Operational Description for Type R102 Model 251D receiving unit

1   Identification of the unit

Type	**R102**
Model	**251D**
Configuration	**QB7**
Equipment	**remote control receiving unit**
Trasmitting radio module	**E16SRXUS1**
Used frequency band	**902 - 928 MHz**
FCC Identifier	**OQA-R102251D**
Manufacturer	**AUTEC srl Via Pomaroli, 65 I-36030 CALDOGNO (VI)**

where:
TYPE: identifies type of unit (transmitting, receiving or transceiving), type of casing and used electronic modules.
MODEL: differentiates power supply, type of actuators and radio frequency band
CONFIGURATION: refers to the specific set of components and accessories of the unit

2   Difference between the units

There are some Configurations which differ each other for the programming key and/or the extension interface prenset into the unit:

Configuration Q01:
- programming key E16RIQ01
Configuration Q02:
- programming key E16RIQ02
Configuration Q03:
- programming key E16RIQ03
Configuration Q04:
- programming key E16RIQ04
Configuration QB4:
- programming key E16RIQ04 and extension interface (card) E16RIR4A mounted on extension unit
Configuration QC4:
- programming key E16RIQ04 and extension interface (card) E16RIR2A mounted on extension unit
Configuration Q05:
- programming key E16RIQ05
Configuration Q06:
- programming key E16RIQ06
Configuration QA6:
- programming key E16RIQ06 and extension interface (card) E16RIV1A mounted on extension unit

Configuration QB6:
- programming key E16RIQ06 and extension interface (card) E16RIR4A mounted on extension unit
Configuration QD6:
- programming key E16RIQ06 and extension interface (card) E16RIREA mounted on extension unit
Configuration QE6:
- programming key E16RIQ06 and extension interface (card) E16RIREB mounted on extension unit
Configuration QF6:
- programming key E16RIQ06 and extension interface (card) E16RIV15 mounted on extension unit
Configuration Q07:
- programming key E16RIQ07
Configuration QB7:
- programming key E16RIQ07 and extension interface (card) E16RIR4A mounted on extension unit
Configuration Q08:
- programming key E16RIQ08
Configuration QA8:
- programming key E16RIQ08 and extension interface (card) E16RIV1A mounted on extension unit
Configuration QB8:
- programming key E16RIQ08 and extension interface (card) E16RIR4A mounted on extension unit
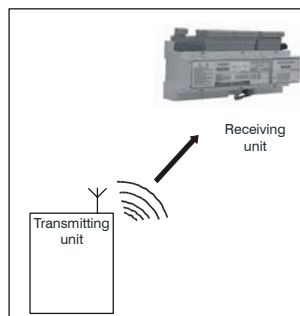Configuration Q09:
- programming key E16RIQ09

3   Operational description

Industrial radio remote controls are used to command machines from a distance.
Each industrial radio remote control is made up of a portable transmitting unit, from which the user can remotely control the machine, and a receiving unit installed on board the machine itself.
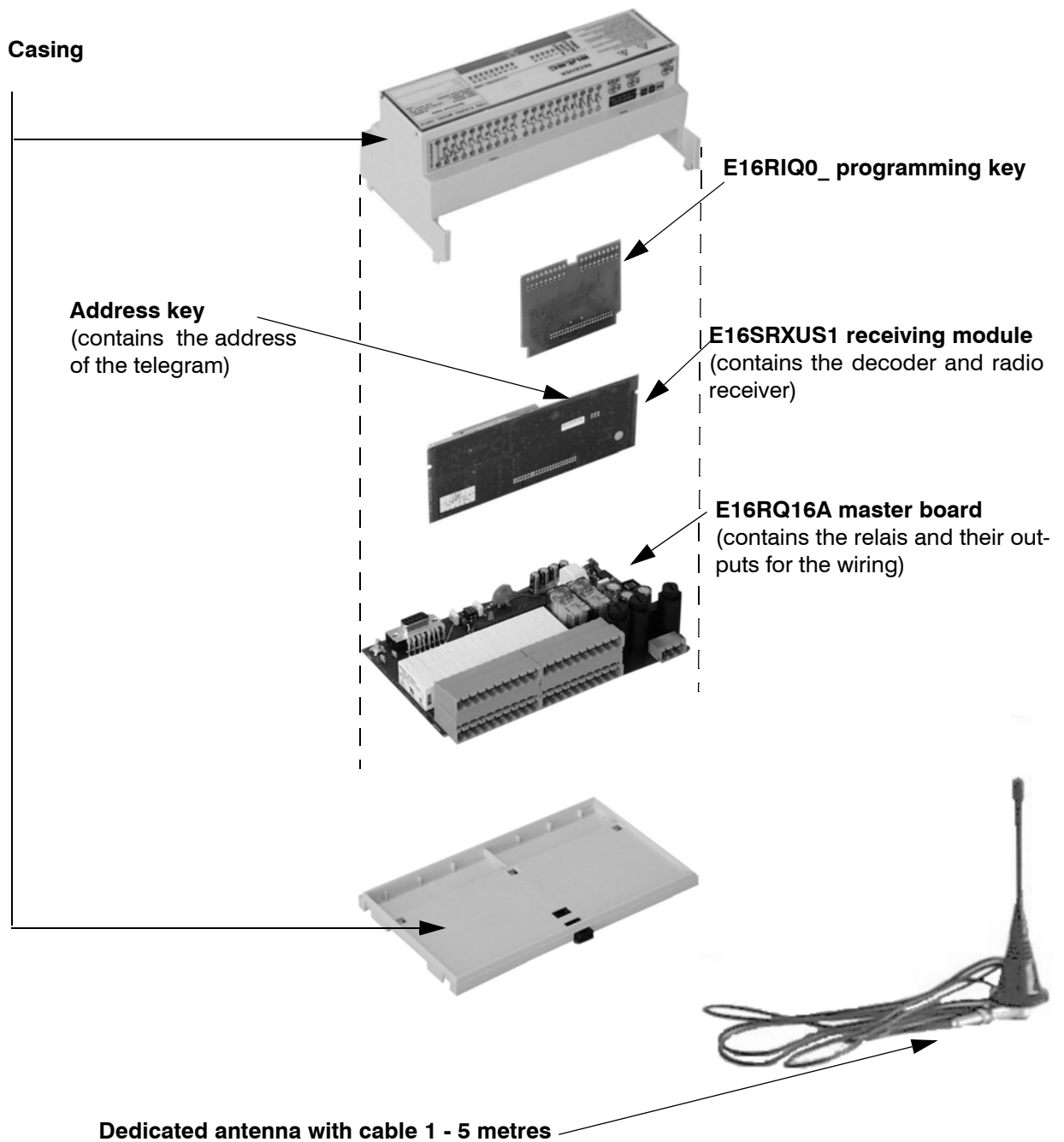

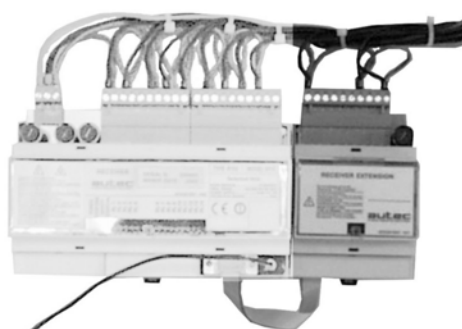The receiving unit contains E16SRXUS1. It is the radio receiving module.
A double conversion supeheterodyne radio circuit demodulates the tuned carrier (32 different frequencies in the 902-928 MHz band, channel spacing 25 kHz) and so recovers the data telegram to be decoded by a following logic section. Decoding is performed with two-channel redundancy, so as to achieve protection against single faults; if both channels recognize a telegram containing the same address stored in the "address key" EEPROM, then commands encoded on the telegram are output to be used for relay driving. Relays are housed on E16RQ16A master board, together with a suitable power supply section *(for details see relative block diagrams).*
Telegrams coming from a transmitter with address different from that stored in the "address key", as well as any other radio noise, will be discarded; the receiver will automatically bring the system to safe state (no command output) if no valid signal is received for more than 0.35 or 1 sec (user selectable).

4 Exploded view

Casing

E16RIQ0_ programming key

Address key
(contains the address
of the telegram)

E16SRXUS1 receiving module
(contains the decoder and radio
receiver)

E16RQ16A master board
(contains the relais and their out-
puts for the wiring)

Dedicated antenna with cable 1 - 5 metres

Also possible and available is a (receiver) extension unit:

Inside the (receiver) extension unit one of the
E16RI___ interfaces may be mounted (see the dif-
ferent Configurations)

5 Technical data E16SRXUS1 receiving radio module

Used frequency band	**902 - 928 MHz**
Type of modulation	**2200 - 2600 Baud GFSK**
Channel spacing	**25 kHz**
Sensitivity	**-116 dBm (SINAD > 12 dB)**
Type	**superheterodine (double conversion)**
Duty cycle	**up to 100 % (continuous duty), depends on user's need**
Duplex direction	**simplex**
Antenna type	$\lambda/4$ **monopole antenna with cable 1-5 metres**
Data telegram	**132 bit**
Hamming distance	**> 8**
Probability of non-recognition of error	**<10 exp-11**