Section 1 Introduction

Product Overview

Product Scope

The products described are utilized for general network communication of real-time data between controllers and computers in an industrial environment.

Network Communication

It is recommended to use *Control Network* which is a private IP network domain especially designed for industrial applications. This means that all communication handling will be the same, regardless of network type or connected devices. Control Network is scalable from a very small network with a few nodes to a large network containing a number of *network areas* with hundreds of addressable nodes (there may be other restrictions such as controller performance).

Control Network uses the *MMS* communication protocol on Ethernet and/or RS-232C to link workstations to controllers. MMS (Manufacturing Message Specification) is an ISO 9506 standard. In order to support Control Network on RS-232C links, the *Point-to-Point Protocol* (PPP) is used. The *Redundant Network Routing Protocol* (RNRP) developed by ABB handles alternative paths between nodes and automatically adapts to topology changes. MMS is described in Section 2, MMS.

In addition, other protocols such as MB 300, COMLI, Siemens 3964R, MODBUS RTU, MODBUS TCP, SattBus, and MOD5-to-MOD5 can be used. Fieldbuses such as FOUNDATION Fieldbus HSE, PROFIBUS DP (according to IEC 1158-2 and EN 50170), PROFINET IO, DriveBus, INSUM, IEC 61850, Advant Fieldbus 100 (AF 100), and EtherNet/IP and DeviceNet can be connected to the network via communication interface units. UDP/TCP Communication Libraries are used to communicate with external devices through Ethernet with user-defined protocols.

Table 1– Table 4 give concise information to be used when selecting protocols.

The Control Network, as well as other protocols and fieldbuses, is configured by means of the project explorer in Control Builder (see Figure 1). The Control Network is specified by settings in the parameter lists, accessed by right-clicking the symbols for the CPUs and the Ethernet and/or PPP symbols (see Section 2, MMS for further information). Hardware configuration is explained in the Control Builder online help. PC nodes are specified in the PC setup wizard.

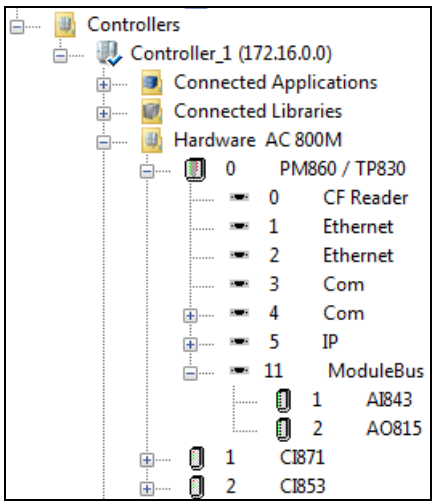

Figure 1. Project Explorer

ABB I/O Systems

- S100 I/O is connected to AC 800M via CI856.
- S200 I/O is connected to AC 800M via CI854 and CI865. Please refer to the manual *S200 I/O Hardware, Hardware and Installation, User's Guide (3BSE021356*)* for more information.
- S800 I/O is connected to AC 800M via modulebus and CI854. Please refer to the manual *S800 I/O - General Information and Installation - User´s Guide (3BSE020923*)* for more information.
- S900 I/O via CI854.
- TRIO is connected to AC 800M via CI862. Please refer to the manual 800xA for *TRIO/Genius - Introduction and Installation (3BUR002459*)* for more information.
- Satt 19'' Rack I/O is connected to AC 800M via CI865. Please refer to the manual *Satt I/O Interface for AC 800M (3BSE042821*)* for more information.