the ambient temperature and operating period of the system. Maximum acceptable value for voltage drop is 3%.

For Direct Current	$\Delta U = 2.L_t.I_g.R$	∆U =	Voltage Drop [V]
		I <sub>G</sub> =	Total Current [A]
For Mono-Phase Alternative Current	$\Delta U = 2.L_t.I_g.Z$	R =	Resistance of The Busbar [ $\Omega/m$ ]
		Z =	Impedance of The Busbar [ $\Omega/m$ ]
For Three-Phase Alternative Current	$\Delta U = \sqrt{3} L_t I_g Z$	L <sub>t</sub> =	Calculated Hole Length [m]

Note : Calculation of the current drawn during first start in various motor types;

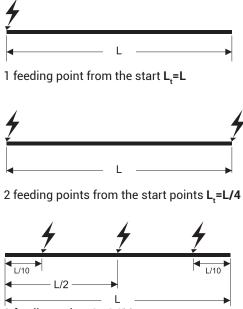
 $I_A$  = Total current drawn in the first start of the motors [A]

For the starting current;

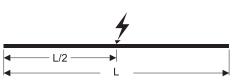
Three-phase asynchronous drive in direct start		=	I <sub>g</sub> x 5 to 6
Slip ring rotor motor	I <sub>A</sub>	=	I <sub>G</sub> x 2 to 3
Frequency converter	I <sub>A</sub>	=	l <sub>g</sub> x 1,20 to1,50

#### ►► Calculation of Feeding Points

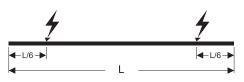
When we take L as the length of the line, feeding points may be selected as shown in the diagrams below to keep the  $L_t$  voltage drop at minimum and it may be used as the hole length for the calculation of  $L_t$  voltage drop.



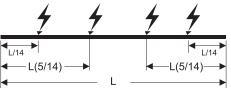
3 feeding points L,=L/10



1 feeding point from the center L<sub>t</sub>=L/2



2 feeding points L<sub>t</sub>=L/6

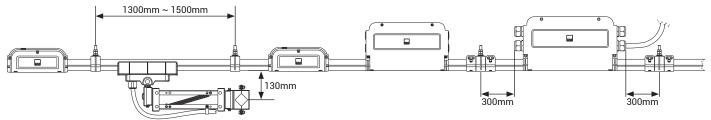


4 feeding points L<sub>t</sub>=L/14

**E-LINE URC** ►►Installation Manual



#### ► General System Usage Metrics

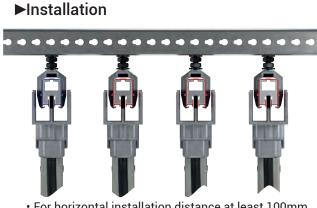


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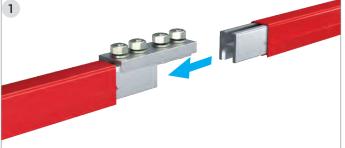
• Distance between the sliding hangers should be 1300 ~ 1500mm.

• Distance between sliding hanger and other units (joint unit, feeder, expansion etc.) should be minimum 300mm.



· For horizontal installation distance at least 100mm, should be between sliding hanger axes.

#### ► URC-2 Joint Unit Installation Manual



Place the joint unit between the two aluminium busbar lengths to be joined with their bolts facing upwards as shown. The notch of the joint unit should be centrered at the junction of the two Busbars.

3



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Tighten the the bolt with 5 allen wrench.



L2

100mm

000

L3

100mm

000

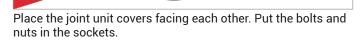
L1

 $\phi \circ \circ \circ$ 

100mm

000

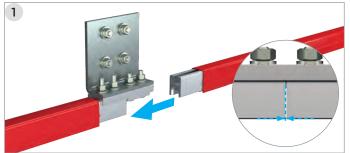
Tighten the nuts with torque wrench adjusted to 35Nm.



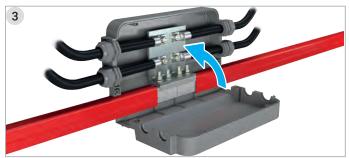
## E-LINE URC ▶▶Installation Manual



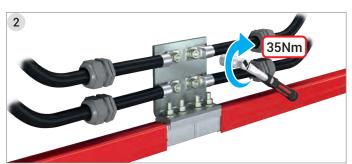
#### ► URC-2 Feeder Unit Installation Manual



Place the joint unit between the two busbar lengths to be joined with their bolts facing upwards as shown.



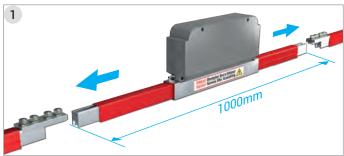
Place the feeder unit covers facing each other.



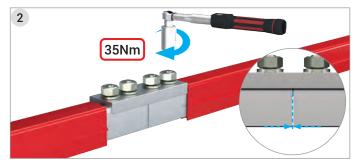
Pass the cables feeding the system through cable gland, tighten the nuts of the connecting plate with a torque wrench adjusted to **35Nm**.



Put the bolts and nuts in the sockets. Tighten the the bolt with 5 allen wrench.



Installation of the expansion module in accordance with the joint unit installation instructions.



The notch of the joint unit should be centered at the junction of the two busbars. Tighten the nuts with torque wrench adjusted to **35Nm**.



Do not open the expansion module covers. After assembly unscrew the bolts of the alignment part and remove it.



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Throw the steel alignment jig into the recycling bin.

Note: If the alignment part is removed before assembly, the distances of the module should be adjusted as shown in the Figure 1.

#### ► URC-2 Expansion Unit Installation Manual

## E-LINE URC ►►Offer Request Form



Date

:

Project Name	:	
Company	:	
Name Surname	:	
Tel	:	
E-Mail	:	
Address	:	
		General Data
Track Length	:	
Number of Cranes on Track	:	
Crane Travel Speed	:	
		Environmental Data
Operating Environment	:	Indoor Outdoor
Ambient Temperature	:	°C min. °C max.
Other Operating Conditions (Humidty, Dust, Chemical Influence, etc	: c.)	
		Electirical Data
Operating Voltage	:	Volts AC DC
operating voltage	•	Phases N PE
Position and Number of Feeder	<b>.</b> .	from End from Middle
Duty Cycle (%)	:	
	-	
Motor Specifications		Crane - 1         Crane - 2         Crane - 3           Power (kW)         Current (A)         Power (kW)         Current (A)         Power (kW)         Current (A)
Hoist motors	:	
Auxiliary motor	:	
Long travel	:	
Cross travel	:	
		Options
Prockets Required		
Brackets Required Repair Zone Required	:	Yes     No       Yes     Qty     No
Collector Replacement Require	d·	
	u.	Yes Qty No
Descriptions	:	





# **CE DECLARATION OF CONFORMITY**

Product Group

E-Line Trolley Busbar Systems

Manufacturer

Akcaburgaz Mahallesi, 3114. Sokak, No:10 34522 Esenyurt-Istanbul

The objects of the declaration described below is in conformity with the relevant Cable gland harmonisation legislation. This declaration of conformity is issued under the sole responsibility of the manufacturer.

#### Standard:

#### TS EN 61439-6

Low-voltage switchgear and controlgear assemblies - Part 6: Busbar trunking systems

#### **CE - Directive:**

2014/35/EU "The Low Voltage Directive"

2014/30/EU "(EMC) Electromagnetic Compatibility Directive"

2011/65/EU "RoHS Directive"

#### **Technical Document Preparation Official:**

EAE Elektrik Asansor End. Insaat San. Tic. A.S. Akcaburgaz Mahallesi, 3114. Sokak, No:10 34522 Esenyurt-Istanbul

Mustafa AKÇELİK

#### Date

20.04.2024

#### **Document Authorized Signatory**

Elif Gamze KAYA OK Deputy General Manager

# **PRODUCT TYPES**

## **BUSBAR ENERGY DISTRIBUTION SYSTEMS**

**CABLE TRAYS** 

**TROLLEY BUSBAR ENERGY DISTRIBUTION SYSTEMS** 

**INDOOR SOLUTIONS** 

## SUPPORT SYSTEMS













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Catalog 15-Eng. / Rev 15 1000 pcs. 10/07/2024 G.M. EAE has full right to make any revisions or changes on this catalogue without any prior notice.