



This white paper gives a broad, slightly technical overview of StarBus features and applications. It covers the twisted-pair version ('Classic StarBus'). A sister product, [StarBus for Ethernet](#), multiplexes any number of serial or parallel data-conversations onto an Ethernet. Each unit has two serial and one parallel port, which can each make and break remote links independent of the other two ports.

StarBus is a multidrop smart switch. This white paper introduces the product in some detail. You can also download an easy-to-follow [demo](#) which focuses on the desktop (non-controller) applications.

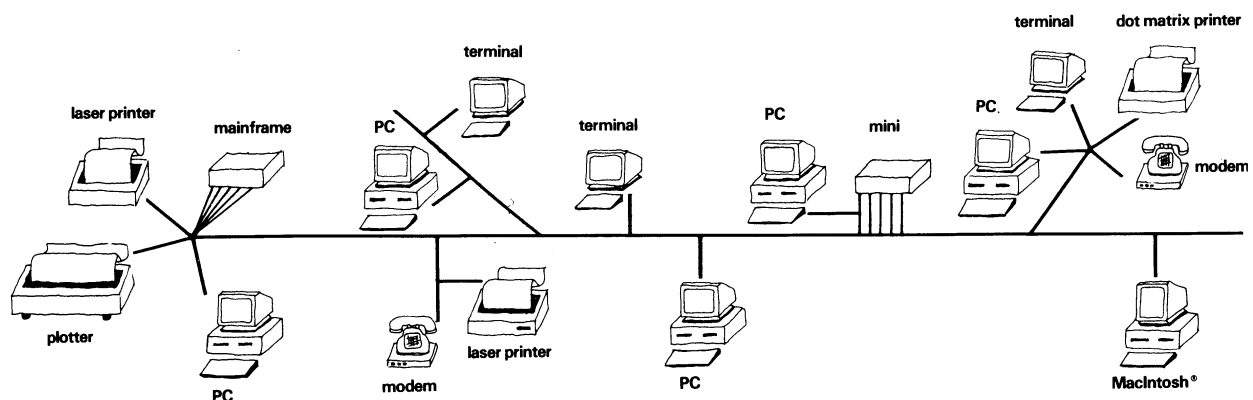
StarBus uses a *fully distributed approach toward RS-232 switching*. It uses no hub, server or even computer cables. StarBus multiplexes data from many serial devices onto one pair of ordinary wire. The shared wire signal conforms to the RS-485 specification, but unlike any other RS-485 device, there are no slave ports. Every single device can be a network master simultaneously and behave as if it controls the entire network. Connections can be issued in 3 ways: simple menu commands, commands embedded in your controller or front-end scripts, or by configuring units to send to a predetermined address – or even a group address – if data is not preceded by an explicit command. Compared to modems, switches or software LANs, StarBus increases speed, overcomes distance limitations, and solves bus contention problems.

StarBus serves two different markets. As a technical introduction, the traditional non-controller application is described first. The controls/alarm version used by Andover is described on page 3.

## 1. PERIPHERAL SHARING AND FILE TRANSFER

In a typical office, StarBus connects up to 50 computing devices – each engaged in printing, background spooling, or full-duplex file transfer. In this application, StarBus acts as a “data intercom”. The product is incredibly easy to use. Even though all users share a single pair of telephone wire, StarBus is not susceptible to network saturation like a software LAN. Because data from each user is buffered and multiplexed up to network speed, before entering the network wire.

This scheme of packet-switching data onto a shared pair of high-speed wire lets you configure StarBus as a star (for example, from your telephone closet), or as a long multidrop bus (any length up to 4,000 feet).

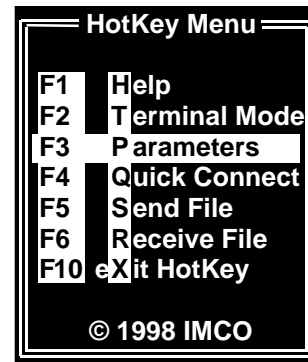


### ... Operation on IBM PCs (this page elaborates on *non-controller* application)

The built-in StarBus menu system is very intuitive. No software is needed. However, we include a pop-up utility that lets makes it alarmingly easy to connect, disconnect, transfer files or map the network. To access this QUICK CONNECT menu, simply press the two shift keys at any time (try this in our [demo](#))!



*The Quick Connect Menu*



*Transfer Files or Change Protocols*

### ... Operation on Anything Else

Menus shown below are built into the StarBus station, which attaches to your RS-232 port. PCs, MACs, terminals – in fact, *any serial device* – can control StarBus with single-letter commands or by embedding commands within your data. Any port can connect, broadcast, disconnect, reconfigure parameters, get a network map, or even setup remote connections. You can also queue to a busy station, or, if you don't require a full-duplex connection, send data right now. It will be delivered when the remote device is free.

```

M A I N   C O M M A N D S

C name CONNECT to any station
C x y Connect station X with Y
D x  DISCONNECT remote station
H     HELP: list main commands
I name INITIALIZE any station
N     Show NETWORK user map
P name List PARAMETERS(any unit)
Q name QUEUE to a remote station
Q/L n LIST QUEUE of any station
V     VERSION and serial number
W n   Show WHO is station #n?
Y     Advanced Command List
Z     Go into SLEEP mode
!     Abort text response

Press DISCONNECT char 3 times
to break a connection or awaken

```

```

NETWORK STATUS:

#  NAME      STATUS  -P R O T O C O L S- ECHO LVL TIME BUF
-----
1.  LASER    READY   19.2k  NONE (8) BOTH Off  1  15 m  38
3.  JAIME    BUSY-11 38.4k  NONE (8) DTR  Off  1  NONE  38
4.  GERRY    READY   9600   ODD (7) DTR  On   1  NONE  ACK
5.  STUART   READY   19.2k  EVEN (7) DTR  Off  1   5 m  38
10. PHIL     FUNCTION 38.4k  NONE (8) DTR  Off  1  NONE  38
11. PLOTTER  BUSY-03 2400   ODD (7) XOFF Off  2   5 m  HST
12. HAROLD  OFF-LINE 19.2k  NONE (8) DTR  Off  1  NONE  38
14. LINDA   READY   9600   NONE (8) DTR  Off  1  NONE  38
21. MODEM33 READY   38.4k  NONE (8) NONE Off  2   5 m  HST
26. MODEM24 OFF-LINE 2400   NONE (8) NONE Off  2   5 m  HST

```

```

SCI> c modem33
...Connected to MODEM33, station #21.

```

The interactive demo takes only 10 minutes. It provides an overview of the menu and command features, and is also a highly effective sales tool. If you are interested in office applications, please give it a try.

## 2. Use With Controllers

10 years ago, StarBus was by spec'd by Andover Controls. They remain our biggest client. Today, most units are shipped for control applications. StarBus is endorsed by major manufacturers for both in-plant process control and, on large campuses, for environmental control and security applications. Over the years, StarBus has evolved through 3 major designs, including the new Series-C.

StarBus makes a superior distributed interface for almost any controller application. It overcomes bus contention by multiplexing all data onto a single high speed wire pair (or [Ethernet](#)). It increases speed, overcomes distance limitations, and resolves bus contention (in 'Andover lingo': it supports C-Bus, S-Bus, Nucleus, SX, CX and CMX). With optional network repeaters, length is extended up to 25 miles without individual port extenders! We offer both copper and fiber repeaters.

As with the office environment, StarBus supports 50 devices, each involved in independent data conversations at any mix of communications rates. But to further address the controls dealer, we have designed a special Andover-version. These units contain custom controller features:

- a) single-keystroke configuration of parameters for Andover products
- b) special handshake modes directly support any type of controller or front-end software
- c) a DATAGRAM feature supports alarms and queued connections
- d) a HOME BASE feature allows automatic routing of data, without issuing commands
- e) a GROUP ADDRESS feature supports multiple-address alarming
- f) includes a *user-programmable* attention sequence
- g) rear screw posts (in addition to standard RJ-11 jack) for network connection

## Installing Starbus

First connect a StarBus box (called a Busdriver) to the serial port of each PC, printer, modem, plotter and even your minicomputer ports (we include a standard 25-pin connector). Then connect the telephone-style jack on each Busdriver to a spare pair of telephone wires. Each user communicates at any speed from 110 bps to 57,600 bps without degrading the performance of the other network users.

## PRICING

In addition to our own dealers, we cross-license Andover Controls to sell and service StarBus at their control sites. If you administrator a site that is currently serviced by an Andover dealer, please contact them first. They can often provide excellent pricing, because their cost is based upon Andover's world-wide volume (in excess of 5,000 units). If you would like to discuss direct pricing, please write to Dealer@StarBus.com. I will work with you to ensure that you are happy with the pricing that you receive.

If you are a controls dealer, we will work with you aggressively during the contracting process to insure that your customer understands and desires the distance, power and flexibility which StarBus yields over conventional data switching.

IMCO supports your contemplated purchase both before and after a sale. Controls dealers receive continuous support and air replacement. Please do not hesitate to call as you research StarBus and again when you configure and install.