

SIGMA VISION

Issue 4.1



Leisure Controls International Ltd
Clump Farm Industrial Estate, Higher Shaftesbury Road
BLANDFORD FORUM, Dorset. DT11 7TD. United Kingdom
Tel: +44 (0) 1258 489075
E-mail: info@lcigb.com Web: www.lcigb.com

Installation Manual

CONTENTS

1.	INTRODUCTION	
	1.1 Introduction	2
	1.2 Communication Protocol	2
2.	ELECTRICAL CONNECTIONS	
	2.1 Wiring Details	2
	2.2 Electrical Connections	5
	2.3 CAN Bus Termination	5
3.	SETUP PROCEDURES	
	3.1 Address Configuration	5
	3.2 System Options	7
	3.3 Hardware Options	7
	3.4 Setup Procedure	8
4.	ANCILLARY FUNCTIONS	
	4.1 Computer Interface	9
	4.2 Reception Display	9
	4.3 Data Backup	9

1 INTRODUCTION

1.1 Introduction

This installation manual gives all the information necessary to install the system. It includes all the set-up information to configure the Sigma Vision. Operating instructions are given in the Operators Manual supplied separately. For any queries please go to the support section of our web site (www.lcigb.com). If you cannot find the answer then contact our support desk.

The Sigma Vision consists of three units

- i) The central console
- ii) The Equipment Control Unit (ECU)
- iii) The remote Display

1.2 Communication Protocol

The Sigma Vision communicates over a controlled area network (CAN). Each ECU and the central console are linked together using standard UTP Cat5E cable and RJ45 connectors either in a daisy chain configuration or, using the optional junction box, a star configuration. Each ECU is linked to its own remote display with RJ12 connectors and six core cable. ECUs may be connected directly into the gear tray of the equipment being controlled, but in cases of severe electrical noise use a separate supply or filter the mains output from the gear tray. In manual mode the Sigma Vision console is connected to the mains supply via the USB adaptor supplied but if used with third party software connect the USB lead directly into a suitable USB port on the computer.

2 ELECTRICAL CONNECTIONS

2.1 Wiring Details

Each piece of equipment being controlled requires an ECU and a remote display. The ECU which can be discretely mounted out of immediate sight, should be easily accessible to allow address configuration (section 3.1) The remote display should be placed so that the customer can easily reach the *start* and *stop* buttons. Figure 1 shows a typical installation for a tanning salon but the same principles apply for all other installations. Category 5E cable is used to make the network connections and should be concealed behind partitions or placed in suitable trunking. The remote display is linked to its ECU using RJ12 connectors and six core cable. Suitable cables may be purchased from Leisure Controls International Ltd or made to size by a competent technician or electrician.

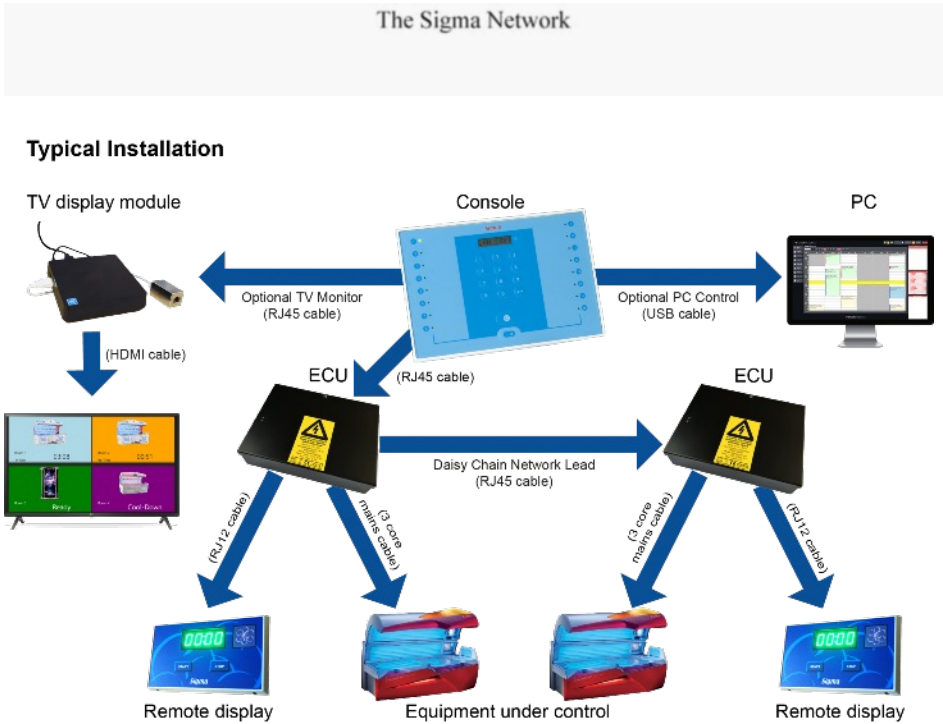


Figure 1 Typical Network Installation

The Sigma Vision provides for connection to a computer running third party software with connection via category 5E cable and also for a reception monitor to show status of all equipment in the installation. The optional TV interface is connected to the console using category 5E cable and to the TV monitor with HDMI cable.

See section 4 for further information.

2.2 Electrical Connections

The console is supplied with a 2 metre length USB lead which should be connected to either the nearest accessible switched socket at the reception area via the USB adaptor supplied or a convenient USB port on a computer.

Each appliance to be controlled requires its own Equipment Control Unit (ECU) which must be mounted near the relevant appliance. The ECU can be discretely hidden but should be accessible. Fit the ECU to the wall or ceiling and wire the unit as shown in figure 2 using the appropriate cable glands to provide strain relief. The mains supply is connected to CN2 and to either the earth stud or CN13, whichever is fitted, using cable not less than 1mm² as shown in figure 2.

WARNING! The earth terminal **MUST** be correctly connected to a known earth.

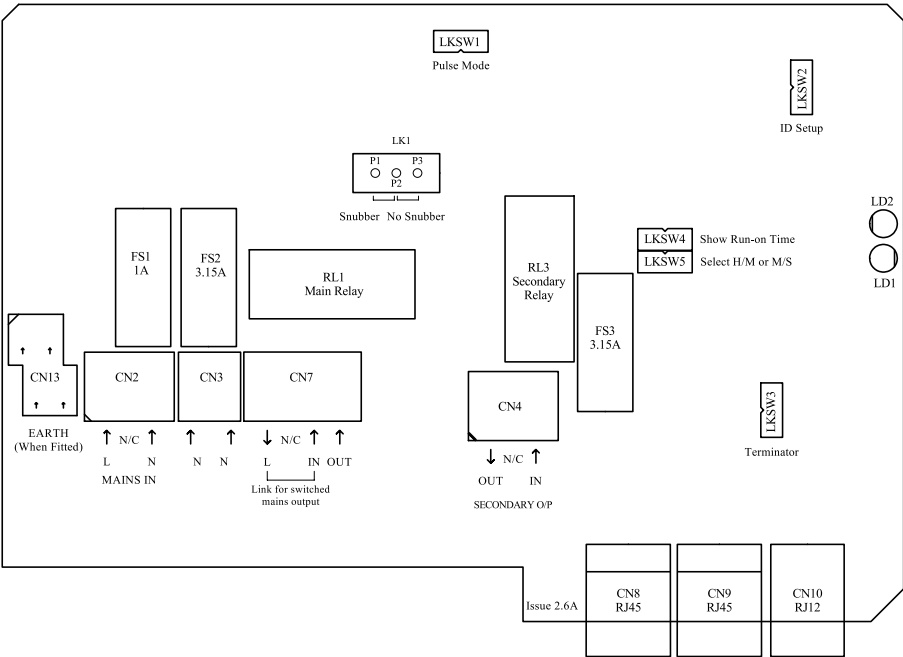


Figure 2 Wiring Details for Sigma Equipment Control

Two outputs are available via connectors CN7 (main) and CN4 (secondary). These are voltage free to enable easy connection to appliances operating from three-phase supply or other voltages (e.g. 24V as found in some tanning units). For the main output Pin 1 of CN7 is permanently live, pin 2 is not connected, pin 3 is the input to the relay switch and pin 4 the switched output.

For a switched 230V output link pins 1 and 3 of connector CN7. Alternatively connect pin 3 of connector CN7 to any convenient output voltage from the appliance (e.g. 24V feed from a tanning unit). Pin 4 of CN7 is wired to the input of the appliance. A snubber circuit to prolong relay life is selected by LK1. This is advisable for mains operation and is a factory default. To disable the snubber circuit remove the black link LK1 from between P1 and P2 and replace between P2 and P3 (see figure 2).

The secondary output (e.g. fan input in a tanning unit or security light in a squash court) is wired to voltage free connector CN4 with pin 3 the input voltage and pin 1 the switched output voltage. Both main and secondary outputs are rated at 3.15 Amp maximum. If CN7 pin 1 is linked to both CN7 and CN4 inputs then the maximum current for both outputs is restricted to 3.15 Amp.

Connector CN3 is internally connected to the neutral of the mains input to provide additional neutral terminations as required.

Connect the Remote Display to CN10 in the ECU using RJ12 connectors and fit to a standard UK double socket patress for surface mounting or wall plate for flush mounting using fixing adaptor supplied. NOTE the RJ12 connector is wired pin 1 to pin 1 and similarly to pin 6 to pin 6.

2.3 CAN Bus Termination

The CAN bus system is a robust means of transmitting data but in common with other transmission system reflections can cause incorrect operation if not terminated at the end of the transmission line. To ensure correct termination

LKSW3 Places a terminator into circuit and must be switched ON at the last ECU in the chain. For all other ECUs the switch must be set in the OFF position.

3 SETUP PROCEDURES

3.1 Address Configuration

When connected for the first time the ECU(s) and the console need to be configured for the installation. The ECUs are programmed from the console by entering the *options* menu using the special code number 63410. Note this password may be changed in computer mode using the appropriate third party software.

There are eleven choices in the options menu of which the following three are used for address configuration: -

Option 0 is used to set the unique ID for each equipment controller.

Option 8 is used to set the number of equipment controllers being installed.

Option 9 is used to set the unique address for each installation.

WARNING!

Option 9 is protected with a password 98981 to prevent accidental change. The address is factory set to the console serial number and should only be changed for security reasons.

NOTE. Option 9 password may only be changed in computer mode using appropriate third party software.

Initially each ECU must be given its own unique ID and this is achieved by the use of **option 8** and **option 0**.

1. Switch on the console and at least one ECU and when the console display reads WYVERN press and hold down any key (except *enter*) until the display reads READY.
2. Select the options menu by entering 63410 on the console keyboard and the display reads OPTION.
3. Select **option 8** by pressing 8. The display reads No REMS followed by a blank display. Enter the number of ECUs being installed and press enter. Put the first ECU ID setup switch (LKSW2 - figure 2) into the OFF position and the remote display connected to the ECU will display ID00.
4. Select **option 0** on the console by pressing 0, the display will show ADR. Enter unit number being configured (eg. 1 for first remote) and press enter and the display indicates which start option has been selected - start option 1 is the factory default. Return to the remote unit and the display should show IDXX where XX is the unit ID being transmitted and the red LED (LD2 - figure 2) flashes to indicate communication occurring. To accept this ID press the START button on the remote display and return the ECU setup switch to ON. At this point the remote display shows the ID number for a short period, the console stops transmitting and the console display returns to OPTION. **WARNING.** If the remote display shows version number then check RJ12 cable is wired correctly (see section 2.2)
5. Repeat for each equipment control in turn. On completion of address configuration press the reset key [R] on the console to initiate a check routine. The console interrogates each ECU in turn and as each remote responds the appropriate cubicle indicator will illuminate. On completion of the check the console display should indicate READY.
6. If ERROR is displayed press the reset key [R] and the display shows the number of the malfunctioning ECU. Pressing reset [R] again returns the console to the READY mode. If ERROR does occur check for loose electrical connections, that the ECU setup switch has been returned to normal (ON position), and that all network connections are correct with no crossed wires.
7. If the console displays CANERR there is either a catastrophic failure of the network or the console has become disconnected. Check console connections and if still an error check all network cable cabling. The console can only be reset by pressing the hidden reset button or removing and re-connecting the mains supply.

When the Sigma Vision is correctly installed the system needs to be programmed for the correct operating parameters - see section 3.2

3.2 System Options

In addition to the three address configuration options there are a further six options available to obtain maximum flexibility for the installation. Each equipment control may be individually programmed from the console.

Option 1

Use option 1 if the remote display *start* button is to over-ride pre-time (i.e. If the start button is pressed during pre-time the appliance turns on and all remaining pre-time is cancelled). For an immediate start pre-time is set to zero.

Option 2

Use option 2 so that the appliance only switches on when the remote display *start* button is pressed (i.e. Any pre-time programmed is ignored).

Option 3

Option 3 puts the system into group use if more than sixteen appliances are to be controlled manually. Note group control is not necessary in computer mode.

Option 4

Option 4 is used, in conjunction with option 1, to select the pre-time required *before* the appliance is activated.

Option 5

Option 5 is used to select the over-run time for the secondary output after the appliance has switched off. Typically used for fan run on control in tanning units or a security light in squash courts.

Option 6

Option 6 is used to select the lockout time - the maximum time allowable per session. If a session time greater than this maximum is entered the console display reads LOCK ERR.

Option 10 (clock button)

Option 10 provides a clean facility. When the clean option is turned on the remote display shows CLN when zero time is reached and remains until the remote display *start* button is pressed. This is a reminder to staff to clean the appliance, such as a tanning bed, before the next customer is allowed to use. If the console attempts to send time to an equipment control still in clean mode the console displays CLEAN and the transmission is aborted.

Option 7

Option 7 is not an option in the true sense but is used to obtain total hours of use for the equipment control and is fully described in the operators manual.

3.3 Hardware Options

In addition to the programmable options there is provision for three hardware options set by switches LKSW1, LKSW4 and LKSW5 as described below.

LKSW1. Allows selection for those applications that need a pulse to start as opposed to a continuous output. OFF for normal operation and ON for pulse.

LKSW4. Set to ON if remote display is required to show run-on time **Note.** Run-on time will be shown after main time. If clean mode set then display will show CLN until cleared. If any run-on time remaining after cleaning then this time will be shown.

LKSW5. If Sigma is required to count in hours and minutes set to ON position. For default count in minutes and seconds leave in OFF position.

3.4 Set-up Procedures

On successful completion of the address configuration the equipment control units should be individually programmed to suit the installation. Enter the options menu by entering 63410 on the console keypad and the display reads OPTION. The display will show SAVING while storing data in memory and then revert to OPTION for the next instruction.

Start mode and Pre-time

If the appliance should only start when the remote display *start* button is pressed then **option 2** should be selected by pressing 2 on the keypad. The display shows STRT2. Enter the number of the equipment control being programmed (eg 1) and press enter. The display will show SAVING while storing data in memory.

If a pre-time or immediate start is required **option 1** should be selected by pressing 1 on the keypad. The display will read STRT1. Enter the number of the equipment control being programmed (eg 1) and press enter. The display will show SAVING while storing data in memory. **Option 4** selects a valid pre-time to be used with option 1. A choice of minutes or seconds is available. To access pre-time option press 4 on the keypad and PRETIME is displayed followed by REM No. Enter the number of the equipment control being programmed and press enter - the display reads MINS 1. Press numeric key 1 to programme in minutes and the display reads ENT MINS followed by TIME *or* press numeric key 2 to programme in seconds. (when the display reads ENT SECS followed by TIME). Enter the pre-time required and press the *enter* key. The display will show SAVING while storing data in memory. **NOTE** For an immediate start option 4 should be programmed with zero time.

Over-run and Lockout Times

To programme an over-run time on the secondary output **option 5** needs to be selected. Press numeric key 5 and FAN TIME is displayed followed by REM No. Enter the number of the ECU being configured. Press *enter* and the display reads TIME. Enter the over-run time required and press *enter*. The display will show SAVING while storing data in memory. **NOTE.** If over-run time is set to zero then the secondary output is disabled.

To programme a lockout time **option 6** needs to be selected. Press numeric key 6 and LOCK TIM is displayed followed by REM No. Enter the number of the ECU being configured. Press *enter* and the display reads TIME. Enter the lockout time required plus one and press *enter*. (Eg for a maximum time per session of ten minutes set TIME to be 11).The display will show SAVING while storing data in memory.

Clean Mode

If clean mode is required **option 10** should be selected by pressing the clock button on the keypad and CLEAN is displayed followed by REM No. Enter the number of the ECU being configured. Press *enter* and the display reads SAVING while storing data in memory. The clean option is cancelled by re-programming option 5 (over-run time).

WARNING!. If the over-run time is altered and clean mode is still required then option 10 must be re-programmed or the clean function will be deleted.

Finalising Set-up Procedures

When all the required options have been programmed press reset [R] and the console runs through the initial check routine interrogating each remote in turn. On completion of the check routine the display reads READY. The Sigma Vision system is now complete.

If an ECU has not been installed correctly the display reads ERROR. If this occurs press reset [R] and the display shows the number of the malfunctioning ECU. Pressing reset [R] again will return the display to READY and the system may be used (with the exception of the faulty unit which must be corrected first).

4 ANCILLARY FUNCTIONS

4.1 Computer Interface

The Sigma system may be controlled directly from a PC loaded with appropriate third party software. The USB lead from the rear of the console is linked to a convenient USB port on the computer and computer mode initiated directly from the third party software.

When linked to the computer the console display reads COMPUTER and manual operation is disabled.

4.2 Reception Display

An optional extra is the facility to display the status of all appliances on a central monitor in the reception area. To use this option the Sigma Vision TV interface, purchased separately, is linked to the console using Cat 5e cable with RJ45 connectors. For sites with multiple viewing areas requiring additional monitors an HDMI extender kit is available.