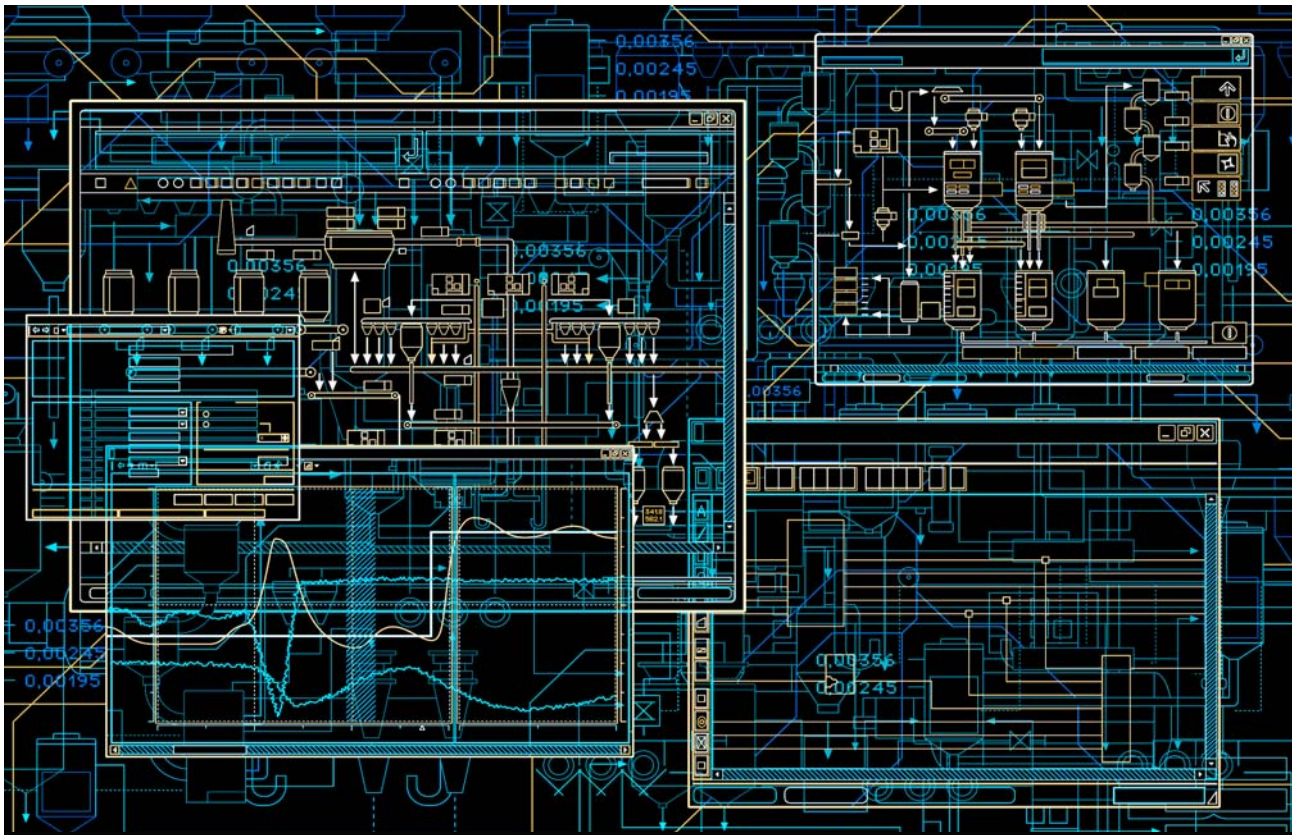


Advant Fieldbus 100

User Manual

Power and productivity
for a better world™

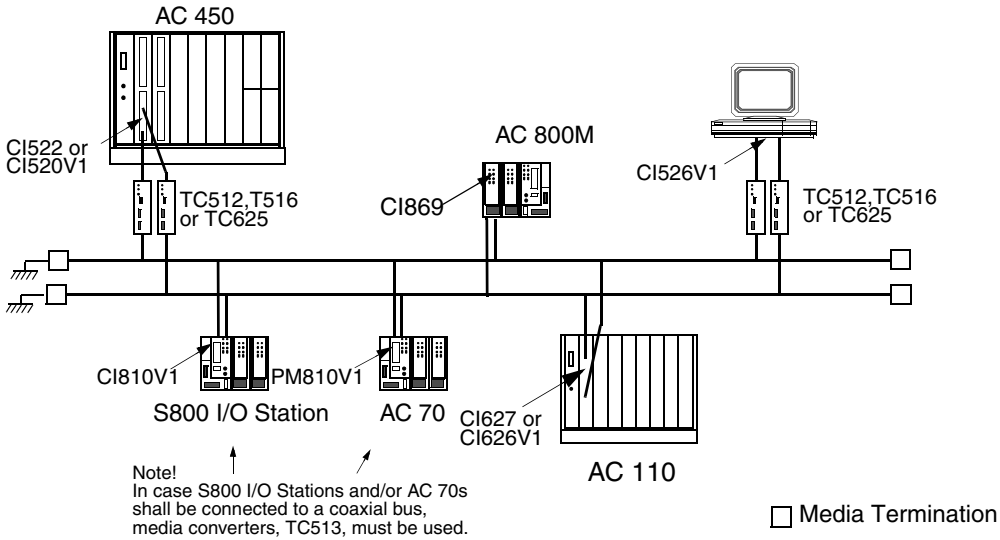


Figure 1. An Advant Fieldbus 100 configuration using redundant media

If the Advant Fieldbus 100 contains one or more of CI520, CI526, CI626, CI810 or PM810 (without the suffix Vx(1) or y(2)), it is only possible to use redundant coaxial media with a maximum difference of four meters in cable length, between any two stations on the bus. A redundant Twisted Pair or Optical media cannot be used in this case.

(1) V1, V2, V3, and so on
(2) y=A, B, and so on

Communication Interface Redundancy

Communication interface redundancy is achieved by using a pair of CI522s, CI630s, CI631s, CI869s or CI820s, connected to a media redundant bus. Communication interface redundancy is available for Advant Controller 400 Series, Advant Controller 160, AC 800M controller, and S800 I/O stations.

Two communication interfaces (CIs) can operate as a pair, where one is Primary and the other is Backup in the controller configuration.

Functions of Primary CI

In a redundant configuration, the address of the primary CI is the configured station address on the bus.

The primary CI:

- Sends all output CDPs.
- Receives all input CDPs.
- Sends the time synchronization message if the station is configured as time synchronization master.
- Handles the normal Service Data communication for the station.
- Supervises that the backup can send on the bus. This is done at a low frequency using the service data protocol.
- Must be configured as bus master if the module is CI522/CI630 or CI631, so that the bus master responsibilities are performed.

The TC516 modem has two connections, one for each redundant CI522 and a connection to one twisted pair bus cable. TC516 can be used for two redundant CI522s as well as for one single CI520V1/CI522/CI526V1.

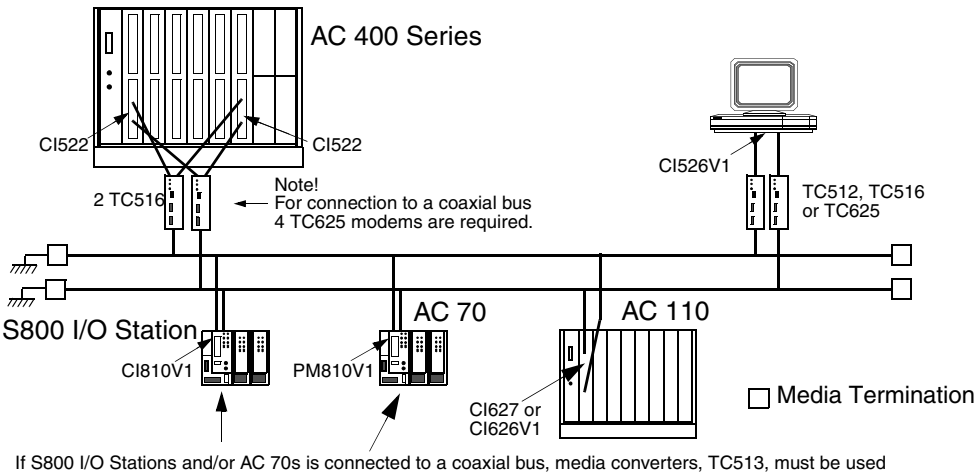


Figure 2. Communication interface redundancy in AC 400 Series

If communication interface redundancy is used, set the DB-element for double time-out. See Double CDP Time-out on page 88.

Communication Interface Redundancy in Advant Controller 160

For configurations with one Advant Fieldbus 100, the communication interface CI630/CI631 must be placed at position 2 (non redundant interface) or in position 1 and 2 (redundant interface) in the Basic Station.

A second and third Advant Fieldbus 100 can be used with AC 160. These can use single or redundant communication interfaces. The communication interfaces can be placed at position 9 and 10, or 11 and 12, and so on.

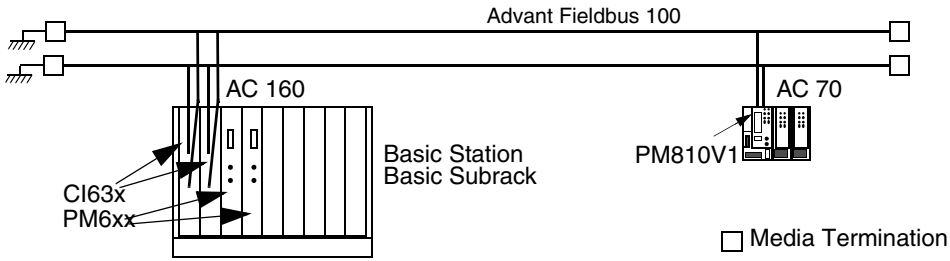


Figure 3. Communication Interface Redundancy in Advant Controller 160

S800 I/O Field Communication Interface Redundancy

The redundancy in the S800 I/O Stations is achieved with redundant Field Communication Interfaces (FCIs) connected to a media redundant Advant Fieldbus 100. In the S800 I/O station, redundancy is achieved with redundant S800 communication interfaces sharing the same I/O modules. This redundancy follows the same principles as the communication interface redundancy in the Advant Controller 400 Series.

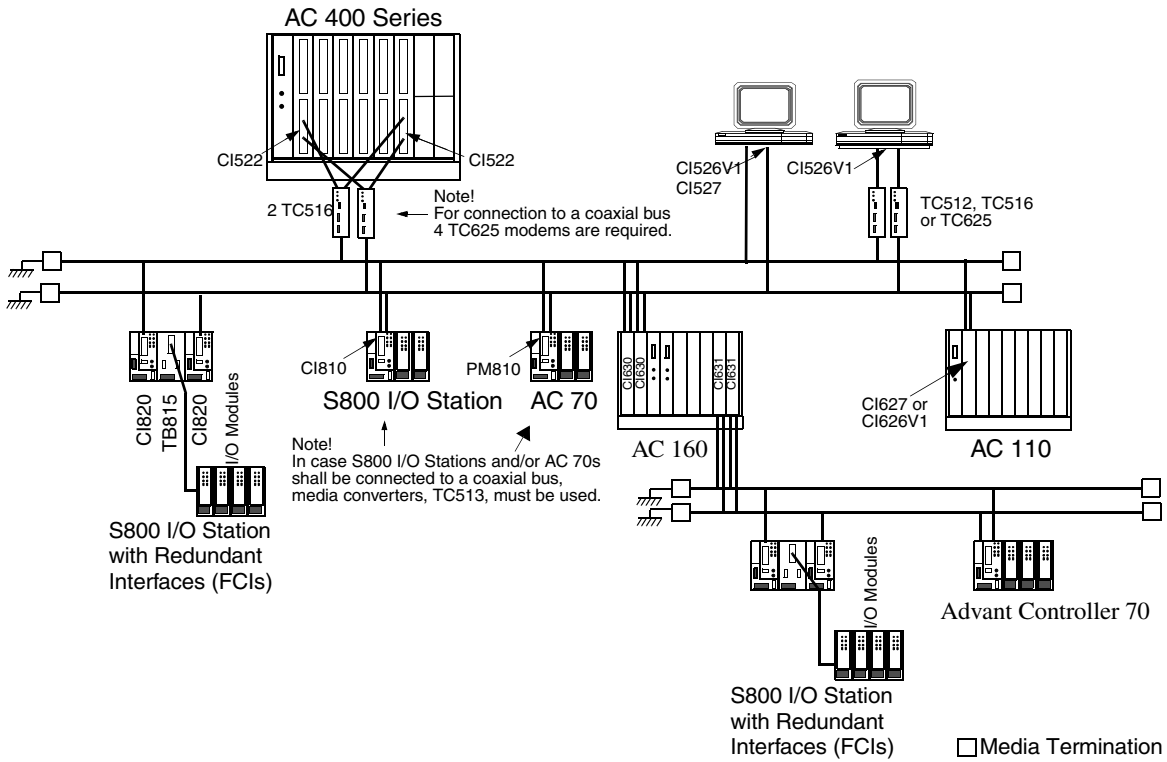


Figure 4. S800 I/O station redundancy on Advant Fieldbus 100

Communication Interface Redundancy in AC 800M

The communication interface redundancy in AC 800M is achieved by using two CI869 modules that are connected to the same AC 800M controller. One of the CI869 modules is configured as primary, while the other is configured as backup.

Failover time for CI869 and Double DSP timeout

The failover time is the time that the backup CI869 takes to function as primary without error, if the primary CI869 does not work properly.

The other stations on the AF 100 bus do not influence the failover of the CI869 modules.

The backup CI869 is supervising that the primary CI869 is sending its CDPs with the expected cycle time. If the backup CI869 detects that the Primary CI869 does not send its CDPs as it should, it triggers the AC 800M controller to perform a failover of CI869.

The 'Double DSP timeout' parameter must be enabled for an AF 100 station that is receiving DSP data from another AF 100 station that uses redundant communication interfaces. For details, refer to the Online Help of Control Builder.

Cable Redundancy and Partner Supervision

In a redundant configuration, the primary and the backup CI869 modules supervise that the communication happens between them.

The backup CI869 supervises that the primary CI869 sends its CDPs as it should. For this, it is required that both the cables that are connected to the backup CI869 have bus traffic.

If any of the cables connected to the backup CI869 are without bus traffic for 10 ms or more, the Partner Supervision is disabled, and:

- If the parameter "Cable" on the CI869 hardware editor is set to *Redundant*, the `Partner Supervision not active` unit status bit is set on the backup CI869 hardware unit.
- If the parameter "Cable" is not set to *Redundant*, the status bit is not set. However, a warning stating that the Partner Supervision requires redundant lines is displayed during the download of this redundant CI869 configuration to the controller.

Advant Fieldbus 100 Length Concept

The Advant Fieldbus 100 length concept helps to configure the bus for three different lengths and thereby achieve different combinations of physical distance and performance.

Table 6. Advant Fieldbus 100 Equipment Items

Equipment Item	Type Designation	Description	Remarks
Advant Controller 70	PM810V2	Processor Module including Advant Fieldbus 100 Communication Interface with Twisted Pair connectors and integrated modem. New compatible Twisted Pair connectors. Supports: Full redundant media	
	PM810V1	Processor Module including Advant Fieldbus 100 Communication Interface with Twisted Pair connectors and integrated modem. Supports: Full redundant media	Replaced by PM810V2
	PM810	Processor Module including Advant Fieldbus 100 Communication Interface with Twisted Pair connectors and integrated modem. No redundant media support	Replaced by PM810V1
Advant Controller 110 & Advant Controller 160 Interface	CI626V1	Interface with coaxial connectors and integrated modem. Supports: Full redundant media	
	CI626	Interface with coaxial connectors and integrated modem. Reduced redundant media support, max 4 meters cable difference between any two station on the bus, on coaxial media only.	Replaced by CI626V1
	CI627	Interface with Twisted Pair connectors and integrated modem. Supports: Full redundant media	

Table 6. Advant Fieldbus 100 Equipment Items (Continued)

Equipment Item	Type Designation	Description	Remarks
Advant Controller 160 Interface	CI630	Interface with coaxial connectors and integrated modem. Supports: Full redundant media Communication interface redundancy support.	
	CI631	Interface with Twisted Pair connectors and integrated modem. Supports: Full redundant media Communication interface redundancy support.	
Advant Controller 400 Series Interface	CI522A	Interface with connectors for special modem cables. Full redundant media support. Communication interface redundancy support. Long distance AF 100 support See Figure 1, Figure 2, and Figure 4.	
	CI522	Interface with connectors for special modem cables. Full redundant media support. Communication interface redundancy support. See Figure 1, Figure 2, and Figure 4.	Replaced by CI522A
	CI520V1	Interface with connectors for special modem cables. See Figure 1. Full redundant media support	
	CI520	Interface with connectors for special modem cables. See Figure 1. Reduced redundant media support, max 4 meters cable difference between any two station on the bus, on coaxial media only.	Replaced by CI520V1

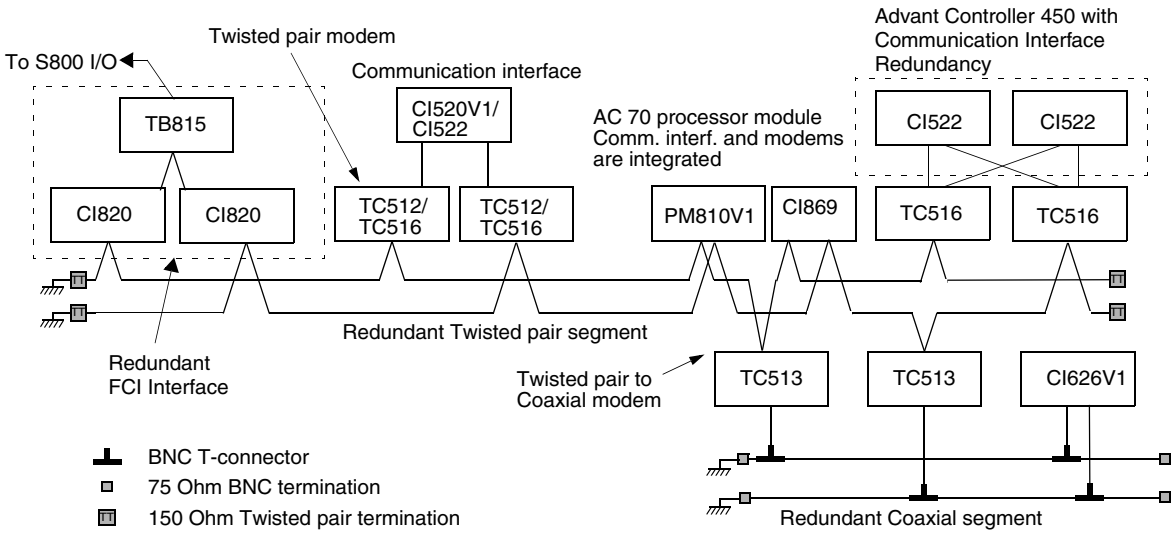


Figure 7. Redundant twisted pair media with conversion to coaxial media