Scirocco AB

DATA SHEET

Reader R60

Scirocco AB provides infrared-based ID systems with directional, ultra-compact readers and tags without a battery. Powered by LEDs in the reader or by a separate energizer, the tags can be read at large distance. The zone is well defined, without blind areas and unaffected by metal structures, electromagnetic interference and adjacent readers.

The portable reader R60 'Libeccio' gives users the possibility to read and write Scirocco IRID tags with a PDA, as long as a CompactFlash slot is provided.

R60 reads the tags at up to about 30 cm distance typically, and writes at up to about 15 cm typically. The CF card is of the thin 'Type 1' design, fitting both Type 1 and Type 2 CF slots.

When installed in a typical PDA, R60 operates a full day without battery recharge - instead of powering the back-light PDA display, the battery charge can be used for the infrared LEDs in R60.

R60 is convenient to use since there is no need to push a button to initiate reading, since there is no limitation to how often the tags can be read and since the weight of the CF card is only about 10 g.

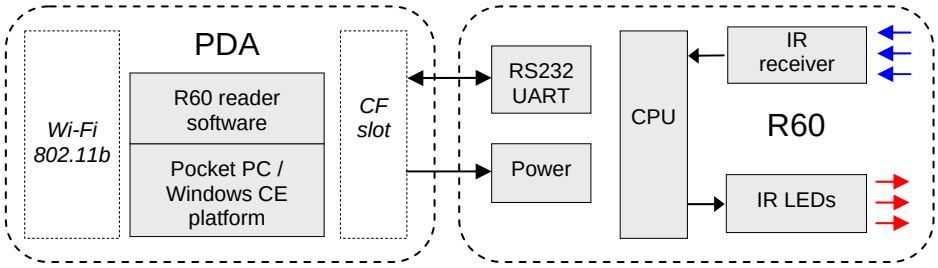
Many PDAs also have a Wi-Fi network connection, enabling automatic update of a database anywhere in the world simultaneous with how they are read.

The illustration below shows R60 in a commercial PDA (HP) with a protective cover (Active Armor).

- **Up to 30 cm reading**
- **Up to 15 cm writing**
- **Low weight, ca 10 g**
- **Automatic reading**
- **Well defined zone**
- **Low consumption**
- **CF card type 1**
- **Metal safe**
- **EMI safe**

Function

R60 comprises a CompactFlash UART, CPU and InfraRed module for energizing, reading and writing of tags. It is powered through the CF slot and communicates through an emulated COM port of the PDA.



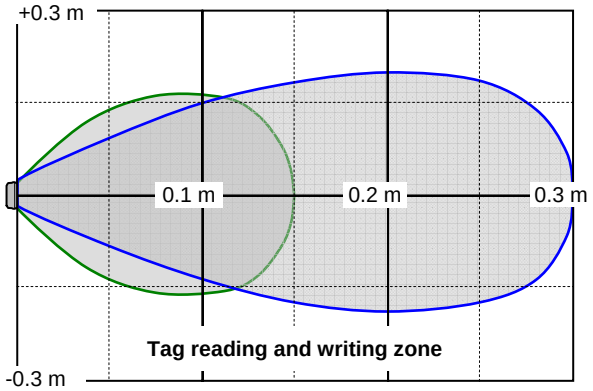
When an ID code and/or user data from a tag reaches the receiver, it is automatically redundancy checked and loaded into a buffer memory in the CPU. The buffered tag information is then made available to the reader software running on Pocket PC or Windows CE platform. If Wi-Fi is available, a PC server software can be set up in any computer that has connection to the Wi-Fi access point. This way, the portable reader R60 acts transparently toward the server so that all tag records are sent directly to it.

The tags in the Scirocco system are normally factory programmed with a permanent ID code. User data and/or settings for R/W tags, such as Data tag T20, can be sent to the tag by data modulation of the LEDs. R60 can be set for repeated or single reporting of a tag in the zone, and a timeout function further defines the in-zone tag handling.

Performance

The performance of R60 is closely linked with the tag types that it designed to handle. The diagrams show the typical reading and writing range of T20 tag in dim light. Daylight can extend the read range beyond 30 cm.

For details about the reading- and writing distance with different tags and under different conditions, please refer to the Technical Manual.



In the Scirocco IRID system, R/O tags, such as ID tag T10, typically transmit ID frames 10 times per second. Each ID frame comprises an ID code and a checksum (CRC) to eliminate substitution errors.

R/W tags, such as Data tag T20, typically have a 128 Byte memory comprising eight 16-Byte blocks. The user can decide which blocks to use, and select tag settings for optimum transmit rate and reading distance. Data tags can be locked against reprogramming, and DES encryption prevents tampering with the system.

Communication protocol

The software in R60 is operated via the “ST protocol”, a single-master, half-duplex protocol. It supports point-to-point connection via RS232. R60 can be used under RS232 as a single slave and communicates in both binary and ASCII format.

The ST protocol includes a variety of commands, such as setting of baud rates and addresses, getting the reader software version and its serial communication settings, and commands for reset and system debug. A selection of ST protocol commands is given in the table below.

Command name	Abbr.	ASCII Mode	Description
Read tag memory	RTM	‘m’	Read a specific tag memory into the reader’s buffer
Write user data	WUD	‘w’	Write buffer data to tag memory (from 0 to 128 bytes)
Lock Memory	LMM	NA	Lock tag against further reprogramming (with Password)
Unlock Memory	UMM	NA	Inhibit locking of tag (with Password)
Format Memory	FMM	‘f’	Set tag memory size (i.e. from byte 0-128)
Set Tag Parameters	STP	NA	Write Encrypt/Decrypt Key and Speed/Range mode
Get Buffer Load	GBL	‘b’	Get number of tags records stored in the reader’s buffer
Get Buffer Contents	GBC	‘g’	Request tags records currently stored in the buffer
Clear Buffer Contents	CLR	‘c’	Request to clear tag records stored in the buffer
Set Tag Communication	STC	NA	Set the IR interface parameters, e.g., key, polling interval and timeout

Software

Scirocco AB provides software to facilitate integration and use with PDAs and higher level systems.

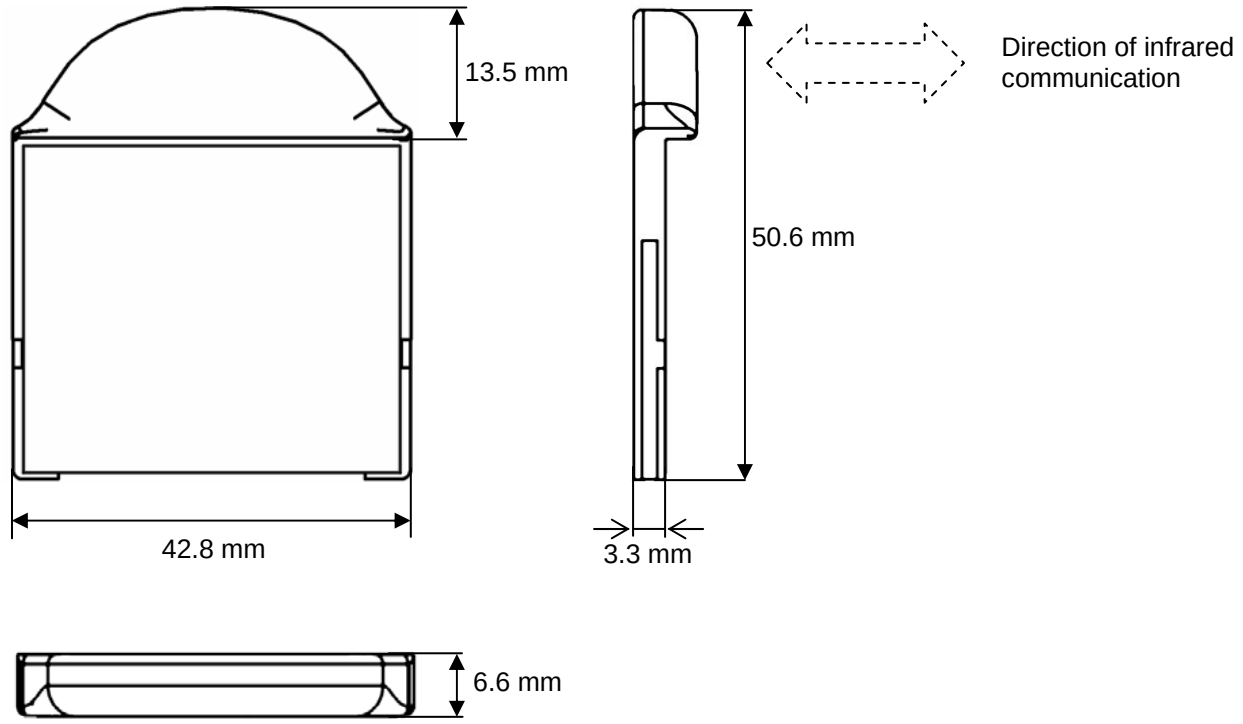
Neptune Installed in a PDA, ‘Neptune’ provides all functions that are needed to communicate R60 via the ST protocol above. The Neptune software supports storage of ID and user data in SCV format. Neptune supports Wi-Fi data forwarding to supported server software.

Neptune Wi-Fi Installed in a PDA, ‘Neptune Wi-Fi’ provides service possibilities of TCP/IP connected readers as R10/R11/R12 via an access point. ‘Neptune Wi-Fi’ can run in parallel with ‘Neptune’ in PDA.

Neptune RS Installed in a PDA, ‘Neptune RS’ makes it possible to connect to and operate a PDA with stationary readers such as R10, R11 and R12 via their RS232 port. ‘Neptune RS’ makes use of the CF slot to connect a standard RS cable via adapter to the PDA. ‘Neptune RS’ can run in parallel with ‘Neptune Wi-Fi’ in PDA.

Neptune server Installed on a host PC, ‘Neptune server’ acts as a data collector server of Wi-Fi data forwarded information from all Neptune versions above.

Dimensions



Mechanical data

Type code and software with version number, regulatory information and serial number is marked at the cover. The housing is made in black UV-resistant polycarbonate. The weight is about 10 g.

Environmental data

Temperature	0 to +50	˚C (operating)
Temperature	-40 to +85	˚C (storage)
Humidity, non-condensing	95	%
Protection (IEC 529)	IP 40	
Solar rad. (IEC68-2-5 Sa C)	56	days 1120 W/m^2
Vibration (IEC 68-2-29)	0.01	g^2/Hz, 0.5 h x 3 dir, 10-2000 Hz
Immunity	EN 61000-6-2:2001	10/3 V/m, 4/8 kV ESD, 1kV transient
Emission	EN 61000-6-3:2001	30/37 dBuV/m @ 10m

Ordering codes

Reader ‘Libeccio’	R60	Including software ‘Neptune’

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