

ITGsr-0x, time attendance registration and access control terminal

Typical applications:

- time of attendance registration
- access control (doors and barriers)
- standalone door opener system

ITGsr-05 terminal device's basic functional characteristics are:

- custom developed and fully adaptable firmware;
- based on 32-bit ARM processor and NXP Mifare reader chip,
- interrogates all ISO 14443A (ITGsr-05) and DESFire (ITGsr-08) compliant transponders
- 512 kB Flash RAM for storing up to 25000 events
- Battery backed Real-time clock
- 2 digital inputs;
- 2 digital relay outputs 6A/250V, for controlling electrical lock, barrier or alarm;
- 10/100 Mbps TCP/IP, RS232C or RS485 interface to a standard PC; optionally GSM/GPRS
- Auxiliary RS232 port
- Antennae (readers), up to two (external), with buzzer and LED indicators;
- maximum distance between external antennae and terminal is 15 m;
- operating in extended (-20 to +85°C) temperature range;
- AC power supply, input voltage 85-240 V, 47-63 Hz.

Antenna (reader)

Antenna's operating range is up to 10 cm. The external antenna is connected to the terminal using RG-174 coax cable and SMA connectors. Antenna module has its own 8-bit microcontroller and is equipped with a sound and light indicators (LEDs). Communications to the reader and power supply is provided over single coax cable. Different versions available.

The version with two antennae allows the »anti-pass-back« access control type.

Identification card (transponder)

The system uses ID cards (transponders) that are ISO 14443A or DESfire compliant. A card and the reader communicate using radio waves on the 13.56 MHz operating frequency.

Mifare® transponder's functional characteristics

The basic functional characteristics of these cards are:

- 512 B (Mifare UltraLite), 1kB or 4 kB r/w memory (Mifare Classic), 4kb or 8kB (DESFire)
- Memory organization: depends on memory capacity (32 sectors x 64 byte and 8 sectors x 256 byte, or 16 sectors x 64 byte)
- 2 access keys per sector, access conditions per sector
- DESFire (4 kByte EEPROM, Erase + Write access: 1ms each)
- DESFire File System: (up to 28 applications / card, up to 16 files / application, up to 14 keys/application, 1 masterkey for card maintenance, Plain, (3)DES encrypted, or MACed data transmission, On-Chip Backup management)
- Supported anticollision detection
- passive transponders, receives its entire operating power from the RF field transmitted from the antenna, no batteries are required
- 100000 r/w (read/write) operation per memory location guaranteed
- 10 years data retention guaranteed
- unique, read-only, serial number.

Mifare card's physical characteristics

Depends on specific application.

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Fig.1 Terminal ITGsr-0x with two external antennae ITGant-07 (left: commercial housing, right: waterproof housing)



Fig.2 External antenna ITGant-6 (access control to parking lot)



Fig. 3 Example of customer specific RFID terminal design



Fig. 4 External antenna ITGant-8