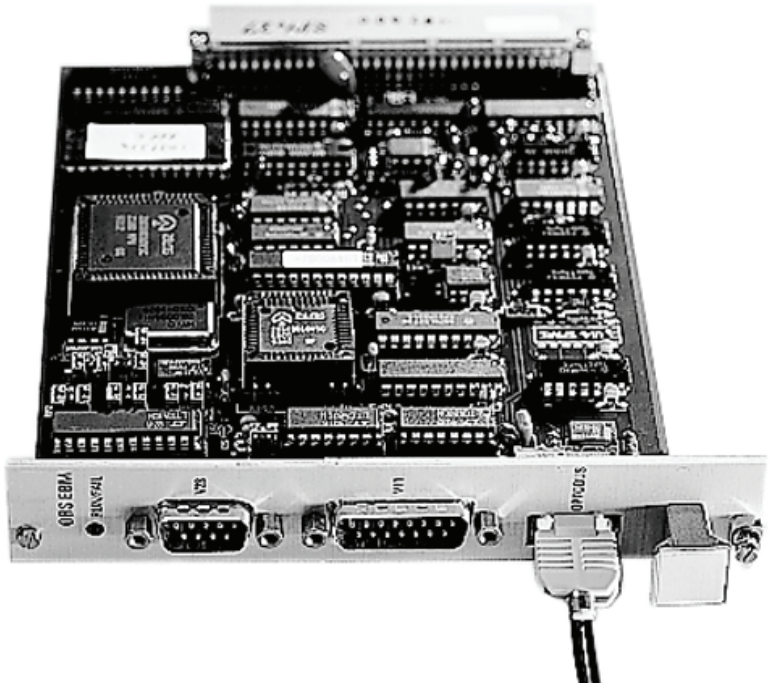
I/A Series® Remote Terminal Unit (RTU)
C50 OPTObus Slave Module



FEATURES

- Star network of slave modules from OPTObus Master, providing distributed I/O
- Each OPTObus Slave module provides addressing for one card file of I/O modules with onboard microprocessors
- Plastic optical fiber cables for quick and reliable connections; reduced cable costs
- High speed data transfer
- Transparent operation of the configurator and RTU software

INTRODUCTION

The OPTObus network offers a convenient mechanism for communication between remote I/O files and the main RTU. The use of plastic optical fibers provides high isolation and noise immunity while keeping costs to a minimum.

Each C50 OPTObus Master Module can communicate with a C50 OPTObus Slave Module in each of eight remote 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 for collecting data and controlling equipment while maintaining a single RTU site.

Operational Overview

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

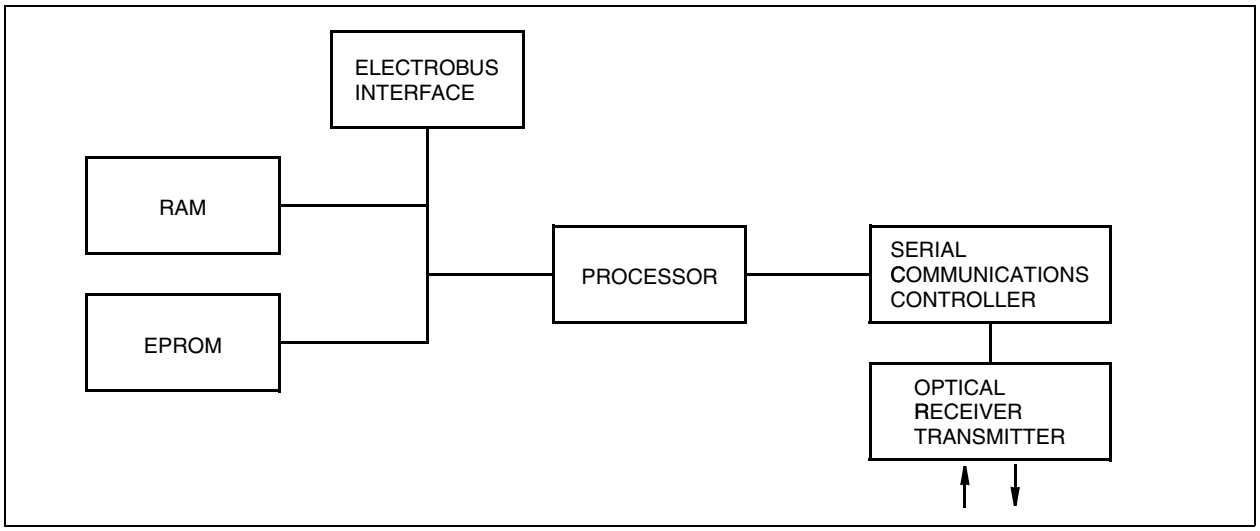


Figure 1. C50 OPTObus Slave Module Functional Block Diagram

Processing

The role of the OPTObus Slave Module (see Figure 2) is to pass all communications from the I/O Modules to the Master Processor Module in the OPTObus Master Module. To achieve this, a high speed optical link is used to connect each of the Slave Modules to the OPTObus Master.

An onboard microprocessor is used to process information for the Slave Modules; each Slave Module has direct access to the I/O modules within its own file.

Transparent Operation

OPTObus operations are transparent to the user and the Master Processor 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.

If a control output is required, the two pass control signals are transmitted from the Master Processor Module to the output card in the same manner and from there to the Slave Module.

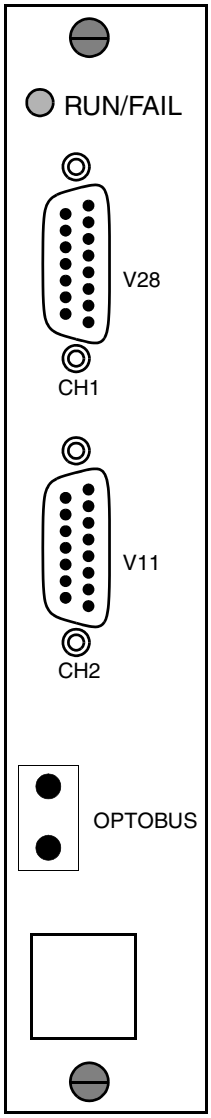


Figure 2. Front Panel

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.

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 digit 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.

Addressing

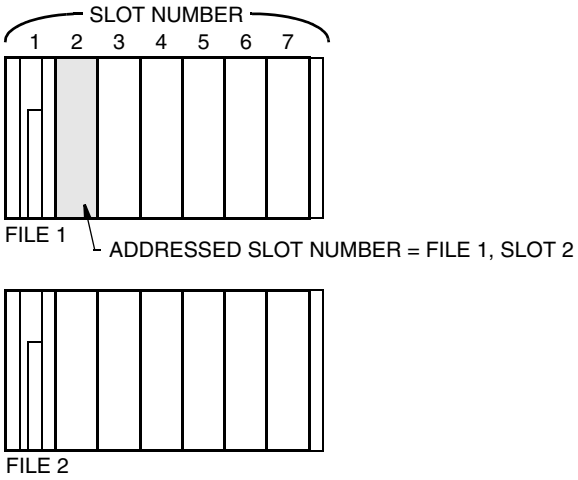


Figure 3. Module Address when Using an Electrobus

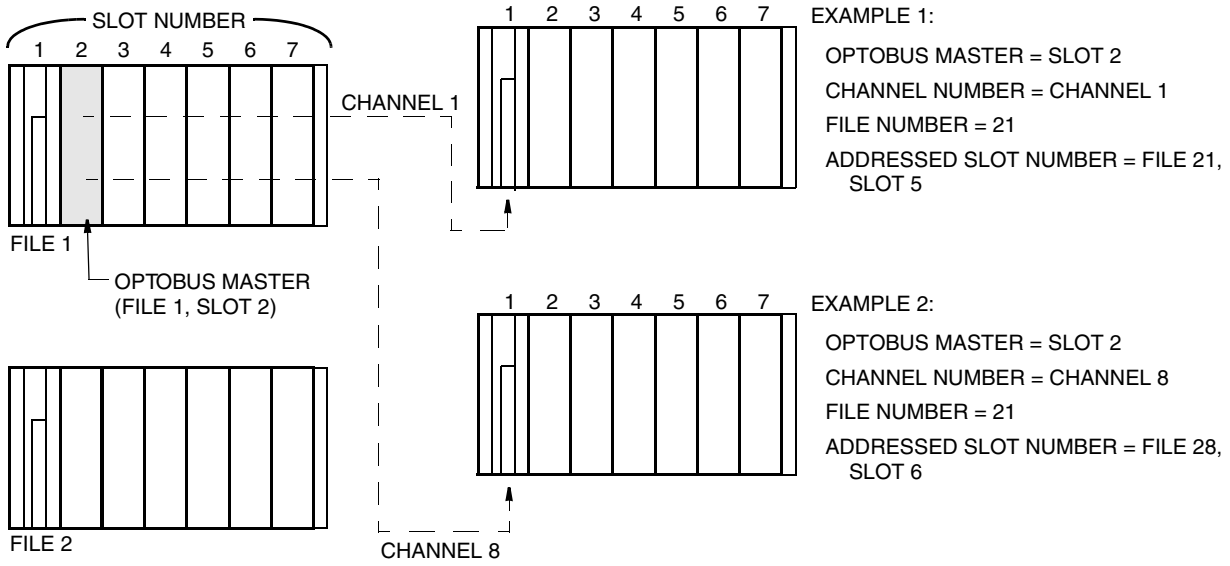


Figure 4. Module Address when Using an OPTObus

FUNCTIONAL SPECIFICATIONS

Number of Channels
1/module

Configuration
Optical fiber, star connected, master/slave network

Maximum Length Fiber
50 meters

Data Rate
230.4 Kbaud

Processor Type
Z80180 (1 off)

Serial Controller
Z85230 (1 off)

Optical Interface
HP HFBR 0501 series driver and receiver

Optical Cable

PLASTIC FIBER
one core transmit
one core receive

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
160 mm x 125 mm

Module Location
Must reside in slot 1 of the distributed file

Interfaces Available for Communication with External Devices
V.28 Port
V.11 Port

ORDERING INFORMATION

Part Number	Description
0303317	OPTObus Slave Module
1051001	OPTObus Cable (specify length)
1050047	OPTObus Slave Firmware

NOTE
Firmware must be separately ordered and installed.

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

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