



**2DR1 MOTOR UNIT**

**INSTRUCTION MANUAL**

Original Instructions

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EDITION: 2018 - REVIEW: 01  
Official language of the manufacturer: Italian

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Subject to technical modifications without prior notice and errors excepted.  
Illustrations of the product in this manual may differ from the actual product.  
The colour of technical drawings is for illustration purposes only.

NOTE:  
All units are in millimetres unless otherwise indicated.

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## INTRODUCTION

Thank you for choosing our products.

This Instruction Manual is an integral part of the product and contains all necessary information to install, operate and maintain the 2DR1 system safely. It must be stored in a safe place and must always be available to installers/operators.

Please forward this Instruction Manual to the end user.

This Instruction Manual provides:

- Technical information and tips useful to install the system,
- Specific information on each component/accessory,
- Assembly drawings of all basic configurations,
- A procedure for assembling and using the system,
- Safety, maintenance and troubleshooting information to prevent accidents



Please read through this entire Instruction Manual.

2DR1 system is a highly reliable product, but using incorrect operation/handling methods may shorten the product life or, even worse, cause hazardous conditions resulting in injury and/or material damage.

# 1 · SAFETY INFORMATION

## 1.1 · HAZARD CLASSES

In this Instruction Manual, the safety precautions are classified into levels.  
Fully comply with all Warning and Caution notices.



**WARNING:** Indicates a hazardous situation that, if not avoided, could result in serious injury or death.



**CAUTION:** Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



**ALERT:** Important information that, if not avoided, could result in material damage.

Warning and Caution notices, if not complied with, could also result in damage to the equipment/property.

## 1.2 · SAFETY SIGNALS USED IN THIS MANUAL

Symbol	Meaning
	Warning! Take care to avoid coming into contact with electricity
	Warning! Possible falling objects
	Warning! Rotating parts. Danger of hands being drawn in and/or caught by moving parts
	Warning! Hot surface
	Read the instruction manual before starting work
	Wear protective gloves
	Wear head protection
	Wear safety footwear
	General prohibition sign
	Do not place any heavy objects on a surface

### OTHER SYMBOLS

	Advices and tips on, for example, how to design your project or how to make using the product easier
	Recycling signal

## 1.3 · PERSONNEL QUALIFICATION

2DR1 Motor Unit must be installed and operated by qualified personnel. Qualified personnel is defined as persons who have appropriate skills and experience with operations of mechanical installation and maintenance, who have adequate knowledge and training of the power-driven equipment, who have notions of health and safety at work, who have access to the 2DR1 Instruction Manual and have read and familiarised themselves with it.

Please note appropriate technical training is available from Peroni S.p.A. Contact us for more information.



**WARNING:** Electrical installation must be carried out by a qualified technician only!

## 1.4 · SAFETY INSTRUCTIONS



**WARNING:** All instructions must be followed because they are important to personal safety!



**WARNING:** Always disconnect the unit from the power supply system before working on it or on the equipment connected to it!

In particular:

- *Do not attempt to install, operate, maintain this product until you have a full knowledge of the equipment, safety information and assembly instructions and can use the product correctly*
- *Restrict access to the work area to prevent the falling of objects and tools during set up and dismantling*
- *Wear personal protective equipment appropriate for mechanical hazards (gloves, shoes, helmets) according to your national standards*
- *The product may only be used if the operator has a direct view of the movement of the device and if no persons or objects are within the movement range of the system*
- *Do not exceed the maximum carrying capacity of the product*
- *Pay attention to all rotating parts of the motor unit*
- *Do not perform parts removal which is not instructed in this manual, doing so may lead to fault or damage of the product*
- *If necessary, use only original spare parts and original expendable parts*
- *Do not install or operate the system if it is damaged or has parts missing*
- *Combine 2DR1 Motor Unit only with parts and accessories from Peroni S.p.A. curtain track range*
- *Before running a 2DR1 Motor Unit which had been stored for a long period, inspection and check operations must be performed (please refer to the maintenance and troubleshooting sections)*

## 2 · PRODUCT CHECKING AND PARTS IDENTIFICATION

Upon receipt and prior to processing, check the contents of the packing for completeness, for any obvious defects and possible transport damage. Transport damage, defects and delivery shortfalls must be immediately documented in writing and reported to Peroni S.p.A. or to the authorized local dealer.

## 3 · PRODUCT INFORMATION

### 3.1 · DESCRIPTION OF THE PRODUCT

2DR1 Motor Unit has been design to be a track drive system for medium/heavy weight curtains. The drive pulley operates the hauling line to which the curtain/scenery element is connected. The speed of the rope is adjustable up to a maximum of 0.9 m/s. The Motor Unit can be controlled via DMX as an option.

Simple and compact, 2DR1 can be installed directly beneath a track and it is compatible with straight and curved track layouts.

### 3.2 · INTENDED/UNINTENDED USE

2DR1 Motor Unit is designed and approved for operating curtain track system produced by Peroni S.p.A. It allows to move horizontally curtains and other scenery elements of medium/heavy weight.

Peroni S.p.A. accepts no claims for liability if the equipment is used in any other way.



**WARNING:** Any other use is strictly prohibited. It can result in severe injury to personnel and/or may cause material damage.



**WARNING:** Do not use 2DR1 Motor Unit for lifting.



**WARNING:** Do not use 2DR1 Motor Unit for suspending or moving people/animals.

### 3.3 · WARRANTY AND LIABILITY

Peroni S.p.A. guarantees its products against materials and manufacturing defects for two years from the date of the invoice. At its sole discretion, Peroni S.p.A. will repair or replace the defective product free of charge.

Parts which are subject to normal wear and tear are excluded from the guarantee, such as the rope, the pulleys, ball bearings, etc.

The warranty applies only to Peroni S.p.A. products and cannot be extended to the project in which they are installed.

Peroni S.p.A. excludes any warranty/liability claims for any personal and/or material damage if such damage is due to one or more of the following causes:

- *Inappropriate use of the product*
- *Mistaken assessment of the supporting structures*
- *Incorrect assembly or connections*
- *Non-compliance with the instructions, warnings and prohibitions contained in the documentation*
- *Unauthorized modifications of the product*
- *Insufficient monitoring of parts which are subject to wear*
- *Damage suffered during transport*
- *Repair work at the product not carried out properly or in time*
- *Catastrophes by external impact or force majeure*



**WARNING:** The suitability/load-carrying capacity of the supporting structures (walls, ceilings, bars, trusses, etc.) does not form part of these Instruction Manual and must be assessed by the installer/qualified technician.

The responsibility of Peroni S.p.A. will not exceed the price of the Products.

Under any circumstances, Peroni S.p.A. shall not be liable for direct, special or consequential damages such as, but not limited to, damage or loss of property or equipment, loss of profits or revenues, cost of replacement goods, expense or inconvenience or commercial loss in any way connected with the product.

The purchase of Peroni S.p.A. products implies the full and complete acceptance of these warranty terms.

### 3.4 · USE IN COMBINATION WITH THIRD-PARTY PRODUCTS

Peroni S.p.A. will not accept any responsibility for compatibility with third-party products.



**CAUTION:** If you use the product in combination with third-party products, you do this at your own risk.



### 3.5 · EC DECLARATION OF CONFORMITY / INCORPORATION

2DR1 Motor Unit shall be considered as a partly completed machinery according to the Machinery Directive 2006/42/EC. 'Partly completed machinery' means an assembly which is almost machinery but which cannot in itself perform a specific application. 2DR1 Motor Unit is only intended to be assembled with other equipment, thereby forming machinery to which this Directive applies.

If you purchase a 2DR1 Motor Unit separately in order to build up a system by your own, Peroni S.p.A. will issue a Declaration of Incorporation. In this case you shall be considered as the manufacturer of the complete system and so you are responsible to apply the appropriate procedures for assessing the conformity.

If you purchase instead a complete TRX10 motorized track system, Peroni S.p.A. will issue an EC Declaration of Conformity.



#### EC DECLARATION OF INCORPORATION

according to the Machinery Directive 2006/42/EC, Annex II, Part 1, Section B  
Original Declaration

We, the manufacturer: **PERONI S.P.A.**  
Via Monte Leone, 93  
21013 Gallarate (VA) – Italy

person authorised to compile the technical file: PERONI S.P.A.  
Via Monte Leone, 93  
21013 Gallarate (VA) – Italy

#### for the partly completed machinery identified as

Model/Type: 2DR1 - v.1  
Generic denomination: 2DR1 - Motor Unit  
Commercial name: 2DR1 - Motor Unit  
Function: Electric motor unit for curtain track systems.  
Drive the operating linethat moves the curtains.  
Serial number: xxx.xxx

**declare under our sole responsibility that the following essential requirements of the Machinery Directive 2006/42/EC have been applied and fulfilled: 1.1.5 - 1.2.1 - 1.2.3 - 1.2.4 - 1.3.2 - 1.3.7 - 1.3.9 - 1.5.1 - 1.6.3**

Moreover, we declare that the relevant technical documentation has been compiled in accordance with part B of Annex VII.

The product also conform to the following directives:

**2014/30/EU - Electromagnetic Compatibility Directive**  
**2014/35/EU - Low Voltage Directive**

The following harmonised standards have been applied:

EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction  
EN 1037:1995+A1:2008 Safety of machinery - Prevention of unexpected star-up  
EN ISO 13849-1:2016 Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design  
EN 60204-1:2006/AC:2010 Safety of machinery - Electrical equipment of machines - Part 1: General requirements

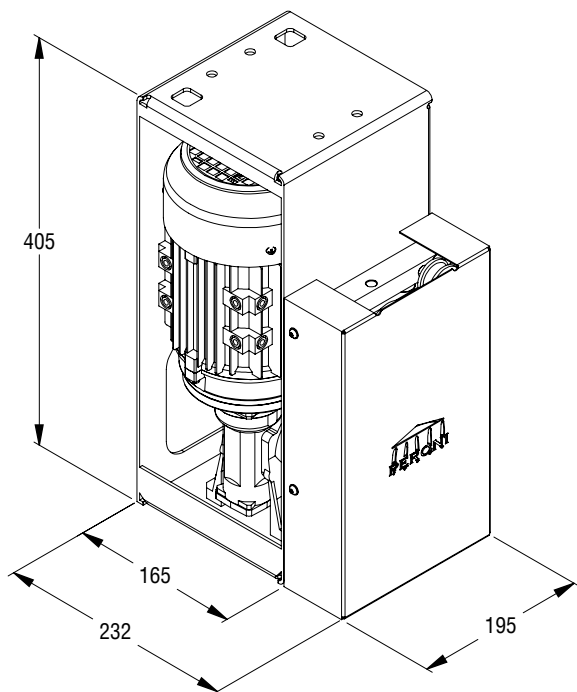
In response to a reasoned request by the national authorities, Peroni S.p.A. undertake to transmit relevant information on the partly completed machinery by electronic mail/ordinary mail.

This product must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this Directive.

Place and date of issue:  
Gallarate, 13th February 2018

Managing Director  
Alessandro Peroni

## 4 · TECHNICAL SPECIFICATIONS



ELECTRICAL DATA	
Power	0.37 kW
Torque	21 Nm
Voltage	3 x 230/400 VAC
Frequency	50 Hz
CONTROL SYSTEM	
standard	2QE Power and control electrical cabinet frequency control 1x 230 VAC - 50 Hz
optional parts	remote control pendant radio control DMX control

GENERAL INFORMATION	
Dimensions	232 x 195 x 405 mm
Weight	16.8 kg
Installation	track mounted
Features	variable speed with 2QE frequency control cabinet; automatic adjustment of rope tension; cables equipped with connectors two limit switches included for open and closed position;
Traction line	8mm $\emptyset$ - polyester rope
Rope speed	0.0 ÷ 0.9 m/s
Max curtain weight	straight layout 300 kg curved layout 200 kg
Noise level	noise levels, measured using the method prescribed by ISO 1680 Standards, are within the maximum levels specified by Standards CEI EN 60034-9

NORMAL OPERATING/STORING CONDITIONS	
Temperature	-15°C ÷ 40°C
Humidity	30% ÷ 70%
Altitude	max 1,000 m above sea level
Note	intended for indoor use (available for outdoor use on request); do not use the device in potentially explosive atmosphere

## 5 · TRACK MOUNTING

The 2DR1 Motor Unit is designed to be bolted directly beneath the track using a support plate.

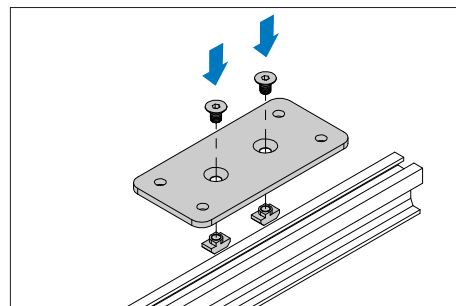
It is recommended the presence of a second person throughout the entire installation, who can provide assistance in the case of need.

### 1. Place the support plate onto the track.


Thanks to the channel nuts, the plate can slide forward and backward if you need to adjust its final position.

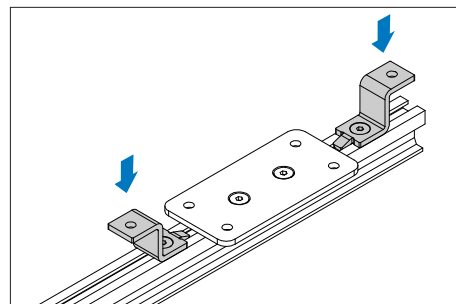
Slowly rotate the screws. The channel nuts should turn 90 degrees into the channel and fit into fixing position.

Keep on tightening the screws to completely fasten.




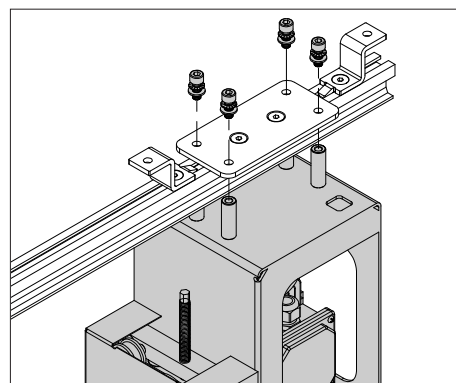
### 2. Be sure to place two suspension points (one by each side of the plate) to support the weight of the motor unit and the stress of the cord pulling.

 **DO NOT** hang the motor unit onto a cantilever track section!



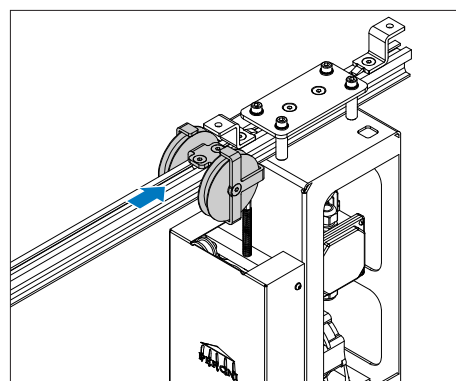
### 3. With the help of a second person, lift the motor unit just beneath the track and tighten the four securing screws to fix it in position to the support plate.

 **CAUTION:** Before suspending the 2DR1 Motor Unit, ensure the track is securely attached to a stable and horizontal supporting structure.



### 4. Put the head pulley into position.

Check and correct the alignment of the pulley before fastening it.



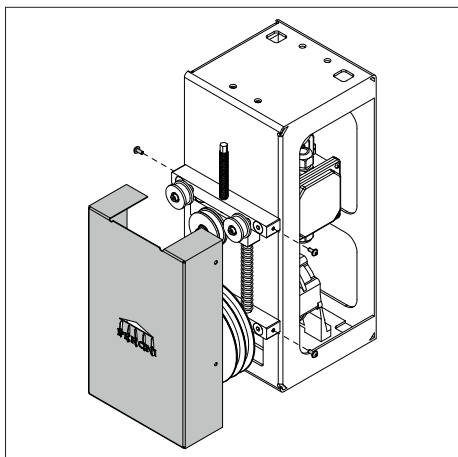
## 6 · THREADING THE ROPE

2DR1 Motor Unit is designed to operate with 8 mm diameter polyester rope as a means to transmit the motion. This textile rope is subject to a natural elongation under tensile load due to its elasticity and the arrangement of the fibres. For this reason the motor unit is equipped with a spring system to compensate the elongation of the rope.

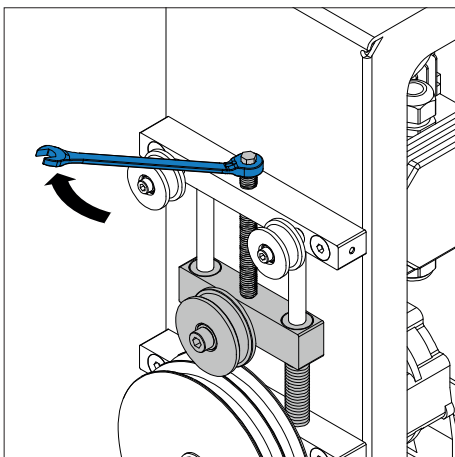
Please follow the steps below to thread the rope through out the tensioning pulley system of the motor unit.



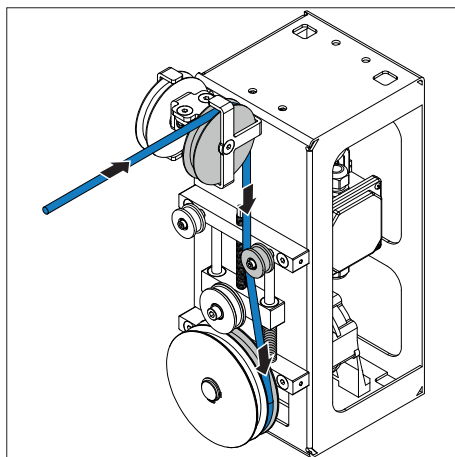
**CAUTION:** Before starting, make sure the motor unit is NOT connected to the power supply to prevent unexpected start-up. Danger of hands or arms being drawn in and/or caught by moving parts!



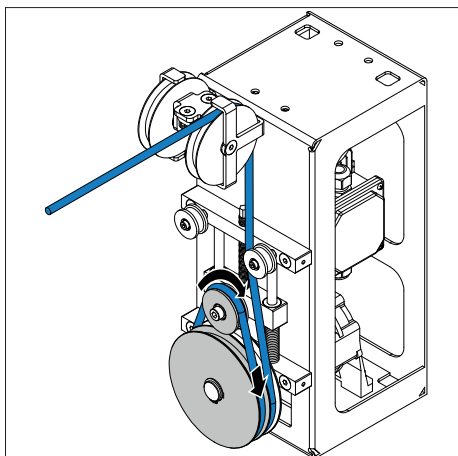
1. Remove first the protective front cover by loosening the 4 screws.



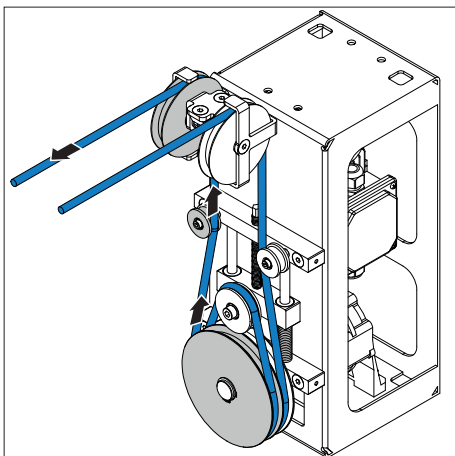
2. Using the provided ratchet wrench, compress the spring mechanism until reaching the bottom position.



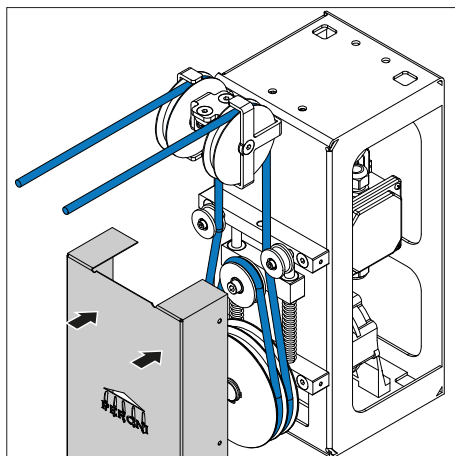
3. Thread the rope into one of the sheave of the head pulley, pass by the guide roller and proceed down around the rear groove of the drive sheave.



4. Turn around the tensioner idler pulley and then down into the front groove of the drive sheave.



5. Go up again through the head pulley, passing by the other small guide roller.



6. Loosen completely the threaded stud with the ratchet wrench and remove it. Place back the protective cover into place.

After a few cycles the spring mechanism will extend to compensate the elasticity of the rope. Once stabilized, the spring mechanism must remain partially compressed to work properly.

Ensure the rope is correctly tensioned! Depending on the frequency of use and the load applied, the rope may need re-tensioning. In this case ensure the motor unit is NOT connected to the power supply and follow the same procedure from step 1 to step 6.



**ALERT!** Remember to always place the protective cover after the cording procedure, then operate the product.

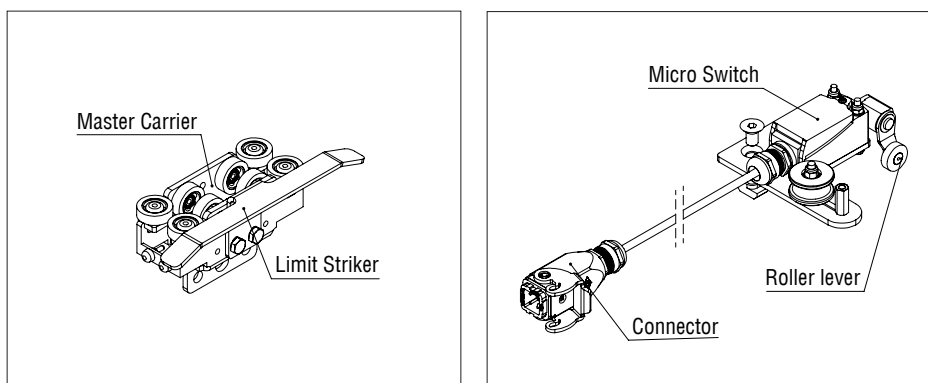
## 7 · LIMIT SWITCHES

2DR1 Motor Unit is supplied with two limit switches, one for the open and one for the closed position. The limit switches are mounted on the track and determine the maximum range of travel of the master carrier to which the limit striker is fitted.

The system shall always be able to stop smoothly and without any visible shock, it is therefore crucial to fit the limit switches in the right position to halt the motor running in good time.

The limit switches are pre-wired and equipped with plug connectors. The length of the cables is different for the two switches and is usually configured in factory taking into account the dimensions of the required track system:

- the longer one is for the CLOSED position and is placed near the centre of the track for traveller curtain or at the end opposite to the motor unit for wipe curtain
- the shorter one is for the OPEN position and is placed in proximity of the motor unit, taking into account the stacking space of the curtain



Remember that the precise position of each limit switch depends on several factors which affect directly the stopping distances:

- the length/weight of the curtain
- the operating speed
- the stop ramp managed by the inverter (default setting 0.5 sec)

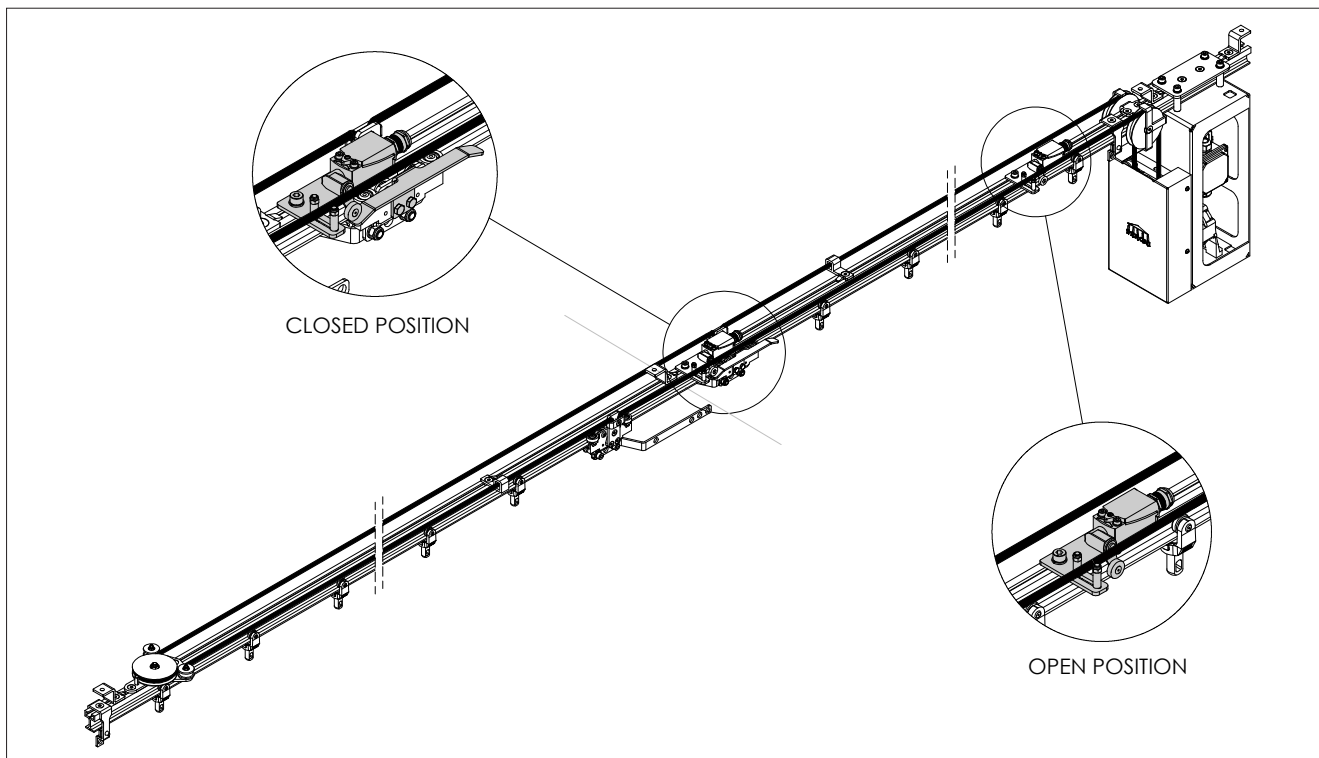


**ALERT!** If you change any of these factors, you may need to adjust the position of the limit switches accordingly.

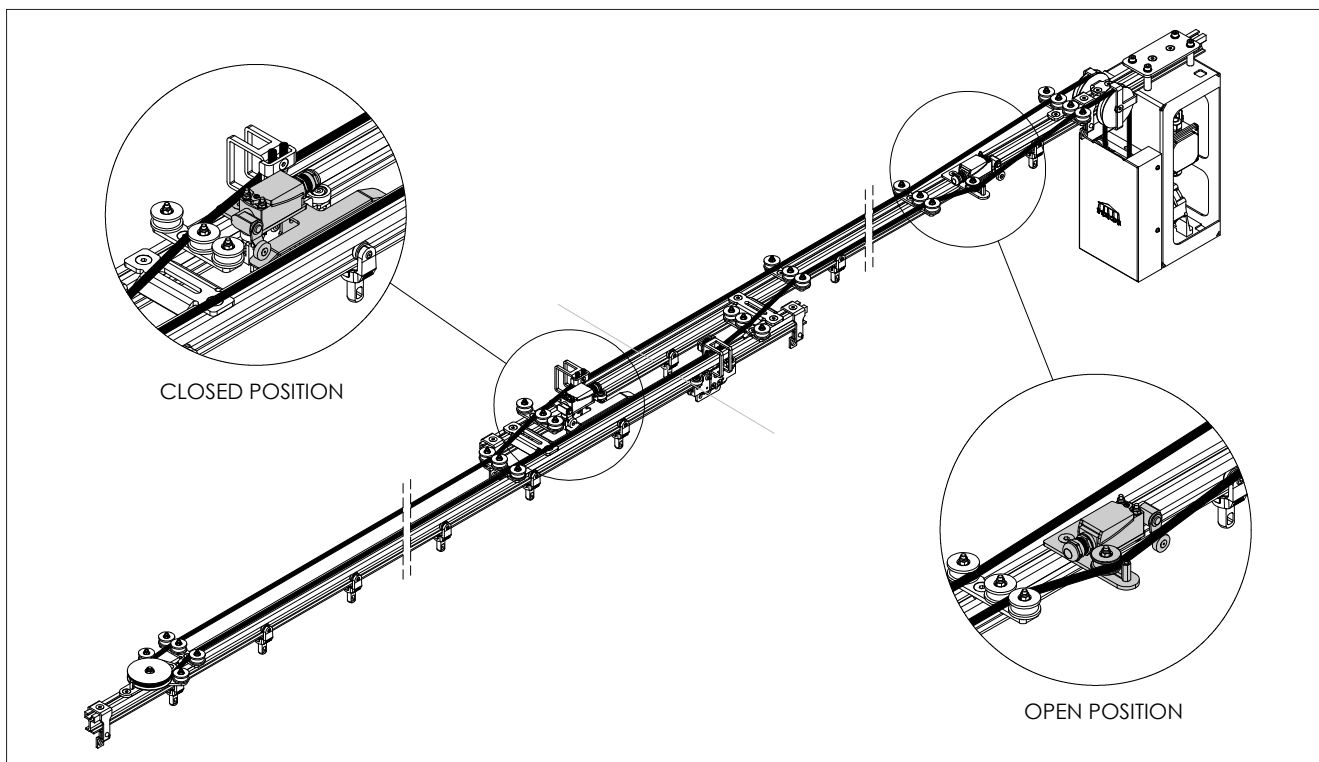
## 7.1 · LIMIT SWITCH POSITION



**ALERT!** Only one of the master carriers is equipped with the limit striker. Mounting the limit switch on the track, make sure the roller lever of the micro-switch is aligned with the striker fitted to the master carrier.



SINGLE TRACK CONFIGURATION



DOUBLE-TRACK CONFIGURATION

Note: the limit switches and the limit striker needs to be fitted on the same track of the motor unit.

## 8 · ELECTRICAL INSTALLATION



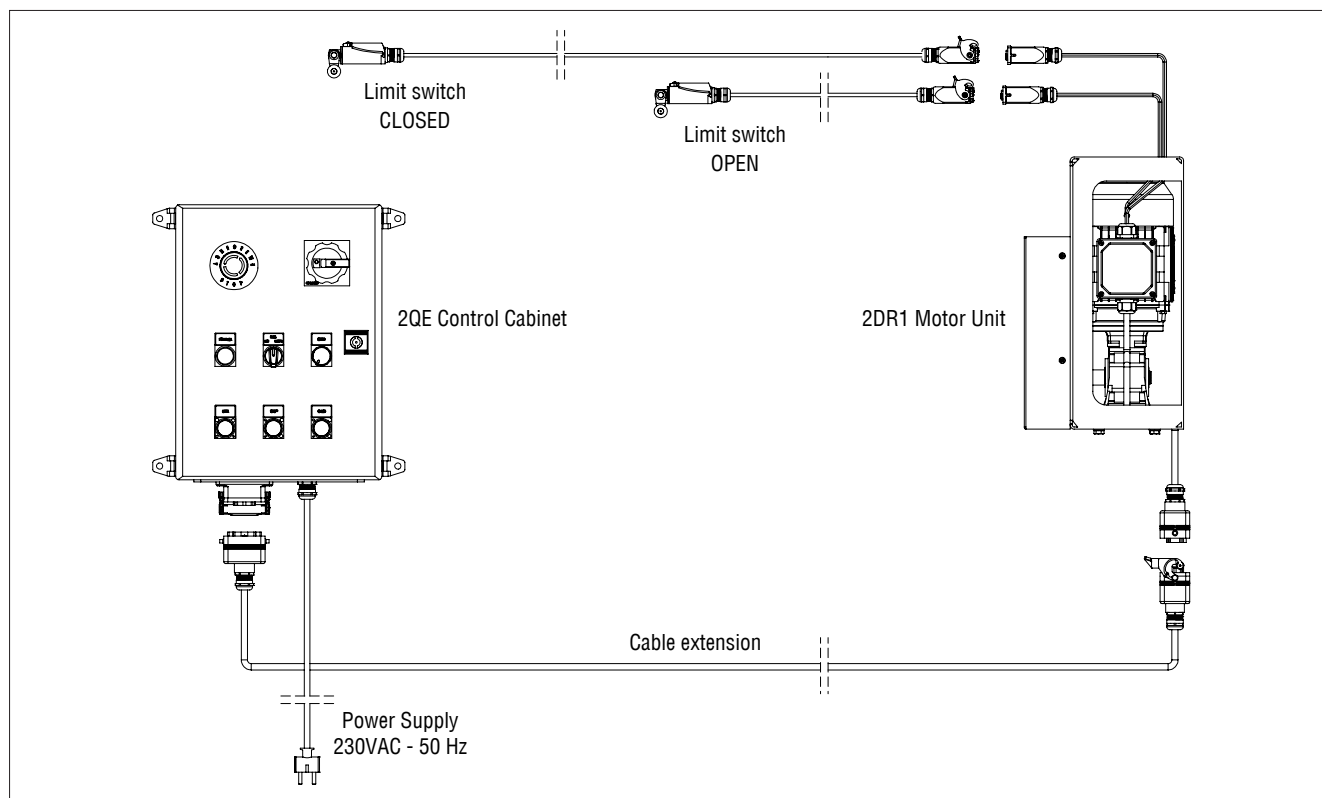
**WARNING:** Before starting the installation, secure the red main switch on the control panel is in the OFF (0) position and lock the emergency stop push-button.

The factory assembled and tested 2DR1 system provides fast installation and startup at customer site. Cables are equipped with connectors making the electrical connection quick and safe.

Follow these simple steps as shown in the connection diagram below.

1. Connect the limit switches to the motor unit
2. Connect the motor unit to the 2QE Control Cabinet via the extension cable
3. Connect the control cabinet to the mains supply (230VAC - 50 Hz). Be sure to install a motor rated circuit breaker on the supply.

Now the system is ready for testing.



### TESTING OF THE SYSTEM

It is necessary to test the system to assure proper working of the limit switches.

1. Ensure that no personnel or objects are in the working area of the curtain track system during the testing procedure. The operator must have a direct view of the movement of the device.
2. Turn the main switch on the control panel to position "I" and unlock the emergency stop push-button.
3. Set a low speed by adjusting the potentiometer on the control panel.
4. Start the system and be ready to operate the Emergency Stop push-button.
5. Closely monitor the master carrier while approaching the limit positions. The motor unit should stop running when it reaches the Open/Closed limit position. In case of failure, disconnect the power supply and invert the connection of the limit switches to the motor unit.
6. Check again the proper working of the limit switches.



In order to avoid any motor damage, the system shall always be able to stop smoothly and without violent impacts against other components. You may need to adjust the final position of the limit switched accordingly.

## 9 · MAINTENANCE

In general a 2DR1 system requires no special care, however some components may be subjected to wear over the time and periodical checks are recommended to avoid unexpected events.

A regular use is the best way to diagnosing and locating any faults or malfunctions, so we advise to operate the system at least once a month and always pay attention for unusual noise or vibrations.



**WARNING:** Before starting any maintenance intervention, disconnect power to the machine and secure all switches in the OFF position.

Periodic Inspections		Frequency	
		Quarterly	Half Yearly
Hanging plate	Check for deformation, corrosion and tightening of threaded connections		•
Motor/Gearbox	Oil leaks		•
	Check all bolt coupling for wear, deformation and corrosion		•
	Make sure that ventilation is not obstructed to avoid overheating and possible breakage	•	
	Keep the motor clean from dust, oil, water		•
Electric cables	Check that the electric cables show no signs of deterioration and that all the connectors are firmly tightened	•	
Rope	Tension of the operating line	•	
	Wear, cut strands, excessive torsion		•
Pulleys	Wear, deformation		•
	Verify that the sheaves turn smoothly and silently		•
Front cover	Check the presence of the protective cover and the tightening of the four fixing screws		•



**ALERT!** The life span of the product depends on the frequency of use and on the ambient conditions. Frequent use, high temperature and humidity may require shorter intervals.









## 10 · TROUBLESHOOTING

Problem	Possible Cause	Corrective Action
Unusual noise/vibration	Release of threaded connections; Wear of the bearings	Check and tighten the threaded connections; Check and eventually replace the bearings
Failure to start	Improper power supply; Improper connection of the elements; Electrical fault of the control cabinet; Damaged electric cables; Excessive load	Check that mains assembly and service conditions comply with the information on the plate and described in the technical documentation. Repeat the assembly procedure, verify the position of the limit switches and check cables and connectors. Verify the weight of the curtain.
Failure to stop	Improper connection of the limit switches; Improper position of the limit switches; Electrical fault of the control cabinet	Repeat the assembly procedure, verify the position of the limit switches and check all the connectors are firmly tightened
Rope slippage or stall during operation	Excessive load; Loose rope	Adjust the tension of the rope; Reduce the load if possible
Rope slackening	Natural elongation of the cord fibres; Improper assembly of the rope	Follow the rope installation procedure again, adjust the tension and clamp the rope firmly
Irregular rope gliding/blocking	Improper assembly; Wear of the rope; Presence of knots; Excessive torsion	Check the rope for wear or knots, replace if necessary and repeat the assembly procedure

## 11 · RESIDUAL RISKS

Residual risks are special hazards involved in handling of the product which cannot be eliminated despite the safety-compliant design of the device. Residual risks are not obviously identifiable and can be a potential source of injury or health hazard.

	Risk	Possible Cause	Corrective Action
	Contact with oil	Oil leaks out of the gearbox	On contact with the eyes, rinse immediately with plenty of water and consult a doctor
	Contusions, catching and knocks through unprotected rotating parts	Failure to follow operating instructions during maintenance and/or unexpected start-up	Before removing the protective cover, the motor and any auxiliary circuits must be disconnected from the mains.
	Falling of elements of the system	Screw loosening caused by vibrations or by insufficient tightening	Check the tightening of screws and bolts, observe maintenance procedure
	Direct contact with electricity	Intervention at the terminal box while electric current supply is still present	Before any intervention, the motor and any auxiliary circuits must be disconnected from the mains
	Unexpected start-up	Electric current supply is still present	Disconnect power to the machine and secure all switched in the OFF position.
	Risk of burns	Depending on operating conditions, the outer surfaces of the motor/gearbox may exceed 50 °C	Wait the motor unit to cool before performing a maintenance inspection and always use protective gloves.

## 12 · FINAL DECOMMISSIONING

2DR1 Motor Unit consists of mixed elements made of ferrous, non-ferrous, plastic materials and electric/electronic devices. Peroni S.p.A. recommends and encourages the end of life motor dismantling and the differentiation and recycling of the components.

The differentiated disposal of the motor components shall be performed with respect to the local regulations for the environment protection.

Separate and recycle the disassembled components:

- Scrap metal materials
- Recycle plastic elements
- Sort and dispose of other component materials according to the applicable local regulations
- Electric scrap, electronic components, lubricants and other utility materials must be treated as special waste and may only be disposed of by specialized companies



In any case, comply with any applicable national disposal regulations as regards environmentally compatible disposal of the product. For more details, contact the competent local authorities.





For more technical support,  
please contact our corporate office.

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