

Guardian

2800 User Guide:

Microprocessor Card Replacement and Configuration

AMG Systems

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Introduction

This document provides extra detailed information that is required when replacing or reconfiguring the microprocessor card in the Guardian unit. For a more general overview of the Guardian please refer to the AMG2800 User Guide.

What is the 2800 Microprocessor Card?

The microprocessor Card controls the configuration of the 2800 unit locally and communicates with other units in the fibre network. The Microprocessor Card (see Appendix 1) is already installed in your 2800, and has two ports accessible on the back panel of the unit.

Port 1 RS-232	A standard RS-232 9 pin interface for system control and monitoring.
Port 2 Alarm	A high density 15 way D-type connector containing the following signals: <ul style="list-style-type: none">• A secondary RS-232 control port• Two alarm inputs• Two relay change over outputs• External 5 volt power supply (250mA)

The alarm inputs and relay change over outputs can be monitored and controlled remotely through the 2800 control system. For a comprehensive guide to the port pin-outs please refer to the 'AMG 2800 Guardian Rear Panel Connections' document reference D14329.

Microprocessor Card Address

Each card is identified by a unique **unit identification address**. This is the number that is printed on the label attached to the outside of the Guardian unit's case. It is also recorded on the label attached to the top of the FLASH program memory chip that is fitted in the socket on the card. This unique number is programmed into the FLASH chip during production. It is used by the Management Software to identify each unit within a customer's system and allow the units to communicate with each other.

Microprocessor Card FLASH Chip

The FLASH chip should always be fitted into the same mainframe in order to associate the Guardian unit with the correct unit identification address. In the event of a problem it should always be transferred to any replacement microprocessor card. If the FLASH chip is damaged then a replacement with the same address is required otherwise the Management software would require reprogramming. To remove the chip from the socket use the correct chip removal tool, e.g. Farnell part 517-082.

Microprocessor Card Non-volatile Memory (EEPROM)

The microprocessor card has onboard non-volatile memory (EEPROM) that can be used to store alternative hardware settings that are saved even when the Guardian unit is powered down. For example, the default laser power setting on the high speed transmitter card can be overridden by alternative power values that set a high output level on power up. If an override flag is present in the EEPROM then alternative laser drive and bias settings are substituted for the default values. A checksum is also included to avoid using corrupted values. If a microprocessor card is replaced in a Guardian unit that is operating with non-standard settings, then the EEPROM on the replacement card must be reprogrammed with the same alternative values.

Modifying the Non-volatile Memory (EEPROM)

The MUXcomm diagnostic program is used to display and modify the contents of the EEPROM. For reliable operation a local connection via local port C is preferred to changes made remotely over the fibre. The serial port on the PC (38400 baud, 8bits, no parity) is connected to Port 2 using a serial cable (e.g. RS part 287-9460 plus gender changer 828-274) and the adapter lead drawn in Appendix 2. Please refer to Appendix 3 for a guide to using the MUXcomm program. The memory locations can be viewed and re-written directly at a byte level, or alternatively manipulated more easily through dialogue boxes.

Setting High Power Laser Power Settings in EEPROM

The Guardian unit's can be used to transmit over long distances if the laser output power on the high-speed transmitter card is boosted. The MUXcomm program can be used as follows to program the EEPROM with alternative high power settings that are used on power up or after a reset.

1. Click on 'Status Monitor' to read the laser bias and drive settings in the Opto Slot B section. These are displayed within a table under 'Actual' (see figure 1 below). Note the laser wavelength and power description e.g. CWDM1 1510nm, -3dBm.

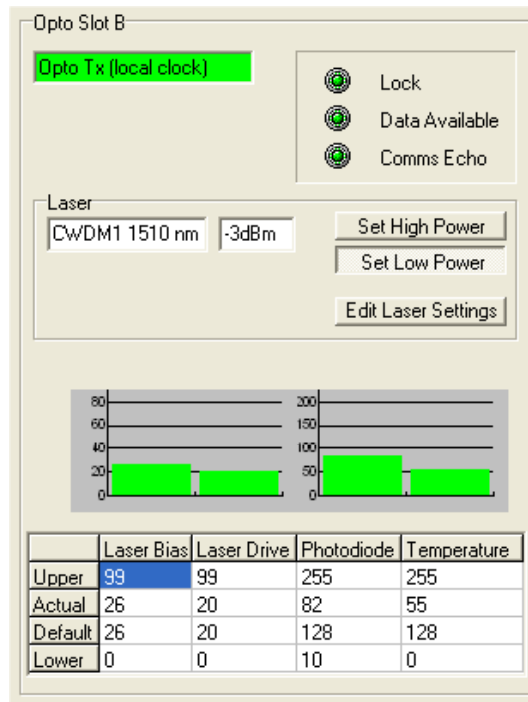


Figure 1: Laser settings using MUXcomm

2. Click on 'Edit Laser Settings' to open the Laser Settings dialogue box.
3. Enter the new laser power bias and drive settings in the 'High power Wave 3' row, e.g. Bias 78 and Drive 33 for a high power CWDM1 laser.
4. Click the button in the 'Power-up Select' column on the right hand side to set the 'Enabled' indication.
5. Click the 'Program' button and click 'OK' to the Laser Power Editor dialogue box as shown in Figure 2.

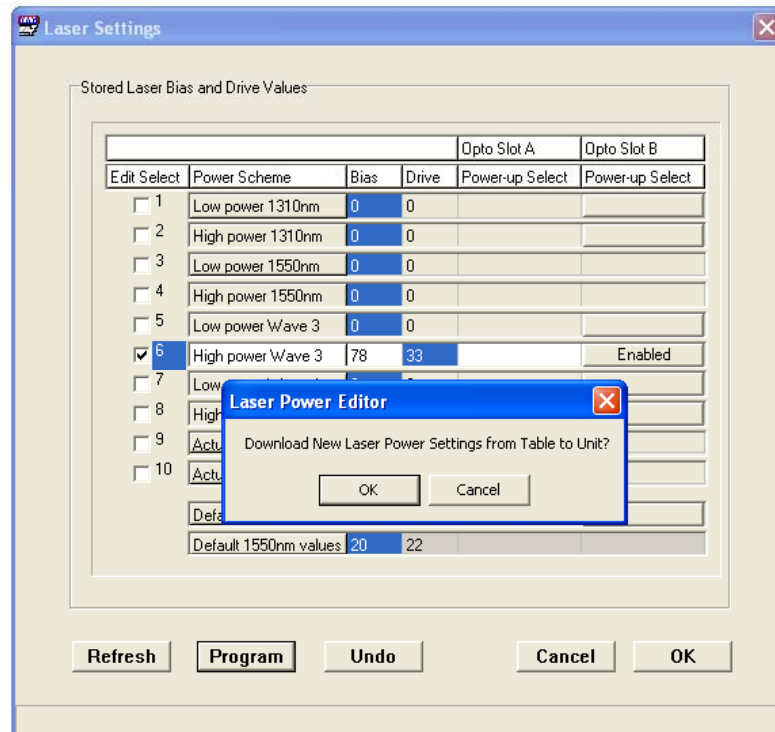


Figure 2: Laser Settings Dialogue Boxes

6. Wait 5 seconds and then confirm that new values have been loaded correctly by clicking 'Refresh' and observing the correct entries in the table. Repeat the procedure if there was a problem. Click 'OK' to close the dialogue box.
7. Select 'I/O Status' and click 'Opto Tx' in the Local Reset section (figure 3). Alternatively switch the Guardian unit off and on again to power reset the unit.

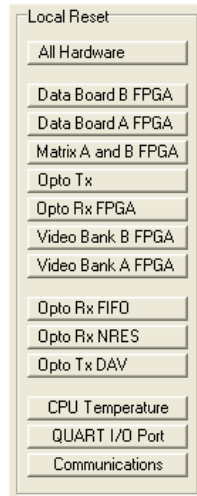


Figure 3: 'Opto Tx' Reset

Figure 4: High Power Settings

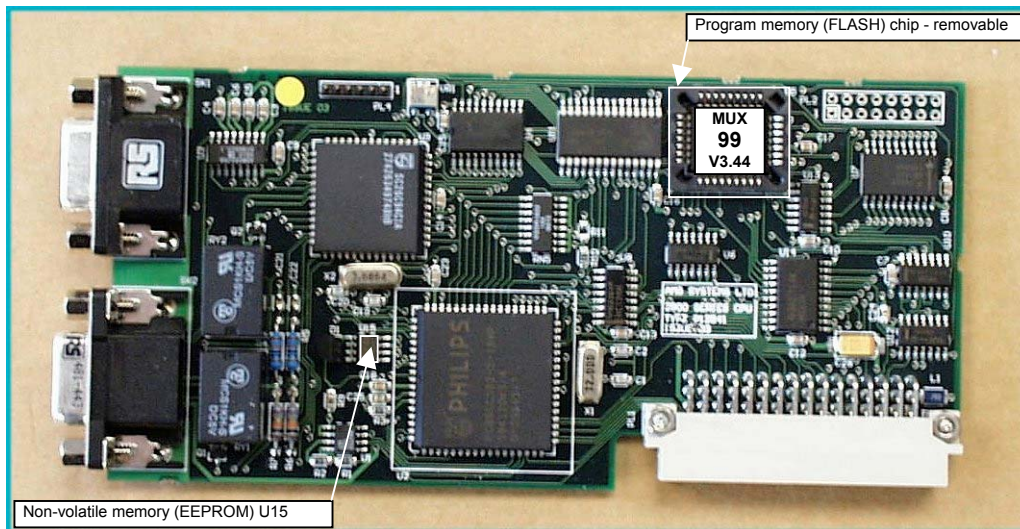
	Laser Bias	Laser Drive	Photodiode	Temperature
Upper	99	99	255	255
Actual	78	33	209	71
Default	26	20	128	128
Lower	0	0	10	0

8. Reselect 'Status Monitor' and observe the new entries for bias and drive in the 'Actual' row (figure 4). Also observe '+3dBm' in the laser description.
9. To restore the default laser settings select the 'Default' row in the Laser Settings dialogue box. Refer to Table 2 for the laser settings for each of the CWDM laser wavelengths.

Wavelength ID	Wavelength (nm)	Low Power		High Power	
		Bias	Drive	Bias	Drive
CWDM1	1510	26	20	78	33
CWDM2	1530	35	25	95	40
CWDM3	1550	35	25	95	35
CWDM4	1570	26	20	78	33
CWDM5	1470	26	20	95	40
CWDM6	1490	26	20	-	-

Appendix 1: Microprocessor Card Identification

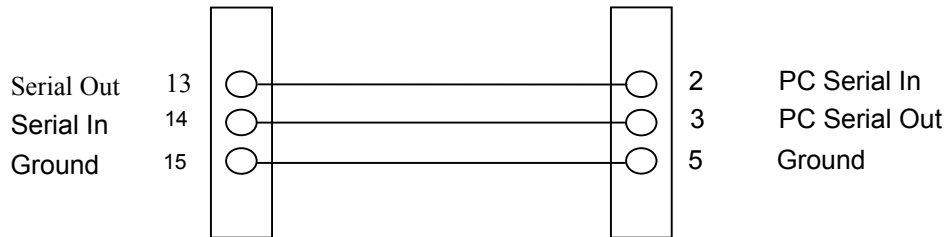
Figure App1.1: Microprocessor Board



Appendix 2:

MUXcomm Port Adapter Lead

Assembly/Wiring:



Connector:
Male 15 way
high density D type.
Farnell 225-204

Connector:
Female 9 way
D type.
Farnell 150-730

Title: 2800 Guardian Alarms I/O Port Serial Comms Adapter

Document: D12648 01 2800 Guardian Alarms IO Port Serial Comms Adapter.doc

Date: Iss 1 25/10/04

Drawn: AP

Approved: AP Page 1/1

Appendix 3: MUXcomm Software Operation

1. MUXcomm Software Installation and Operation

If an installation disk is supplied then place this in the CD drive. If the installation process does not auto start then click on 'Setup'. Follow the instructions.

If the installation software is supplied as a zip file via email then unzip the files and extract to a temporary directory. Run 'Setup' and follow the installation instructions.

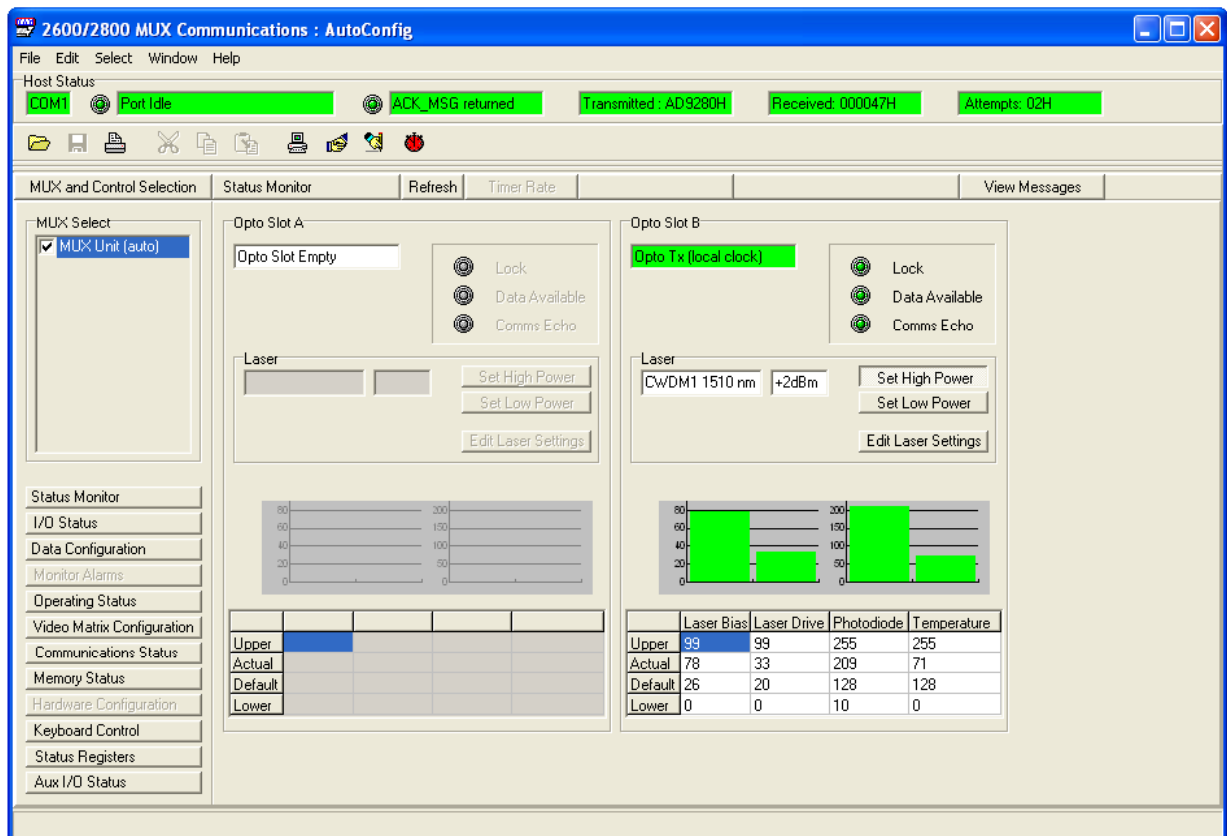
After installation click the Start button, select Programs->AMG SYSTEMS LTD->MUXcomm and then click the MUXcomm icon to start the program.

Each system has its own configuration file that is supplied with the Guardian system and that can be loaded into the MUXcomm program. From the File menu select Open and load the appropriate (*.vcm) configuration file. Alternatively use the automatic identification address by selecting 'Select Automatic Unit Configuration' from the File menu.

Click the 'Status Monitor' button. The status boxes should be green to indicate that the communications link has been established if a Guardian unit is connected to the host PC via a suitable serial connection. Use 'Configure Communications Port' under the 'Select' menu to check that the correct PC communications port is used and a 38400 baud rate is selected if there are problems.

The MUXcomm program allows the user to monitor the internal status of any unit in a ring network, alter the configuration, switch video and data signals etc. Click on other buttons to show other specific items in the master unit status. Select other units using the 'MUX Select' check boxes if there are other units in the system.

Figure App2.1: MUXcomm Program



2. MUXcomm Software Description

The AMG MUXcomm software is designed to allow monitoring of the status of the AMG2800 Guardian transmission units. It runs on a PC under Windows 98/XP. The MUXcomm software allows the user to interrogate any AMG2800 connected to the PC.

The connection to the PC can be via one of two means:

- i. Directly via the RS232 port number 2 on the rear of the AMG2800 Guardian using an adapter lead.
- ii. Remotely to any AMG2800 connected in a loop configuration so long as one of the AMG2800 in that loop is connected via its own RS232 port to the PC running the software.

A baud rate of 38400, 8 bits, no parity is normally used.

The **main screen** of MUXcomm allows the user to select any AMG2800 attached to the network.

It also provides the user with information on the status of the communication link between the PC and the targeted AMG2800. i.e. whether the target unit is responding, acknowledging, and returning information. Individual messages can be examined in detail in the message window. The main screen also allows the user to select from a number of System Status screens, which are as follows.

Status Monitor

This screen allows the user to monitor both in graphical and text form the receiver optical input power, the laser output power, the laser temperature. It also allows the user to increase or decrease the laser output power if this is appropriate.

I/O Status

This screen allows the user to monitor the status flags and also to reset any part of the hardware within the target unit.

Data Configuration

This screen allows the user to monitor and control the data boards within the target unit.

Operating Status

This screen allows the user to interrogate the operating and configuration status of the hardware within the target unit.

Video Matrix Configuration

This screen allows the user to manually change the video matrix switch configuration within the target unit. The user can select any optical channel to be connected to any video output channel and any optical channel to be connected to any video input channel within the target unit.

Communications Status

This screen provides the user with control of certain timeout parameters associated with the communication link between the PC and the targeted AMG2800. In addition the PC and the communication ports can be reset.

Memory Status

This is the non-volatile EEPROM memory status of the unit. This memory stores various system configuration information and the look up table required when the remote switching and routing capability of the AMG2800 system is used.

Keyboard Control

For an AMG2800 network, if the network has been configured using the AMG2800 Configuration Software, the user can select any camera number to any monitor number by a mouse operated soft keyboard provided on this screen.

Status Registers

This screen provides the user with all the information that is available regarding the status of the target AMG2800. Information includes:

- Software issue level
- Unit configuration
- Individual video input and output card status – whether present, whether video signal present
- Individual data card status – what is fitted, is data present.
- Individual optical card status – parameters such as laser power, laser temperature, receiver power, etc.

Aux I/O Status

This screen provides the user with all the information that is available regarding the status of the user inputs and relays.