



Exciter EX23G

User's Guide

Revision C – July 21, 2006

1. General

Exciter EX23G is designed to operate either as a stand alone exciter or as a unit in a multi-drop asynchronous network (RS485). When it's connected to a network it shall be programmed with an unique address (NetId).

Exciter EX23G provides the following main functions:

- Remote control/configuration using a RS485 communication network;
- Rotating LF excitation field, using a dual loop antenna system;
- LF excitation field generation controlled optionally by a motion sensor
- Wireless supervision, using 434MHz UHF channel;
- Optical signalization

2. Installation

This chapter explains how to power up and interconnect the Exciter EX23G. Typical installation of the Exciter EX23G is presented in the figure 2-1 and the connector location in figure 2-2

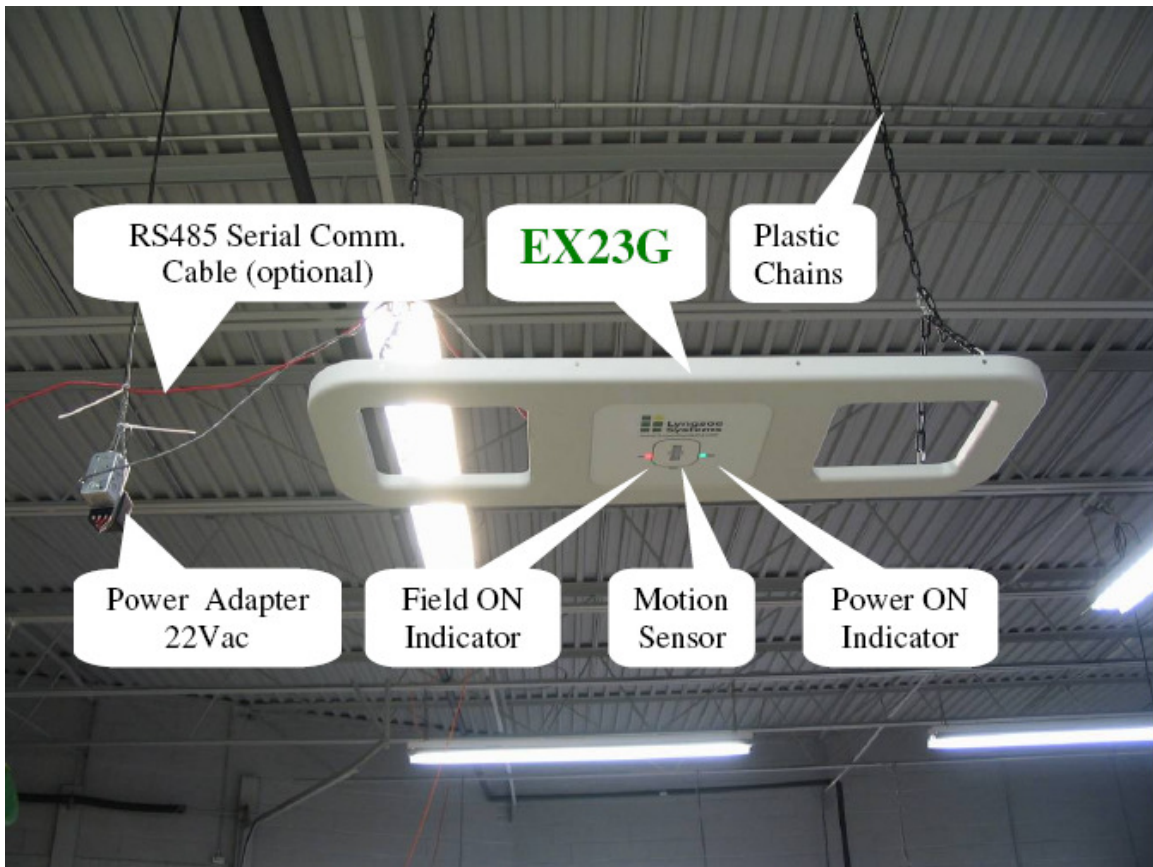


Figure 2-1 Exciter EX23G installation

2.1. EX23G Connections

Power Connections

WARNING Before you start the installation, check if the Power Supply provides the specified output voltage – 22Vac +/- 10% or 25.2-30.8Vdc, and min. 0.5A; any polarity can be used for the dc output. For the power connections use the 4.2mm Mini-Fit Jr receptacle (LS PN 350238) and the female crimp terminals for AWG18-24 (LS PN 350238). Strip the wire isolation 3.0-3.5 mm and crimp the terminals on the wire using the Molex crimping tool 11-01-0197. Insert the terminals in the receptacle body – terminals 1 and 3 for ac voltage and terminal 2 (middle) for the ground.

Plug in the power connector into any of the corresponding headers on the EX23G. The POWER LED (green) goes ON.

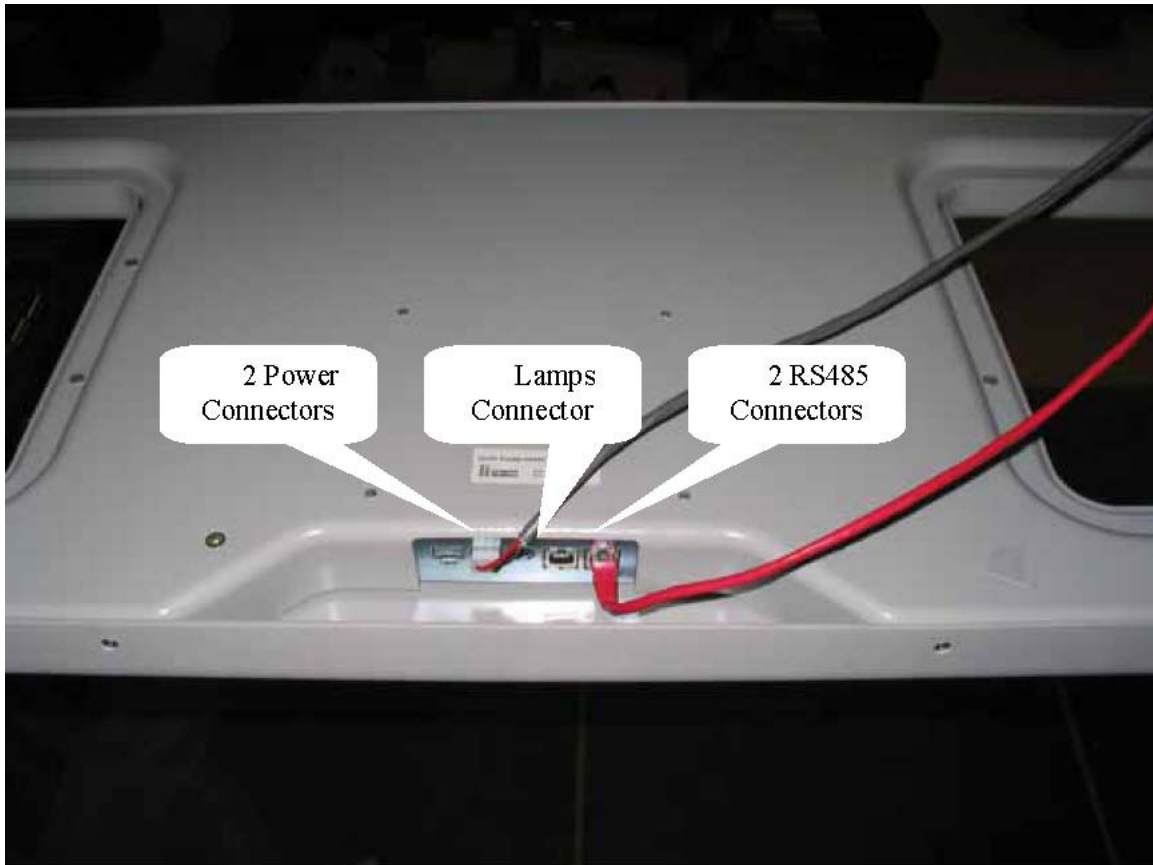


Figure 2-2 Connectors location – EX23G

RS485 Connections

For the RS485 connection use a standard Cat5 Ethernet cable and RJ45 plug. Crimp the connector using the recommended tool and the following color scheme: pin 1 - Wh/Or; pin 2 – Or; pin 3 – Wh/Gr; pin 4 – Bl; pin 5 – Wh/Bl; pin 6 – Gr; pin 7 – Wh /Br; pin 8 – Br.

2.2. PC Software Configuration

The simplest way to control EX23G is by using a Terminal Emulation program on the PC. The general configuration procedure consists of:

- . • Open a Terminal Emulation program on your computer (Procomm, HyperTerminal, etc).
- . • Configure the computer's COM port to which the EX23G is connected. The default configuration for the COM port is: COM port - COM1; Data rate - 19200 bps; Data bits - 8 bits; Parity – none; Stop bits – 1; Flow control – none.
- . • Use an adapter from USB to RS485 (LS PN 600057)
- . • From the PC send commands to EX23G and observe the responses on the PC.

Other dedicated software can be used to control EX23G as long as the correct commands are provided for EX23G.

3. Operation

3.1. Remote control

The operation of the Exciter EX23G is controlled by commands and parameters. The parameters values are set into EX23G during the configuration session. This configuration is controlled by a PC running serial communication program like Procomm, through a serial communication link type RS485. There are several specific commands to configure or to query the EX23G parameters values.

When EX23G is connected in a network, it shall receive a unique address called NetId. The NetId is an integer in the range 0 to 255. Each command transmitted to an Exciter EX23G shall be preceded by a prefix specifying its NetId and must use the following syntax:

#NetId <space><COMMAND> <CR>; the prefix #NetId is separated from the command itself by a space.

The basic configuration of the communication network is presented in figure 3-1.

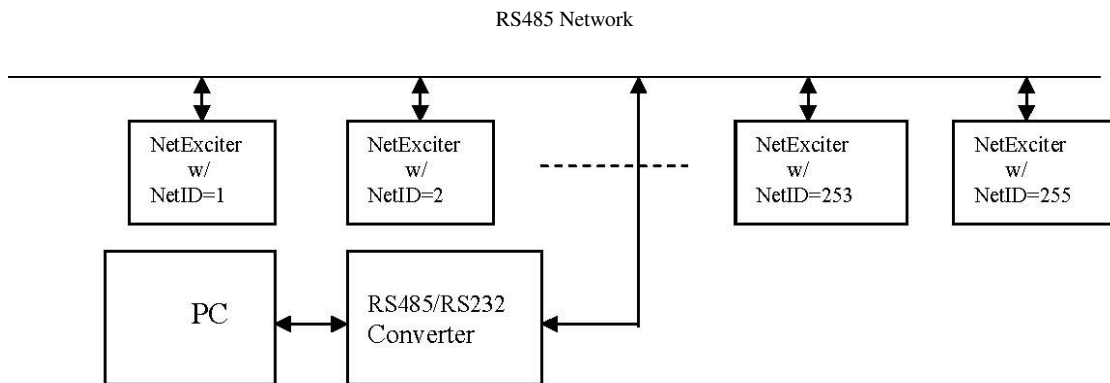


Figure 3-1 – Basic network configuration

3.2. LF Field Generation

The LF excitation field generated by EX23G has a 125 KHz carrier modulated with

ExcitationId frames. By using two loops to generate the field the resulting excitation field provides a more reliable excitation for tags (independent of their orientation) with a compact spatial presence compared with the previous exciter models.

3.3. UHF transmitter

Exciter EX23G includes an UHF transmitter capable of transmitting its digital ID using messages on 433.92 MHz channel. These UHF messages can be used to communicate wirelessly the EX23G operational status and in the same time to check the reception performance of the Readers located in the neighborhood.

The interval of time separating two transmissions and the number of messages in the packet are programmable by parameters, Table 2 listing the available user-programmable parameters.

4. Commands and Parameters

Table 1 presents the commands accepted by EX23G. Table 1 – Exciter EX23G Commands

<i>Command</i>	<i>Description</i>
B<CR>	Enable the Excitation Field Generation
C<CR>	Disable the Excitation Field Generation
Q<CR>	Display the actual values of all parameters
EV1<CR>	Display the values of parameters EP1 and EA1
EV2<CR>	Display the values of parameters EP2 and EA2

Table 2 presents the parameters defined for EX23G, with their type, range, default value and a short description.

Table 2 – Exciter EX23G Parameters

<i>Prm.</i>	<i>Type(*)</i>	<i>Value</i>	<i>Default</i>	<i>Description</i>
TCC	R/W	1...32	5	Number of User Data bytes per message; must be set before TUD
TIP	R/W	1...200	2	Number of messages transmitted per blink transmission
TSD	R/W	1...119	1	Subsequent delay between messages
TBI	R/W	1...255	60	Time interval between two consecutive blink transmissions (minutes)
T95	R/W	Y/N	Y	The on board test tag transmits either in S95 (Y) or in S21 format (N)
TUD	R/W	string	00000	User Data content, bytes string; total number of bytes set by TCC
ESN	R/W	string	0000000	Exciter board serial number, 7 bytes string; can be programmed only once; can be reprogrammed with password
EVN	R	string	n/a	Firmware version number, 3 bytes string
EBR	R/W	1...4	1	RS485 baud rate: 1 - 19.2 kbps; 2 - 38.4 kbps; 3 - 57.6kbps; 4 -115.2kbps.
EAD	R/W	0...128	0	ExId = NetId; the value 254 is reserved, and it can be used to determine the EAD of a stand alone exciter (see the Note 2).
EXP	R/W	4...40	15	Reserved for authorized personnel only
EXA	R/W	4...40	20	Reserved for authorized personnel only

EVT	R/W	1...100	10	Reserved for authorized personnel only
EPS	R/W	S/P/A	S	Reserved for authorized personnel only
ENF	R/W	0, 1...7	5	Reserved for authorized personnel only
EP1	R-EV1	1...127	n/a	Reserved for authorized personnel only
EA1	R-EV1	1...127	n/a	Reserved for authorized personnel only
EP2	R-EV2	1...127	n/a	Reserved for authorized personnel only
EA2	R-EV2	1...127	n/a	Reserved for authorized personnel only
EMN	R	0-15	n/a	Number of MS activations on the exciter EX23 between either 2 consecutive transmissions on UHF or 2 consecutive executions of the command EMN.
EMS	R/W	Y/N	N	Motion Sensor enable(Y) / disable(N)
EMD	R/W	1...9	5	Extra field generation duration after the Motion Sensor has been activated
ERD	R/W	Y/N	N	Turn On/Off (Y/N) the red lamp
EGR	R/W	Y/N	N	Turn On/Off (Y/N) the green lamp
ERS	R	0...255	n/a	Number of power-on resets between two commands ERS

Note1: () Par. type: R – read only; R/W – read & write; R-EVx – Read only through the EVx command*

A parameter can be set by transmitting the 3-letters name of the parameter and its value, as in the following syntactical expression: #NetId<space><Parameter name>=<value><CR>

The actual values of the parameters can be queried using the 3-letters name of the parameter, as in the following syntactical expression: #NetId<space><Parameter name><CR> Note2: The address 254 can be used to report information about an exciter with unknown address, as shown in the following syntactical expression: #254<space>Q<CR>

5. FCC compliance

Caution:

According to FCC Part 15.21 “Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.”

Part 15.105 Information to the user

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.