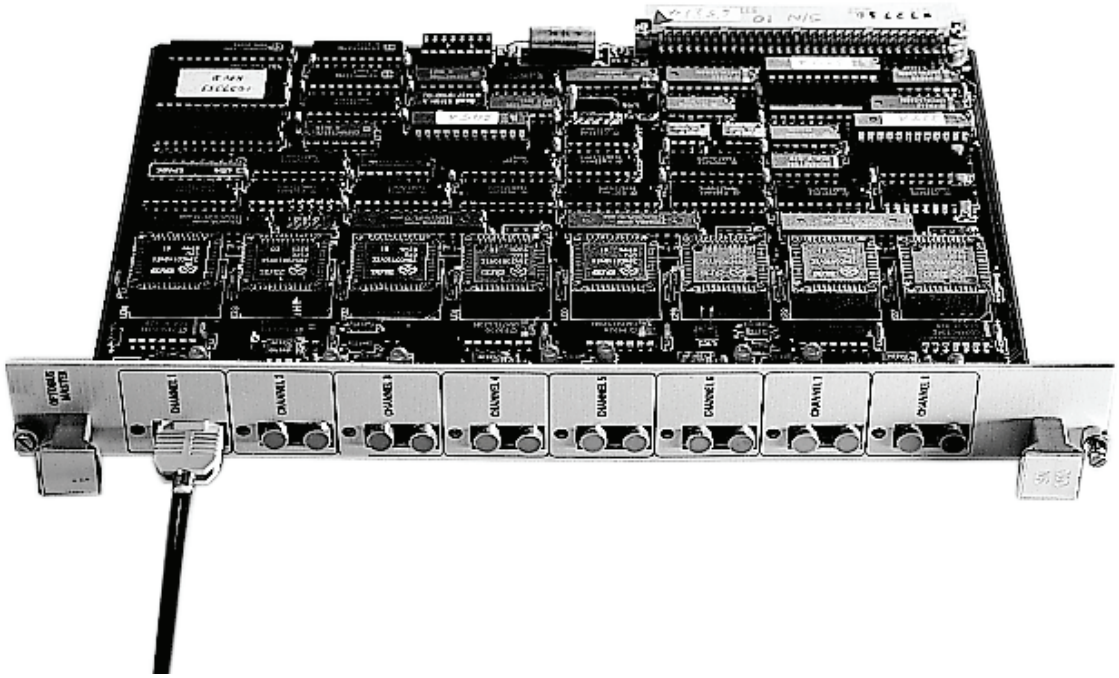
I/A Series® Remote Terminal Unit (RTU)
C50 OPTObus Master Module



FEATURES

- Star network to OPTObus Slaves; provides distributed I/O
- Up to 8 channels on each module
- Four onboard microprocessors
- Multiple processors to maximize performance
- Plastic optical fiber cables for quick and reliable connections; reduced cabling costs
- Transparent operation of the configurator and RTU software
- High speed data transfer

INTRODUCTION

The C50 OPTObus Master Module offers a convenient mechanism for configuring remote I/O files from the main RTU. The use of plastic optical fibers provide high isolation and noise immunity while keeping costs to a minimum.

Each C50 OPTObus Master Module can support up to eight remote I/O files. Each remote file can then support up to six I/O modules in the standard 19-inch configuration.

When equipment is distributed in clusters around a site, the OPTObus network becomes an ideal method of collecting data and controlling equipment while retaining only a single “RTU site”.

Configuring the unit is a simple process using the PC based “C50 Configurator” program. The operation of the OPTObus is totally transparent to the user configuring the unit, and to the RTU's software.

Operational Overview

Figure 1 explains the internal operation of a C50 OPTObus Master Module and its relationship to both the Electrobus interface and remote I/O units.

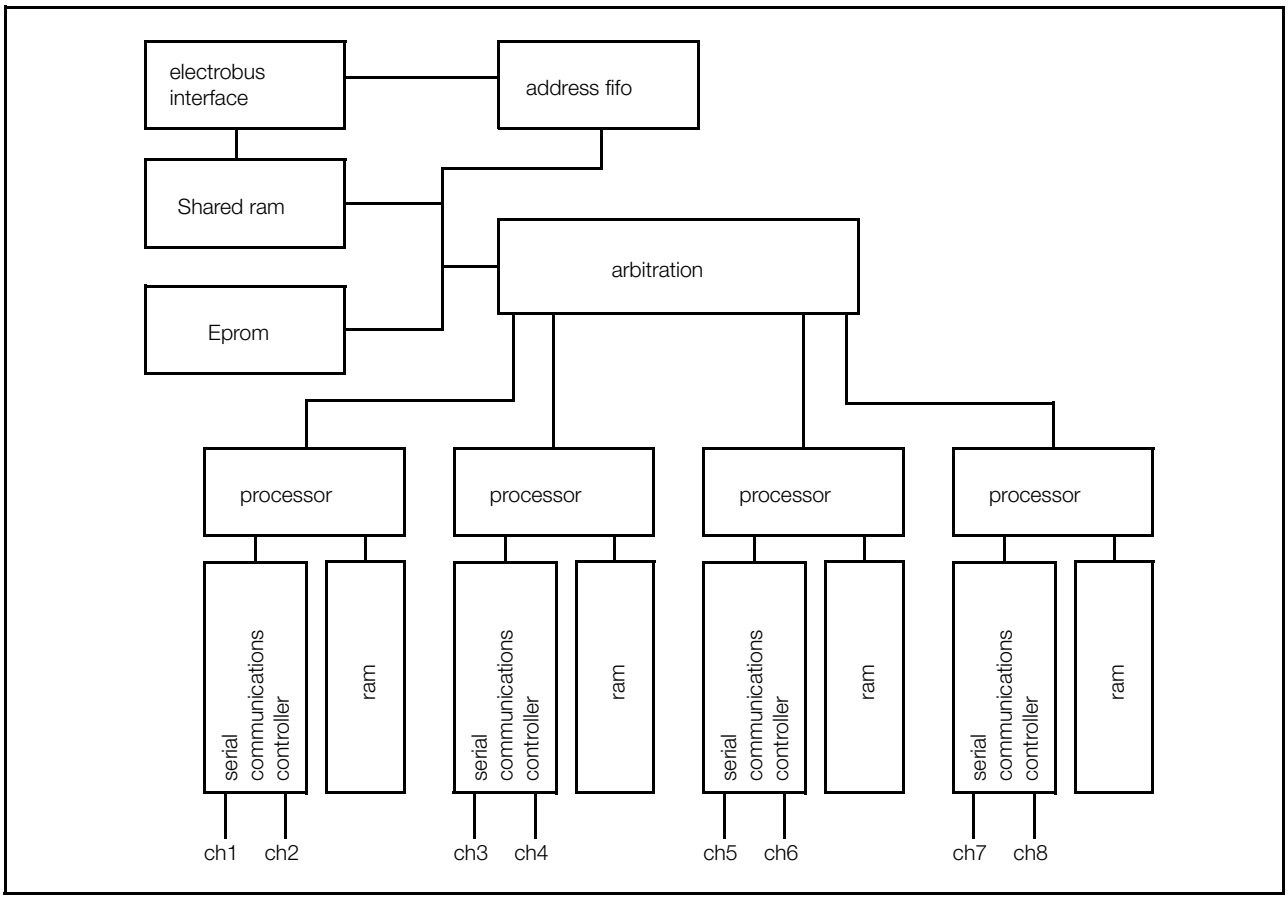


Figure 1. C50 OPTObus Master Module Functional Block Diagram

Processing

The role of the OPTObus Master (see Figure 2) and Slave Modules is to pass all communications between the Master Processor Module and any remote I/O location. To achieve this, a high speed optical link connects each of the distributed files (remote I/O files) to the OPTObus Master.

Four processors are necessary to control the eight data channels. Each of these processors is responsible for the operation of a serial communications controller that drives two optical channels. Each processor has access to shared RAM, which the Master Processor Module uses when communicating with an I/O module.

Transparent Operation

OPTObus operations are totally transparent to the user and the Master Processor Module. Processing operations, which are notified of changes to shared memory via an Address FIFO, are performed by four onboard microprocessors. Each microprocessor is notified of changes to areas of shared memory via an Address FIFO. The changes are transmitted to the OPTObus Slave, which writes the new data onto the correct I/O module.

If the OPTObus Slave detects any changes in the shared RAM of an I/O module, these changes are transmitted to the OPTObus Master, which updates its portion of shared RAM. The result is two identical copies of shared RAM, with one copy on the OPTObus Master and one copy on the distributed I/O module.

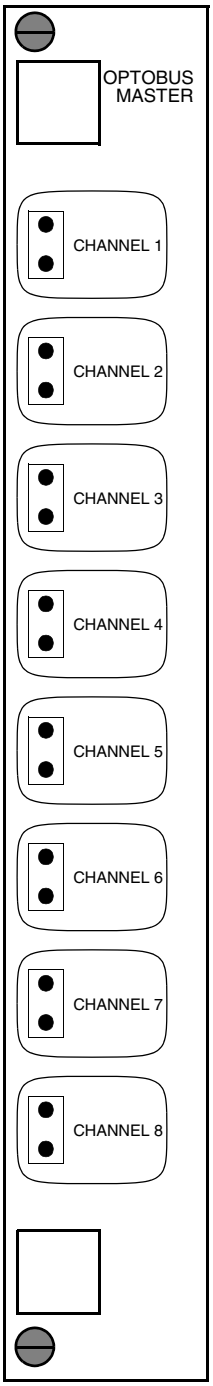


Figure 2. Front Panel

Addressing

Electrobus

When using an Electrobus only (see Figure 3), each module is addressed by its file and slot number, with a limit of four files and seven slots.

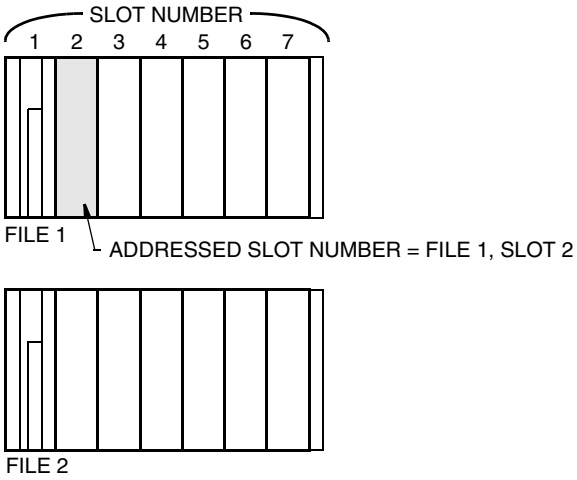


Figure 3. Module Address when Using an Electrobus

OPTObus

Files connected using an OPTObus configuration require a module address made up of two numbers: a *file* number and a *slot* number.

- The *file* number contains two digits: the first indicates the slot number where the OPTObus Master resides and the second denotes the optical channel that communicates with the Slave Module.
- The *slot* number indicates the slot where the remote I/O Module being addressed resides.

Figure 4 shows the address structure explained above. Creating addresses in this manner results in simplified procedures for module installation and configuration.

It also allows the OPTObus Master and Slave Modules to communicate independently of the Master Processor Module.

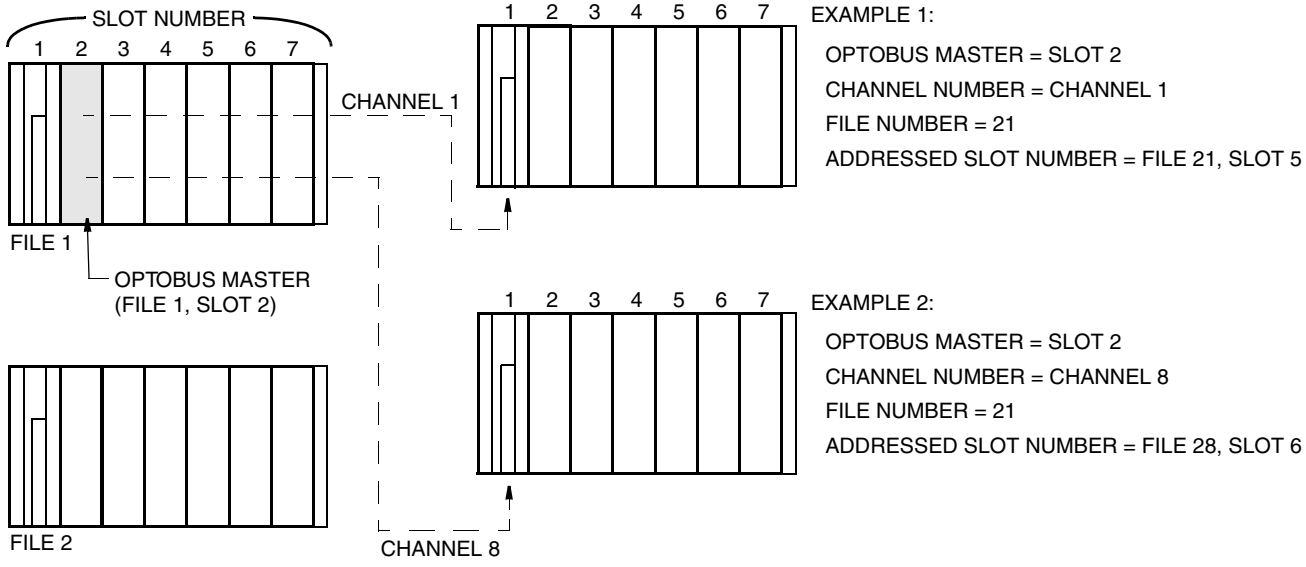


Figure 4. Module Address when Using an OPTObus

FUNCTIONAL SPECIFICATIONS

Number of Channels
Eight per module (maximum three modules/RTU)

Configuration
Optical fiber, star connected, master/slave network

Data Rate
230.4 Kbaud

Processor Type
Z84C01 (4 off)

Serial Controller
Z85230 (4 off)

Optical Interface
HP HFBR 0501 series driver and receiver

Optical Cable

PLASTIC FIBER
One core transmit; one core receive/per channel

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature

STANDARD
0°C to 60°C (32°F to 140°F)

EXTENDED(1)
-20°C to +70°C (-4°F to 158°F)

Humidity
10% to 95% (noncondensing)

PHYSICAL SPECIFICATIONS

Physical Size
Logic Module 233.4 mm x 60 mm
Termination Module 263 mm x 71 mm

Maximum Length Fiber
50 meters

Module Location
Must reside in file 1

ORDERING INFORMATION

Part Number	Description
0303316	OPTObus Master Module
1050046	OPTObus Master Firmware

NOTE
Firmware must be separately ordered and installed.

(1) Extended temperature range modules are available on request.

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