

RCL

Radio remote control



Radio remote controls with handheld transmitter, extremely compact and lightweight, suitable to satisfy the requirements of operators across a broad range of industries.

FEATURES

- Radio remote controls featuring an extremely compact and handy design, with an high degree of personalization.
- Easy and user-friendly coding featuring over 16 million codes for safety.
- Transmitters with green button to turn receiver on, red button to turn it off and fast flashing LEDs for low battery warning.
- Pushbuttons with tactile dome or rubber membrane with carbon contact.
- IP protection degree: RCL remote controls are classified IP 55 and IP 65 / IP 67.
- Extreme temperature resistance: from -20°C to +55°C.

OPTIONS

- Available in configurations from 2 to 20 buttons featuring up to **40 programmable functions (version with Shift option)**, ON and OFF button.
- Versions with 2,4 or 6 functions, featuring stainless steel faceplate with vandal proof security buttons, available on request to work in the harshest of environments.
- Hard wired remote controls (from 2 to 20 functions), with a curly cable attached, stretching out from 0.45 m to 4,5 (0,45 - 4,5 m) to connect directly to the receiver, available on request.
- Optional external antennas to be simply added to the SMA fitting to maintains full operating range of 60 / 300 metres in adverse conditions.
- Wide range of high quality solenoids to carry loads that are well in excess of the 15 amp relays.

- **Air Actuator System** designed for sectors which use hydraulic valves with levers for controlling the operative functions (see page 14 for more details).
- Two styles of housing the transmitter when it's not in use: a basic version and one featuring a buzzer and light, used to warn that the transmitter is missing from its holder.
- Possibility to private label the transmitter with a personalized brand (only for large volumes) and to configure the right legends of the buttons.
- Magnets to enable the user to place the transmitter on metal surface and clear plastic IP67 or fabric / clear face covers with lanyard included available on request.
- Receivers featuring **Master Output** available, to give an extra independent control from the trasmitter (see page 14 for more details) and customizable by software for a wide variety of applications (see table on page 14).
- Possibility to control multiple receivers from the same transmitter by software programme and to add switches to the side of teh receiver to cut off power and control the system.
- Customized harness wiring from own wiring diagram and protective potting / ruggedisation of the receiver PCB.

CERTIFICATIONS

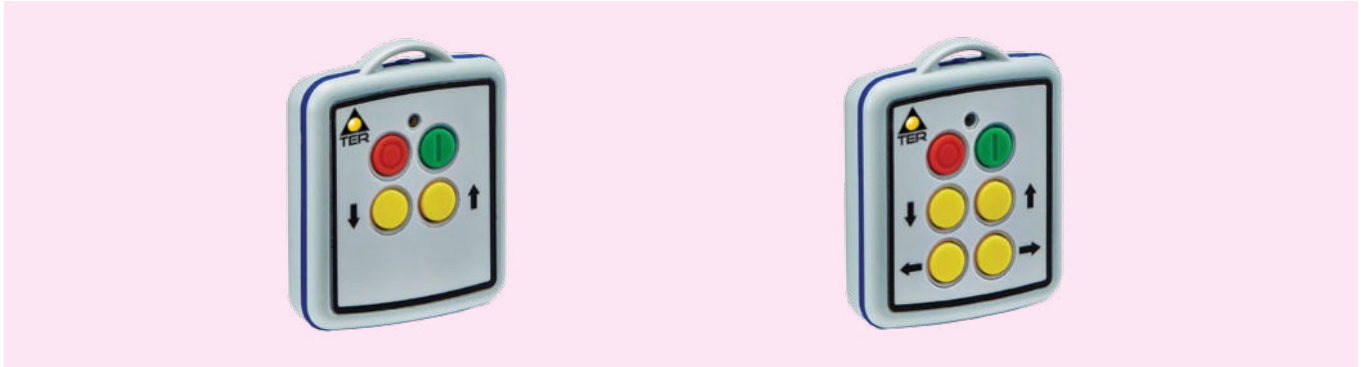
- CE Marking.
- FCC Certification.

RCL M

Radio remote control suitable for light industrial applications.

Available in configurations from 2 to 4 buttons (2 - 4 functions), RCL M is a compact and ergonomic radio remote control, which fits nicely in the palm of the hand's user.

Facia customization available.



RCL S

Sturdy, reliable and ergonomic radio remote control, designed for a wide range of industrial applications.

Available in configurations from 2 to 6 buttons (1 - 2 - 4 - 6 functions), RCL S fits firmly in the hand's user thanks to its PVC enclosure.

Customization available for the tactile dome function buttons protected by a wipe clean overlay.



RCL I

Versatile and sturdy radio remote control, designed for a variety of uses, from automation to towing.

RCL I is available in configurations from 2 to 20 buttons (2 / 4 / 6 / 8 - 10 / 12 - 16 / 18 - 20 / 22+ functions with SHIFT option).

Available in configurations featuring 2, 4 or 6 functions with stainless steel faceplate, featuring vandal proof security buttons, designed to work in the harshest conditions.

Customization available for the tactile dome function buttons protected by a wipe clean overlay.



CERTIFICATIONS

Conformity to Community Directives	2014/53/EU Radio Equipment Directive (RED)
	2011/65/EU Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment - RoHS II
	2004/104/EEC Directive adapting to technical progress Council Directive 72/245/EEC relating to the radio interference (electromagnetic compatibility) of vehicles and amending Directive 70/156/EEC on the approximation of the laws of the Member States relating to the type-approval of motor vehicles and their trailers
Conformity to CE Standards	EN 60204-1 Safety of machinery - Electrical equipment of machines
	EN ISO 13849-1 Safety of machinery - Safety-related parts of control systems - General principles for design
	ETSI EN 300 220-2 Short Range Devices (SRD) operating in the frequency range 25 MHz to 1000 MHz; Harmonised Standard for access to radio spectrum for non specific radio equipment
	EN 301 489-1 ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Common technical requirements - Harmonised Standard for ElectroMagnetic Compatibility
	EN 301 489-3 ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz.
Conformity to FCC Standards	EN 301 489-17 ElectroMagnetic Compatibility (EMC) standard for radio equipment and services - Part 17: Specific conditions for Broadband Data Transmission Systems - Harmonised Standard for ElectroMagnetic Compatibility
	FCC CFR 47 Part 15.109
Conformity to IC Standards	ICES-003 Issue 6 - 433.050MHz to 434.790MHz
Markings and homologations	ICES-003 Issue 6 - 902.025MHz to 927.975MHz
	CE FC

TECHNICAL SPECIFICATIONS OF THE TRANSMITTER UNIT

Type	RCL M	RCL S	RCL I
Operational ambient temperature	-25°C/+55°C	-25°C/+55°C	-25°C/+55°C
IP protection degree	IP 65 / IP 67	IP 55	IP 65 / IP 67
Pushbuttons configuration	1 power on pushbutton + 1 power off pushbutton + 2 or 4 functions pushbuttons	1 power on pushbutton + 1 power off pushbutton	1 power on pushbutton + 1 power off pushbutton + 2 / 4 / 6 / 8 - 10 / 12 - 16 / 18 - 20 functions pushbuttons
	-	1 power on pushbutton + 1 power off pushbutton + 2 / 4 / 6 functions pushbuttons	Shift option: up to 40 functions
	-	-	Stainless option: 1 power on pushbutton + 1 power off pushbutton + 2 / 4 / 6 functions pushbuttons
Type of pushbuttons	Rubber membrane with carbon contact		Tactile dome
Quiescent current draw		4 µA	15 µA
Operating current draw		20 mA	24 mA
Protection against reverse polarity		Yes	
Registration codes		> 16 million	
Range	45 m (from the receiver, when driving a momentary output, without signal drop out) 150 m optional	60 m (from the receiver, when driving a momentary output, without signal drop out) 300 m optional	
Transmitted Power		1 mW	
Power supply	2 x 1.5 V battery (AAA)	1 x 9 V battery (PP9)	4 x 1.5 V battery (AAA)

TRANSMITTER UNITS OVERALL DIMENSIONS

RCL M



2 functions
63.4 x 72.4 x 25.5 mm



4 functions
63.4 x 72.4 x 25.5 mm

RCL S



1 function
61 x 104.5 x 9 mm



2 functions
61 x 104.5 x 9 mm



4 functions
61 x 104.5 x 9 mm



6 functions
61 x 104.5 x 9 mm

RCL I



2 - 4 functions
82 x 150 x 35.6 mm



6 functions
82 x 150 x 35.6 mm



8 - 10 functions
82 x 185 x 35.6 mm



12 - 16 functions
82 x 245 x 35.6 mm



18 - 20 functions
82 x 285 x 35.6 mm

POSSIBLE TRANSMITTER - RECEIVER COMBINATIONS

Transmitters	Receivers			
	Mini RX	Standard 15-amp FET's	Deep 15-amp FET's	Keypad
RCL M	X	X	X	X
RCL S	X	X	X	X
RCL I			X	X

TECHNICAL SPECIFICATIONS OF THE RECEIVER UNITS

Type	Mini RX	Standard 15-amp FET's	Deep 15-amp FET's	Keypad
Operational ambient temperature	-40°C/+80°C	-40°C/+70°C		
IP protection degree	IP 65 / IP 66			
Functions	2	2 / 4 / 6	10 / 16 / 20	2 / 4 / 6
Frequency	433.050 ÷ 434.790 MHz			
Modulation	2-GFSK. Gaussian Frequency Shift Keying			
Sensitivity	-113.7dBm ÷ -81.3dBm			
Antenna impedance	50 Ohm			
Power supply	12/24V DC (Nominal)			
Power consumption	0.372 W at 12 V and 0.408 W at 24 V			
Antenna	Internal – ¼ wave wire -- SMA Connector fitted for extension			
Standby current consumption	31mA 12 V / 17 mA 24 V			
Relays	7.5A rated Mosfet (Positive Switching)	10A rated Mosfet (Positive Switching)		
Housing material	Clear PVC (Lid) – Black ABS (Base)	Clear PC/FR V0 and UV stabilised (Lid) – Black PC V0 and UV stabilised (Base)		

RECEIVER UNITS OVERALL DIMENSIONS



Mini RX
119.4 x 89 x 40.6 mm



Standard 15-amp FET's
149.9 x 119.4 x 50.8 mm



Keypad
149.9 x 119.4 x 50.8 mm



Deep 15-amp FET's
149.9 x 119.4 x 70 mm

PERSONALIZATION AVAILABLE OF THE RECEIVERS

All the receivers are set up in the factory with momentary functions, horizontal interlocks and a 30 minutes automatic timeout. These settings can be modified by software for a wide variety of applications.

Option	Function
Timed limits	Possibility to set the receivers to operate with a variety of timings (i.e by delaying a function to activate after the transmitter function button has been pressed)
Latching	When a function is being operated for an extended period, possibility for the button to stay on until it is pressed again to turn off.
Horizontal interlocking removal	Possibility to remove the horizontal interlocking that prevent from activating an output on function two when function one is operational
Master output removal	Possibility to have the Master operational on certain fonctiones and not on others
Control multiple receiver	Possibility to control multiple receivers from the same transmitter

OPTIONAL OF THE RECEIVER UNITS

Option
Lateral switches to cut off power and control the system
Customized harness wiring from own wiring diagram
Protective potting / reggedisation of the receiver PCB

RECEIVER WITH MASTER OUTPUT

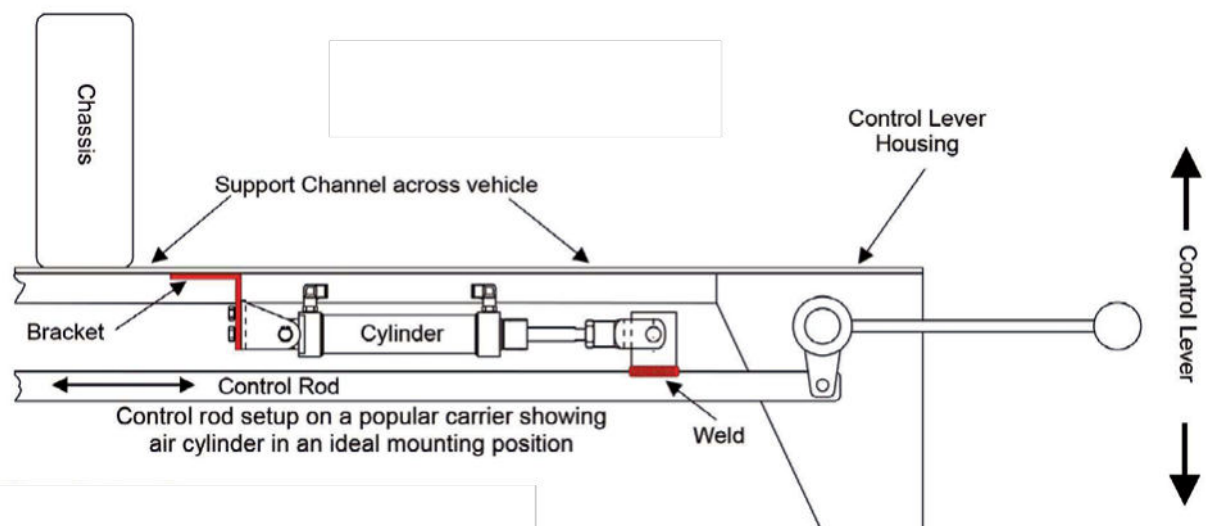
The Master Output gives an extra independent control from the transmitter. Often used for electro hydraulic power packs, clutch pumps, dump valves, it is factory configured in a continuous mode, allowing the receiver to be active all the time after pressing the Start button on the transmitter. It can also be configured as parallel mode, where it turn on/off as the function buttons are operated, or removed from operation on a function by function basis.

ACTUATOR SYSTEM

Radio system control designed for trucks where the only means of controlling the vehicle functions are by hydraulic valves with levers.

The Air Actuator System features electrically operated air valves to control the actuator fitted above the lever control rod, with one end attached to the rod and the other end to the chassis.

The air supply is controlled through the air valves (see fitting drawing) which, in turn, are switched by the radio remote transmitter / receiver system.



STANDARD RECEIVER AND TRANSMITTER SYSTEMS

Code	No. of functions	Range	Receiver type	Transmitter type
TERL11000	2	45 m	Mini RX	RCL M
TERL11002	2	45 m	Mini RX + Master Output	RCL M
TERL11100	2	60 m	Mini RX	RCL S
TERL11102	2	60 m	Mini RX + Master Output	RCL S
TERL92000	2	45 m	Standard 15-amp FET's	RCL M
TERL92002	2	45 m	Standard 15-amp FET's + Master Output	RCL M
TERL92004	4	45 m	Standard 15-amp FET's + Master Output	RCL M
TERL92000K	2	45 m	Keypad	RCL M
TERL92002K	2	45 m	Keypad + Master Output	RCL M
TERL92004K	4	45 m	Keypad + Master Output	RCL M
TERL92101	1	60 m	Standard 15-amp FET's	RCL S
TERL92100	2	60 m	Standard 15-amp FET's	RCL S
TERL92102	2	60 m	Standard 15-amp FET's + Master Output	RCL S
TERL92104	4	60 m	Standard 15-amp FET's + Master Output	RCL S
TERL92106	6	60 m	Standard 15-amp FET's + Master Output	RCL S
TERL92100K	2	60 m	Keypad	RCL S
TERL92102K	2	60 m	Keypad + Master Output	RCL S
TERL92104K	4	60 m	Keypad + Master Output	RCL S
TERL92106K	6	60 m	Keypad + Master Output	RCL S
TERL92202	2	60 m	Standard 15-amp FET's + Master Output	RCL I
TERL92204	4	60 m	Standard 15-amp FET's + Master Output	RCL I
TERL92206	6	60 m	Standard 15-amp FET's + Master Output	RCL I
TERL92210	10	60 m	Deep 15-amp FET's + Master Output	RCL I
TERL92216	16	60 m	Deep 15-amp FET's + Master Output	RCL I
TERL92220	20	60 m	Deep 15-amp FET's + Master Output	RCL I
TERL92202K	2	60 m	Keypad + Master Output	RCL I
TERL92204K	4	60 m	Keypad + Master Output	RCL I
TERL92206K	6	60 m	Keypad + Master Output	RCL I
TERL92326	20 + 6	60 m	Deep 15-amp FET's + Standard 15-amp FET's + Master Output	RCL I with shift option
TERL92330	20 + 10	60 m	2 x Deep 15-amp FET's + Master Output	RCL I with shift option
TERL92336	20 + 16	60 m	2 x Deep 15-amp FET's + Master Output	RCL I with shift option
TERL92340	20 + 20	60 m	2 x Deep 15-amp FET's + Master Output	RCL I with shift option
TERL92S02	2	60 m	Standard 15-amp FET's + Master Output	RCL I with stainless option
TERL92S04	4	60 m	Standard 15-amp FET's + Master Output	RCL I with stainless option
TERL92S06	6	60 m	Standard 15-amp FET's + Master Output	RCL I with stainless option
TERL93000	2	150 m	Standard 15-amp FET's	RCL M
TERL93002	2	150 m	Standard 15-amp FET's + Master Output	RCL M
TERL93004	4	150 m	Standard 15-amp FET's + Master Output	RCL M
TERL93000K	2	150 m	Keypad	RCL M
TERL93002K	2	150 m	Keypad + Master Output	RCL M
TERL93004K	4	150 m	Keypad + Master Output	RCL M
TERL93101	1	300 m	Standard 15-amp FET's	RCL S
TERL93100	2	300 m	Standard 15-amp FET's	RCL S
TERL93102	2	300 m	Standard 15-amp FET's + Master Output	RCL S
TERL93104	4	300 m	Standard 15-amp FET's + Master Output	RCL S
TERL93106	6	300 m	Standard 15-amp FET's + Master Output	RCL S
TERL93100K	2	300 m	Keypad	RCL S
TERL93102K	2	300 m	Keypad + Master Output	RCL S
TERL93104K	4	300 m	Keypad + Master Output	RCL S
TERL93106K	6	300 m	Keypad + Master Output	RCL S

Code	No. of functions	Range	Receiver type	Transmitter type
TERL93202	2	300 m	Standard 15-amp FET's + Master Output	RCL I
TERL93204	4	300 m	Standard 15-amp FET's + Master Output	RCL I
TERL93206	6	300 m	Standard 15-amp FET's + Master Output	RCL I
TERL93210	10	300 m	Deep 15-amp FET's + Master Output	RCL I
TERL93216	16	300 m	Deep 15-amp FET's + Master Output	RCL I
TERL93220	20	300 m	Deep 15-amp FET's + Master Output	RCL I
TERL93202K	2	300 m	Keypad + Master Output	RCL I
TERL93204K	4	300 m	Keypad + Master Output	RCL I
TERL93206K	6	300 m	Keypad + Master Output	RCL I
TERL32326	20 + 6	300 m	Deep 15-amp FET's + Standard 15-amp FET's + Master Output	RCL I with shift option
TERL93330	20 + 10	300 m	2 x Deep 15-amp FET's + Master Output	RCL I with shift option
TERL93336	20 + 16	300 m	2 x Deep 15-amp FET's + Master Output	RCL I with shift option
TERL93340	20 + 20	300 m	2 x Deep 15-amp FET's + Master Output	RCL I with shift options

STANDARD TRASMITTERS

Code	No. of functions	Range	Transmitter type
TERL90002TX	2	45 m	RCL M
TERL90004TX	4	45 m	RCL M
TERL91002TX	2	150 m	RCL M
TERL91004TX	4	150 m	RCL M
TERL92101TX	1	60 m	RCL S
TERL92102TX	2	60 m	RCL S
TERL92104TX	4	60 m	RCL S
TERL92106TX	6	60 m	RCL S
TERL92204TX	4	60 m	RCL I
TERL92206TX	6	60 m	RCL I
TERL92210TX	10	60 m	RCL I
TERL92216TX	16	60 m	RCL I
TERL92220TX	20	60 m	RCL I
TERL92320TX	20	60 m	RCL I 10 pushbutons with shift options
TERL92332TX	32	60 m	RCL I 16 pushbutons with shift options
TERL92340TX	40	60 m	RCL I 20 pushbutons with shift options
TERL92S06TX	6	60 m	RCL I with stainless option
TERL93101TX	1	300 m	RCL S
TERL93102TX	2	300 m	RCL S
TERL93104TX	4	300 m	RCL S
TERL93106TX	6	300 m	RCL S
TERL93204TX	4	300 m	RCL I
TERL93206TX	6	300 m	RCL I
TERL93210TX	10	300 m	RCL I
TERL93216TX	16	300 m	RCL I
TERL93220TX	20	300 m	RCL I
TERL93320TX	20	300 m	RCL I 10 pushbutons with shift options
TERL93332TX	32	300 m	RCL I 16 pushbutons with shift options
TERL93340TX	40	300 m	RCL I 20 pushbutons with shift options
TERL93S06TX	6	300 m	RCL I with stainless option

STANDARD RECEIVERS

Code	No. of functions	Range (Depends on choice of transmitter)	Receiver type
TERL9200RX	2	45 / 60 m	Standard 15-amp FET's
TERL9202RX	2	45 / 60 m	Standard 15-amp FET's + Master Output
TERL9204RX	4	45 / 60 m	Standard 15-amp FET's + Master Output
TERL9206RX	6	45 / 60 m	Standard 15-amp FET's + Master Output
TERL9210RX	10	45 / 60 m	Deep 15-amp FET's + Master Output
TERL9216RX	16	45 / 60 m	Deep 15-amp FET's + Master Output
TERL9220RX	20	45 / 60 m	Deep 15-amp FET's + Master Output
TERL9200RXK	2	45 / 60 m	Keypad
TERL9202RXK	2	45 / 60 m	Keypad + Master Output
TERL9204RXK	4	45 / 60 m	Keypad + Master Output
TERL9206RXK	6	45 / 60 m	Keypad + Master Output
TERL9300RX	2	150 / 300 m	Standard 15-amp FET's
TERL9302RX	2	150 / 300 m	Standard 15-amp FET's + Master Output
TERL9304RX	4	150 / 300 m	Standard 15-amp FET's + Master Output
TERL9306RX	6	150 / 300 m	Standard 15-amp FET's + Master Output
TERL9310RX	10	150 / 300 m	Deep 15-amp FET's + Master Output
TERL9316RX	16	150 / 300 m	Deep 15-amp FET's + Master Output
TERL9320RX	20	150 / 300 m	Deep 15-amp FET's + Master Output

ACCESSORIES

Code	Description
TERL9160	3.1 m - 2 Core Round - 32/0.2 - 1.00 mm ² - SureSeal connector
TERL9161	6.15 m - 2 Core Round - 32/0.2 - 1.00 mm ² - SureSeal connector
TERL9170	3.1 m - 4 Core Round - 32/0.2 - 0.75 mm ² - SureSeal connector
TERL9171	6.15 m - 4 Core Round - 32/0.2 - 0.75 mm ² - SureSeal connector
TERL9180	3.1 m - 7 Core Round - 32/0.2 - 0.75 mm ² - SureSeal connector
TERL9181	6.15 m - 7 Core Round - 32/0.2 - 0.75 mm ² - SureSeal connector
TERL9604	4 Function RCL I - 4.5 m curly cable wired remote control
TERL9606	6 Function RCL I - 4.5 m curly cable wired remote control
TERL9610	10 Function RCL I - 4.5 m curly cable wired remote control
TERL9616	16 Function RCL I - 4.5 m curly cable wired remote control
TERL9620	20 Function RCL I - 4.5 m curly cable wired remote control
TERL9801	Silicone rubber cover & lanyard for RCL S
TERL9802	Clear plastic IP67 Cover & lanyard for RCL S
TERL9804	Fabric cover with clear face & lanyard for RCL S
TERL9805	Fabric cover with clear face & lanyard for RCL I with 2 / 4 / 6 functions
TERL9806	Fabric cover with clear face & lanyard for RCL I with 10 functions
TERL9807	Fabric cover with clear face & lanyard for RCL I with 16 functions
TERL9808	Fabric cover with clear face & lanyard for RCL I with 20 functions
TERL9812	Basic holder for RCL S and RCL I transmitters
TERL9813	Holder buzzer featuring a buzzer and light for RCL S and RCL I transmitters
TERL9815	Magnetic holder for TERL9801
TERL9816	Magnetic holder for RCL I
TERL9820	Solenoid 12 Volt, Motor Isolation (Continuously Rated)
TERL9821	Solenoid 24 Volt, Motor Isolation (Continuously Rated)
TERL9822	Solenoid 12 Volt, DC Motor Forward/Reverse Standard
TERL9823	Solenoid 24 Volt, DC Motor Forward/Reverse Standard
TERL9824	Solenoid 12 Volt, DC Motor Forward/Reverse Heavy Duty
TERL9825	Solenoid 24 Volt, DC Motor Forward/Reverse Heavy Duty

Code	Description
TERL9826	Relay 12 V
TERL9827	Relay 24 V
TERL9828	Relay 12 Changeover on PCB
TERL9829	Relay 24 V Changeover on PCB
TERL9831	DC Power Filter Kit 15 amp
TERL9832	Switch with sealing hood - Receiver ON/OFF
TERL9833	Switch with sealing hood - Receiver ON/Master output
TERL9834	Switch with sealing hood - Manual override TERL9202RX
TERL9845	9 Volt alkaline battery pack of 10
TERL9860	Antenna only
TERL9861	Antenna + 1 m cable
TERL9862	Antenna + 1.61 m cable
TERL9863	Antenna + 3 m cable
TERL9869	Antenna + 9 m cable
TERL9871	Potting for ruggedization receivers 2, 4 & 6 functions
TERL9872	Potting for ruggedization receivers 10, 16 & 20 functions
TERL9881	Software configuration 2, 4 and 6 function receivers
TERL9882	Software configuration 10, 16 and 20 function receivers

STANDARD ACTUATOR SYSTEMS

Code	No. of functions	Range	Transmitter type	Actuator
TERL92154	4	60 m	RCL S	12 V + Master
TERL92156	6	60 m	RCL S	12 V + Master
TERL92158	8	60 m	RCL S	12 V + Master
TERL92160	10	60 m	RCL S	12 V + Master
TERL92166	16	60 m	RCL S	12 V + Master

24 Volt available on request.

ACTUATOR SYSTEMS - ACCESSORIES

Code	Description
TERL9918	Air valve only 12 V
TERL9919	Actuator kit 12 V - no actuator TERL9920
TERL9920	Actuator only - with elbows and brackets