ROGER TECHNOLOGY

ROGER BRUSHLESS

ECO 100% Low Tension 24V-36V

"SMARTY" SERIES

A new revolution in reversible digital technology

Primo Florian: Founding partner - Engineering and design,
Dino Florian: Founding President - Development and design,
Renato Florian: Founding partner - Assembly and quality

PEOPLE AND IDEAS

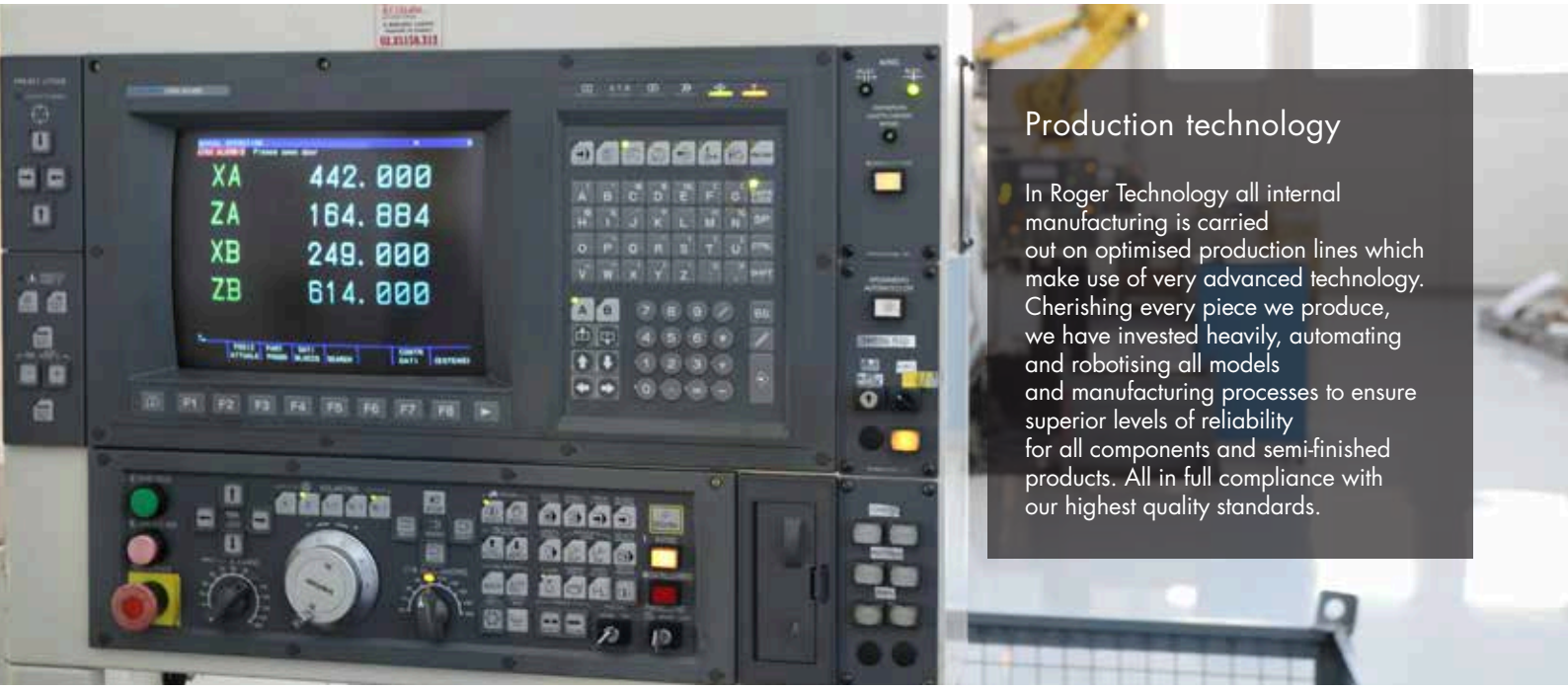
The life of Roger Technology has always been based on the value of incredibly innovative people full of passion. People who never give up, people who choose big challenges to avoid monotony. People who believe that any bright idea leads to a great change towards a great future.

PRODUCT EXPERIENCE

In our language we translate the word “experience” as passion. For us, passion is everything, it is that great value that every day drives us towards continuous and robust criticism in the development of products and solutions that are closely tied to the real needs of our customers, who want a product designed around the way they work.

Excellent raw materials

Steel, ductile cast iron, aluminium, bronze, copper and titanium have always been the exclusive raw materials mainly used in the advanced engineering processes of our company.



Production technology

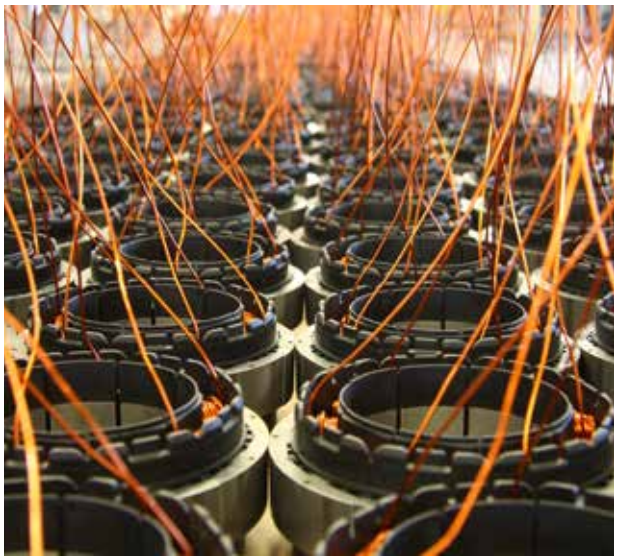
In Roger Technology all internal manufacturing is carried out on optimised production lines which make use of very advanced technology. Cherishing every piece we produce, we have invested heavily, automating and robotising all models and manufacturing processes to ensure superior levels of reliability for all components and semi-finished products. All in full compliance with our highest quality standards.

Internal assembly

The main added value in the internal fitting and assembly phases is the dedicated, highly qualified and all-Italian personnel, who check and oversee all assembly stages with the greatest care.

Motor production

We are the creators of the heart of the product!
All the digital Brushless motors are designed, manufactured and wound with great determination and passion within our production process, using dedicated automatic machines.



A digital brushless motor with permanent magnetic field, with digital electronics for complete and safe automation system control, and for super-intensive use with extremely low power consumption:

THIS IS BRUSHLESS

Digital Brushless Motor

Revolutionary, innovative three-phase sinusoidal power digital permanent magnet Brushless motor with native encoder permitting super-intensive usage of the automation system with extremely low power consumption, and ensuring 100% compliance with all control and safety requisites of the automation system.

New Generation of Electronics

The new control unit with digital Brushless controller.
Without traditional relays and thanks to its revolutionary mosfet quadrant system and its control technology entirely based on a DSP microcontroller, it represents a new generation of electronic cards created to safely handle all movement phases of the automation system.

Engineering Passion

All mechanical components and gears are manufactured in steel, cast iron and bronze. Automation system casings are made from titanium-reinforced die-cast aluminium. All the gears are inspected and assembled on high-quality bearings and inserted on precise seats machined to provide absolute precision between the axes.

3-PHASE DIGITAL BRUSHLESS MOTOR

Very powerful motor, with a lot of torque, but at the time very small and compact thanks to its special concentrated coil windings, and powered by a three-phase sinusoidal system.

DIGITAL AND VECTORIAL AUTOMATION CONTROLLER

The BRUSHLESS digital controller, which operates at low voltage 24V/36V DC, allows 100% control of the automation system in digital mode. Thanks to its operation entirely based on a DSP microcontroller the travel and all the movements of your automation system can therefore be programmed and customised easily, precisely and elegantly.

SPEED, ACCELERATION AND DECELERATION WITH EXTREME ELEGANCE

The automation system with BRUSHLESS digital technology creates perfect and elegant movements, with a constant force and torque at every point with maximum safety and always with the possibility of varying its speed by managing perfect deceleration and acceleration.

EXTREMELY LOW ENERGY CONSUMPTION

A motor that can operate at low voltage in super-intensive use and which can operate in environments with extremely demanding weather conditions while maintaining very low energy consumption and absorption levels.

NO PROBLEM IN THE EVENT OF POWER FAILURE

With the help of internal or external batteries and the associated battery charging card, your automation system continues to operate for a considerable time even during prolonged power cuts, ensuring many more operations than traditional technologies.

MOTOR AT AMBIENT TEMPERATURE

The BRUSHLESS motor was brought into being with the main goal of being a motor for super-intensive use with an efficiency of 99%. Regardless of how many operations the engine performs in a day, it always remains cold or at most reaches the outside ambient temperature.

COMPLETELY BRUSHLESS

The revolutionary digital motor which is 12 ways different

THE DIGITAL SILENCE OF THE MOTOR

Of great impact is the silence or the near absence of noise, generated by the BRUSHLESS motor during all its movements.

MOTOR FOR SUPER-INTENSIVE USE

We wanted to surprise you with a fundamental fact: The super intensive use of the automation system with the motor which remains permanently cold even after many days of use.

IMPACT, OBSTACLE DETECTION AND REVERSAL IN TOTAL SAFETY

Thanks to digital technology we are able to detect an obstacle and reverse the motor instantly, by simply specifying the torque of the motor, the sensitivity, the time and the travel of the reversal. And in complete compliance with all safety requisites.

ONBOARD NATIVE DIGITAL ENCODER

The BRUSHLESS motor has a highly advanced native digital encoder that controls management of automation systems in a safe, precise and extremely elegant manner.

SIMPLE INSTALLATION WITH A SINGLE 3-WIRE CABLE

And the BRUSHLESS motor can be installed by simply connecting it using a single 3-wire cable! What could be easier?
This will provide fully digital management of your automation system thanks to sensorless or sensored technology depending on the type of automation system.

ADVANCED PRECISION ENGINEERING TO OBTAIN OPTIMAL MOTOR PERFORMANCE

We have created a mechanism that gives you the opportunity to get the maximum performance out of the motor. A product which combines the quality of the internal production processes, the mechanical processing and the use of high quality ferrous and non-ferrous materials.

A technology that offers maximum performance while consuming less than other motors

WHY BRUSHLESS...?

Digital, smart,
powerful, elegant, robust
and all-Italian.

1 Sturdy, durable fork and ball screw

The fork and ball screw rotating on the worm screw are manufactured from superior quality materials. In particular, the bronze nut screw features a completely threaded inner surface and is press-fit onto the steel fork to ensure a precise mechanical connection.

2 High precision engineering

Dual bevel gear reduction gear unit manufactured entirely from superior quality hardened steel, cast iron and bronze. All gears are assembled with superior quality double shielded (2ZZ) ball bearings to ensure absolute precision between axes.

3 Reinforced lock release lever

The release lever is operated with a practical and sturdy customisable barrel lock and key. The operating principle is based on a extremely robust steel pin which actuates the release mechanism of the main gear, making it possible to unlock the automation system in all conditions, even when subjected to significant mechanical load by the gate leaf.

4 External lock release system

The external lock release system is quick and very easy to use, with a steel cable making it possible mechanically release the reduction gear unit directly from the exterior of the unit itself. The extremely sturdy lock release system is operated by a lever connected to a universal joint linkage.

5 Sturdy fastener brackets

The new SMARTY Brushless digital motor is equipped with weld-on brackets designed and sized specifically for installation on particularly large and heavy condominium or industrial gates. The brackets are manufactured in galvanised carbon steel. The rear bracket is available as long or short versions.

6 Brushless digital motor

Digital brushless motor based on a permanent magnetic field which uses neodymium iron-boron magnets inside the rotor. With innovative high density coil windings powered by a sinusoid three-phase power system, SMARTY series motors operate at low voltage (36V DC). The motor is extremely compact and operates at normal ambient temperature, making it suitable for extremely intense use and extraordinarily energy efficient.

7 Adjustable aluminium travel limits

The SMARTY swing gate motor is factory-fitted with two titanium-reinforced aluminium travel limits in the gate open and gate closed positions. These travel limits are adjustable feature a completely threaded inner surface to form a solid mechanical connection with the worm gear during contact with the fork in both directions of movement of the motor. The travel limits can be adjusted easily adjustable, even with the motor already installed, by simply removing the aluminium cover.

8 Removable protection brushes

The extruded aluminium casing includes two specific guides for brushes preventing accidental contact and protecting and cleaning the worm gear and the relative fork. The brushes are removable and can even be replaced with the motor installed.

9 Elegant reinforced aluminium casing

The casing enclosing the gear motor and the relative worm screw is made entirely from aluminium, while all parts of the casing subject to mechanical wear and friction are generously reinforced. The worm screw cover casing, made completely from anodised aluminium, is fastened to the motor casing with through screws passing through the entire width of the casing itself.

10 DSP technology micro-controller

The BRUSHLESS motor is controlled via a single 3-core cable between the motor itself and the 36 V DC digital controller. The new digital control unit is based on a 70 Mips micro-controller which calculates and estimates the position of the magnetic field completely digitally to permit SENSORLESS control of your automation system, or uses EMA technology to ensure absolute gate leaf position precision.

11 4 quadrant Mosfet digital inverter

Equipped with an extremely potent and revolutionary 12 Mosfet, 4 quadrant sinusoidal control digital inverter, the digital controller of the digital three-phase sinusoidal motor with field oriented control uses vector frequency modulation to control the two motors and, as a result, the two gate leaves independently.

12 Mechanical absolute positioner

The EMA (mechanical absolute encoder) is a digital mechanical encoder which measures and determines the positions of the gate leaves with absolute precision, during both opening and closing operation. This system communicates the absolute mechanical position of the gate leaves to the digital controller directly via a three-phase connection to the motor, making it unnecessary to repeat the self-acquisition procedures after prolonged power outages or manual release.

TECHNICAL specifications

	SMARTY 5	SMARTY 5R5	SMARTY 7	SMARTY 7R	SMARTY 4 HS
Description of part	Low voltage BRUSHLESS electromechanical gear motor for extremely heavy duty. Irreversible. For swing gates with gate leaf up to 5 m	Low voltage BRUSHLESS electromechanical gear motor for extremely heavy duty. Reversible. For swing gates with gate leaf up to 5 m	Low voltage BRUSHLESS electromechanical gear motor for extremely heavy duty. Irreversible. For swing gates with gate leaf up to 7 m	Low voltage BRUSHLESS electromechanical gear motor for extremely heavy duty. Reversible. For swing gates with gate leaf up to 7 m	Low voltage BRUSHLESS electromechanical gear motor for extremely heavy duty. Irreversible, high speed For swing gates with gate leaf up to 4 m
Reduction gear type	Irreversible	Reversible	Irreversible	Reversible	Irreversible
Maximum gate leaf length	Up to 5 metres per single leaf	Up to 5 metres per single leaf	Up to 7 metres per single leaf	Up to 7 metres per single leaf	Up to 4 metres per single leaf
Line power supply	230V AC 115V AC 50/60Hz +-10%	230V AC 115V AC 50/60Hz +-10%	230V AC 115V AC 50/60Hz +-10%	230V AC 115V AC 50/60Hz +-10%	230V AC 115V AC 50/60Hz +-10%
Brushless motor power supply	36V	36V	36V	36V	36V
Rated power	200W	200W	200W	200W	200W
Frequency of use	Super Intensive	Super Intensive	Super Intensive	Super Intensive	Super Intensive
Operating temperature	-20 +55°C	-20 +55°C	-20 +55°C	-20 +55°C	-20 +55°C
Degree of protection	IP44	IP44	IP44	IP44	IP44
Maximum stroke	370 mm total	370 mm total	520 mm total	520 mm total	370 mm total
Time to open to 90°	25 - 40 s	20 - 40 s	35 - 50 s	35 - 50 s	15 - 25 s
Speed of operation	1.6 - 1 cm/s	1,8 - 1,2 cm/s	1.6 - 1 cm/s	1.6 - 1 cm/s	2 – 1 cm/s
Thrust	600 - 7000 N	600 - 6500 N	600 - 7000 N	600 - 6500 N	600 - 4500 N
Encoder	Digital native encoder	Digital native encoder + EMA	Digital native encoder	Digital native encoder + EMA	Digital native encoder
Limit switch type	2 adjustable open and closed position mechanical travel limits	2 adjustable open and closed position mechanical travel limits	2 adjustable open and closed position mechanical travel limits	2 adjustable open and closed position mechanical travel limits	2 adjustable open and closed position mechanical travel limits
Control unit	EDGE1/BOX	EDGE1/BOX (since version P3.20)	EDGE1/BOX	EDGE1/BOX	EDGE1/BOX (since version P3.05)
Daily operation cycles (open / close - 24 hours non-stop)	1.000	1.000	1.000	1.000	1.000
Packaged product weight	16,5	16,7	17,2	17,4	16,5
Release	Lever with key operated cylinder lock	Lever with key operated cylinder lock	Lever with key operated cylinder lock	Lever with key operated cylinder lock	Lever with key operated cylinder lock
Number of packages per pallet (single motor)	36	36	36	36	36

FUNCTIONS

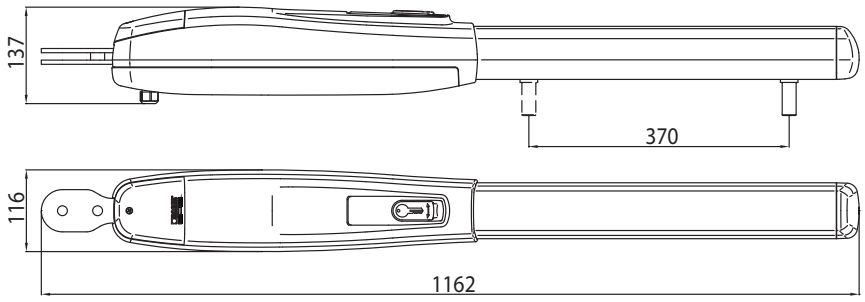
of automated swing gate motor

DESCRIPTION	SMARTY 5 - SMARTY 5R5	SMARTY 7 - SMARTY 7R	SMARTY 4 HS
Maximum length of single gate leaf	up to 5 metres	up to 7 metres	up to 4 metres
Digital controller	EDGE1/BOX 36V DC (SMARTY 5R5 since version P3.20)	EDGE1/BOX 36V DC	EDGE1/BOX 36V DC (since version P3.05)
Radio receiver type	H93/RX22A/I with fixed code connection H93/RX2RC/I with rolling code connection	H93/RX22A/I with fixed code connection H93/RX2RC/I with rolling code connection	H93/RX22A/I with fixed code connection H93/RX2RC/I with rolling code connection
Motor power	36 V DC, with self-protected inverter	36 V DC, with self-protected inverter	36 V DC, with self-protected inverter
Motor power control technology (ETPC)	Field oriented control (FOC) with SENSORLESS technology	Field oriented control (FOC) with SENSORLESS technology	Field oriented control (FOC) with SENSORLESS technology
Encoder type	Digital, with 16 bit maximum resolution	Digital, with 16 bit maximum resolution	Digital, with 16 bit maximum resolution
EMA system	SMARTY 5 - optional / SMARTY 5R5 Standard	SMARTY 7 - optional / SMARTY 7R Standard	Optional
Mains power supply	230V 50/60 Hz	230V 50/60 Hz	230V 50/60 Hz
Battery operation	(optional) 2 external batteries 12V DC, 4.5 Amp/h	(optional) 2 external batteries 12V DC, 4.5 Amp/h	(optional) 2 external batteries 12V DC, 4.5 Amp/h
Energy consumption	Very low consumption	Very low consumption	Very low consumption
Number of motors	1 - 2 motors	1 - 2 motors	1 - 2 motors
Power supply for accessories	24V DC	24V DC	24V DC
Flashing light type	24V DC LED	24V DC LED	24V DC LED
Output for gate opening indicator and automation system on warning light	√	√	√
Output for courtesy light	40W	40W	40W
Timed and guaranteed automatic closing	√	√	√
Gate edge safety management, 8.2KΩ or standard	√	√	√
Photocell test and safety device management	√	√	√
Limit switch type	Adjustable open and closed position mechanical travel limits	Adjustable open and closed position mechanical travel limits	Adjustable open and closed position mechanical travel limits
Separate management for motor 1 - 2	√	√	√
Force adjustment in nominal movement	√	√	√
Force adjustment in start-up and deceleration	√	√	√
Obstacle detection - Motor reversal	√	√	√
Separate impact force setting for 2	√	√	√
Opening and closing speed setting	√	√	√
Deceleration during opening and closing	√	√	√
Starting acceleration (soft-start) for opening and closing manoeuvres	√	√	√
Safeguarded closure/opening function	√	√	√
Motor stopping distance and braking distance	√	√	√
Partial opening control	Pedestrian entry	Pedestrian entry	Pedestrian entry
Human presence control	√	√	√
Mechanical lock and mechanical electro-lock management	√	√	√
Condominium function	√	√	√
Safety device configuration	√	√	√
Installation test function	(prog button)	(prog button)	(prog button)
Operating temperature	-20°C / +55°C	-20°C / +55°C	-20°C / +55°C
Inverter thermal protection	√	√	√
Current absorption mapping system	(MCA)	(MCA)	(MCA)
Restore factory default values	√	√	√
Information on use of motor	√	√	√
Installer security password management	√	√	√
Maintenance alarm management	√	√	√

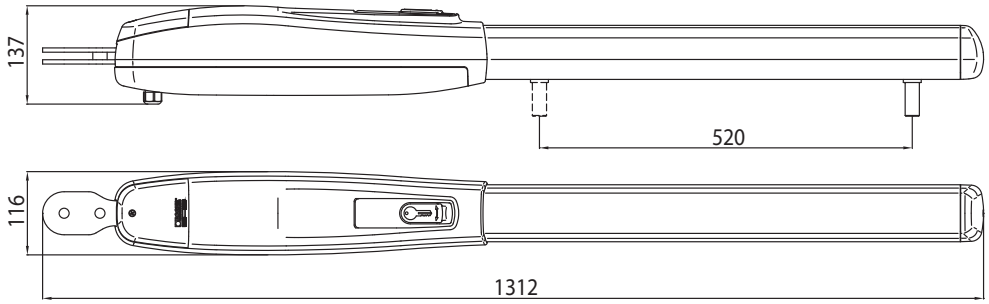
Dimensions

All measurements in mm

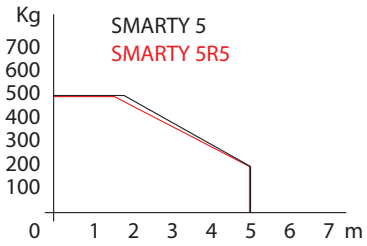
SMARTY 5/5R5/4HS

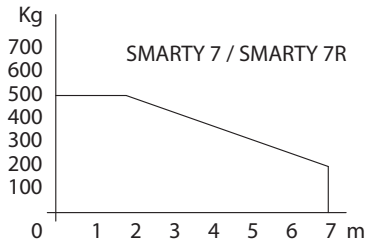


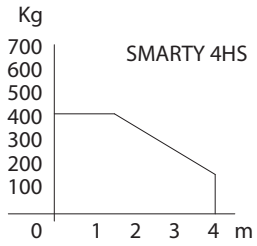
SMARTY 7/7R



operating limits



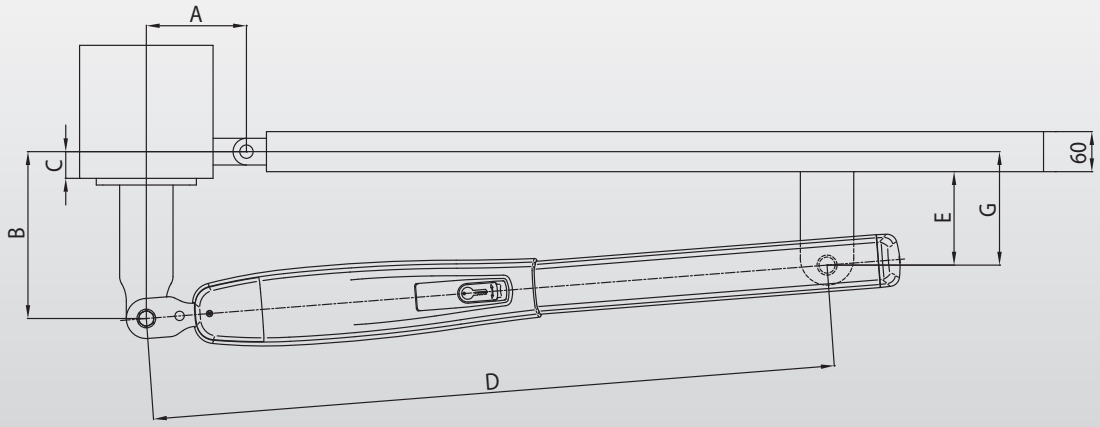




SMARTY 5 / 5R5 / 4HS (MAX RUN = 370 MM)						
A	B	C (max)	D (max)	E	G	α°
150	150	120	1030	100	130	97°
150	170	120	1030	100	130	96°
150	190	120	1030	100	130	95°
150	200	120	1030	100	130	95°
150	220	120	1030	100	130	90°
170	150	120	1030	100	130	103°
170	170	120	1030	100	130	102°
170	200	120	1030	100	130	90°
185	185	120	1030	100	130	90°
200	160	120	1030	100	130	92°

SMARTY 7 / SMARTY 7R (MAX RUN = 520 MM)						
A	B	C (max)	D (max)	E	G	α°
200	200	200	1180	140	170	98°
200	230	200	1180	140	170	97°
200	260	200	1180	140	170	96°
200	280	200	1180	140	170	95°
200	300	200	1180	140	170	93°
220	220	200	1180	140	170	102°
220	250	200	1180	140	170	100°
220	280	200	1180	140	170	93°
250	200	200	1180	140	170	106°
250	250	200	1180	140	170	94°

preparations for standard installation



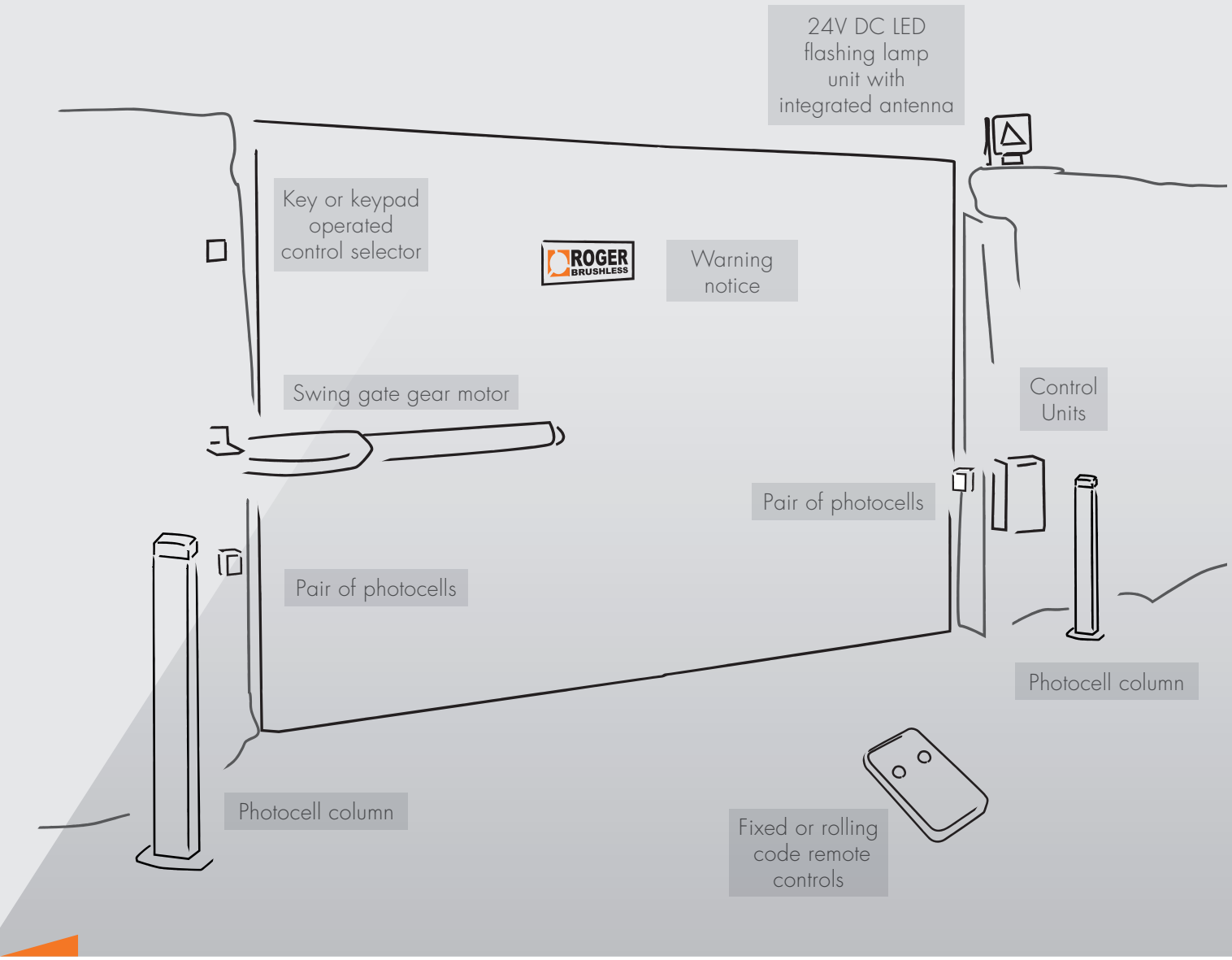
ACCESSORIES

SMARTY, everything you need for a complete and professional installation

OPTIONAL ACCESSORIES

	KT237	Kit with three short brackets for SMARTY 5 series
	KT238	Kit with three long brackets for SMARTY 7 series
	KT234	Short front bracket
	KT235	Long front bracket
	KT236	Rear bracket
	MC782	Mechanical stop kit for SMARTY series

	RL669	Kit for manual external release using existing handle for SMARTY series
	RL670	DIN Euro profile cylinder lock for release system for SMARTY series
	RL671	3 m long cable for external release system
	SMARTY EMA	Mechanical absolute encoder - Optional accessory for SMARTY 5 and SMARTY 7 versions
	R99/C/001	"Automatic Opening" warning notice



STANDARD INSTALLATION

a practical example for your successful installation

THE PRECISE EMA

ABSOLUTE ENCODER NEVER LOSES TRACK OF THE POSITION OF YOUR GATE FOR TOTAL SAFETY, ALWAYS!

MEASURES
WITH MILLIMETRE PRECISION

CALCULATES
THE ABSOLUTE POSITION

COMMUNICATES
THE EXACT POSITION OF YOU GATE CONTINUOUSLY

ROGER TECHNOLOGY

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