Field Termination Assemblies

All connections to and from the process are made to Field Termination Assemblies (FTAs). Compression-type termination blocks (that can accept wire sizes as large as 14 AWG or ~1.6 mm) are available for all FTAs. Screw-type termination's can also be provided for most FTAs as shown in Table 1 in the "Specifications" section. The FTAs are connected to the I/O processors by cables that can be up to 50 meters in length. Three sizes of FTAs are used as shown in this table. Twenty-four Vdc transmitter and digital inputs sense power connections are provided through the standard FTA cable.

Options

I/O Redundancy

A one-on-one I/O redundancy option is also available for critical high level analog inputs, smart transmitter interface connections, analog outputs, digital inputs and digital outputs. This option offers significantly increased availability of automatic control by providing continuous operation through failure and replacement of I/O Processors, FTA cables, backplanes, and AO switching hardware. Up to 40 I/O Processors can be supported in a redundant or non-redundant PM, APM, or HPM, and the user can selectively apply redundancy to some or all IOPs, for a maximum of 40 IOP pairs. The one-on-one design approach offers maximum coverage and fast switchover times. Integrity of the backup database and of the switching functions is provided through the extensive diagnostic coverage made possible by the processing capability of the smart I/O Processors.

Galvanically Isolated/ Intrinsically Safe FTAs

These FTAs are available for applications requiring a direct interface to either FM or CSA Class 1, Div 1, or CENELEC Zone 0 hazardous areas. Wiring and installation are simplified because integral galvanically isolated intrinsic safety isolators are part of the FTA. See GA03-100, Galvanic Isolation/ Intrinsic Safety Specification and Technical Data for further information.

Standby Manual

The 16-point digital output FTA and both analog output FTAs (8-point and 16-point) support connection to a standby manual unit. This option allows outputs to be maintained during I/O Processor replacement.

Remote I/O

Remote I/O options are available to enable IOPs and FTAs to be distributed at up to six remote sites (see Figure 5). Using redundant fiber-optic cables to extend the I/O Link, remote I/O installation benefits from inherent immunity against ground potential differences and EMI/RFI. In addition, remote installation of IOPs and FTAs can significantly reduce signal wire runs.

Two options are available. The Remote I/O option supports remote sites up to 1 kilometer from the main PM/APM/HPM electronics, while the Long Distance I/O option provides for separation of up to 8 kilometers. Either option requires an I/O link Extender pair (IOLE) at both ends. The 1-km option supports up to three remote sites for each IOLE, while the 8-km option requires one IOLE per remote site.

FTAs at the remote site may be located an additional 50 meters from the I/O Processors. LLAI Mux, Serial Device, or Serial Interface FTAs may be located an additional 300 meters away. The RHMUX FTA may be located an additional 2 km away.
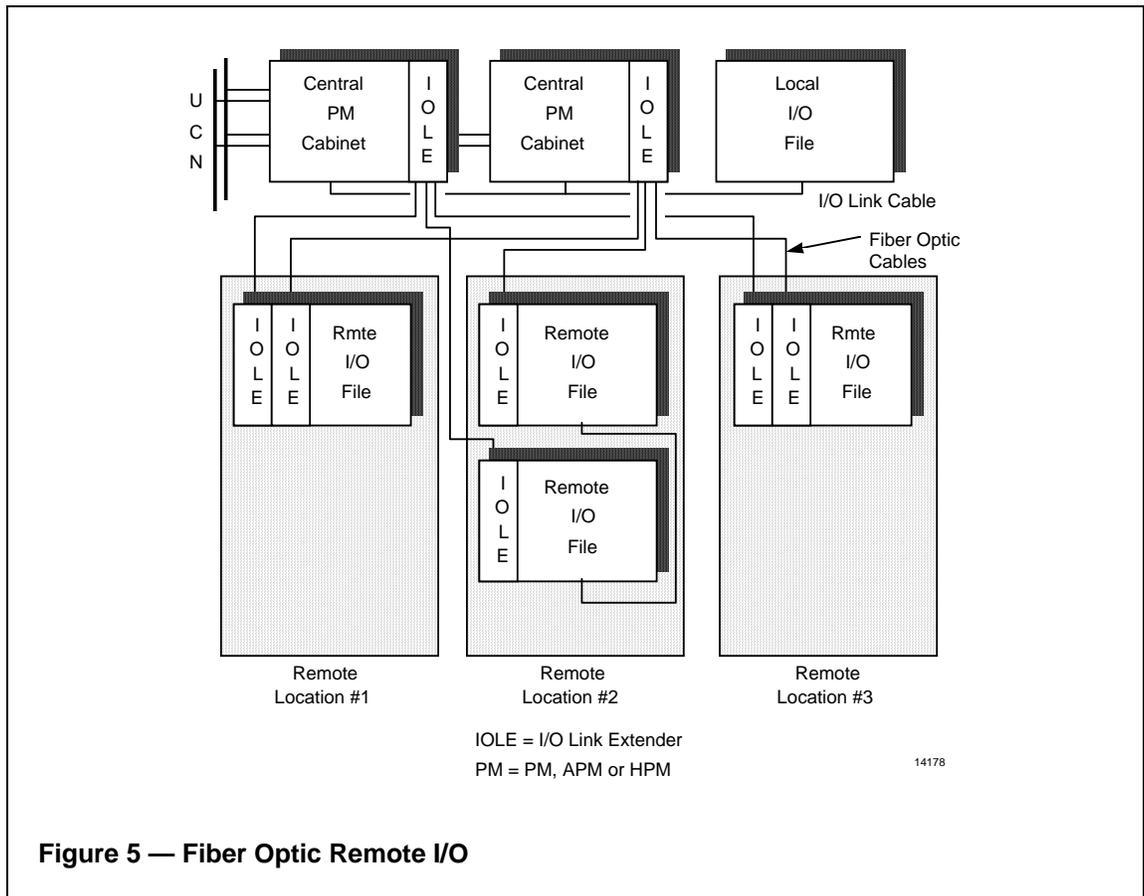
Figure 5 — Fiber Optic Remote I/O

Corrosion Protection Option

As electronic board layouts have become more compact, sensitivity to corrosion has increased. In addition, a trend toward locating I/Os closer to the process to save installation costs has generated a requirement for environmentally hardened products. To provide extra corrosion protection when PM/APM/HPM equipment cannot be located in a mild (G1) environment, board sets are conformally coated as a standard feature. These boards are completely covered with a thin plastic film resistant to the corrosive effects of humidity and certain gases, and are thus suitable for placement in a harsh (G3) atmosphere. Coating is optional for most PM/APM/HPM system components, such as IOPs, FTAs, power supplies and backplanes. Many components are coated as a standard, such as the HLAI IOP, AO IOP, and HPM controller board set.

All coated products are denoted by a "C" in the second character of their model number. Uncoated boards maintain the standard MU-xxxxxx style numbers; therefore, all products for which conformal coating is available have two model numbers. For example, the uncoated DI IOP model number is MU-PDIX02, and the coated version is MC-PDIX02. In order to easily identify coated IOPs in the field, they are labeled with a distinctive symbol located on their faceplate (see Figure 6). The "C" surrounded by a solid diamond (the universal symbol of hardness) represents the protection this conformal coating process provides.

14180

Figure 6 — IOP Conformal Coating Symbol Location

Note: Boards installed and maintained in a G1 (mild) control room environment (defined by the ISA Environmental Severity Classification) do not need this added protection.