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.

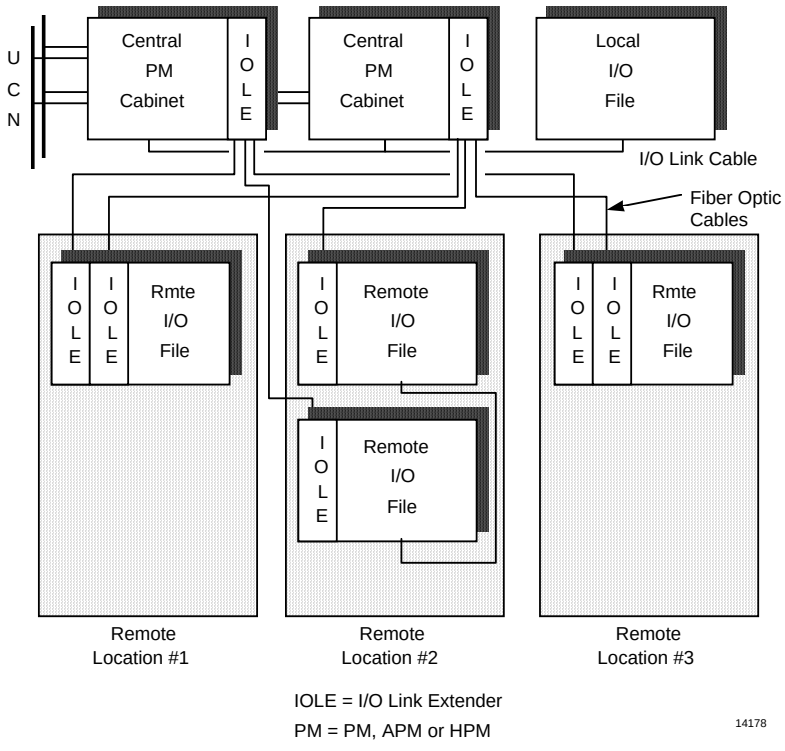

Figure 5 — Fiber Optic Remote I/O

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.

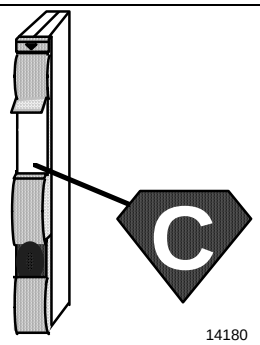

Figure 6 — IOP Conformal Coating Symbol Location

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.

Harsh Environment Option

To help reduce wiring and installation costs, as well as free up valuable control room space, a Remote Hardened I/O (RHIO) NEMA4X sealed cabinet option is available for remotely mounting PM/APM/HPM I/O (see Figure 7). Backplanes and power supplies included with RHIO are conformally coated. When populated with conformally coated IOPs, FTAs, and Fiber Optic Extenders, the RHIO option provides a GX "Severe" environment product rating against corrosion due to humidity and corrosive gases in remote locations.

The IOP cabinet accommodates a 7-slot file and a redundant 8-amp power supply and is available as a standard product; the FTA cabinet must be custom ordered due to the many variations of FTA sizes and layouts.

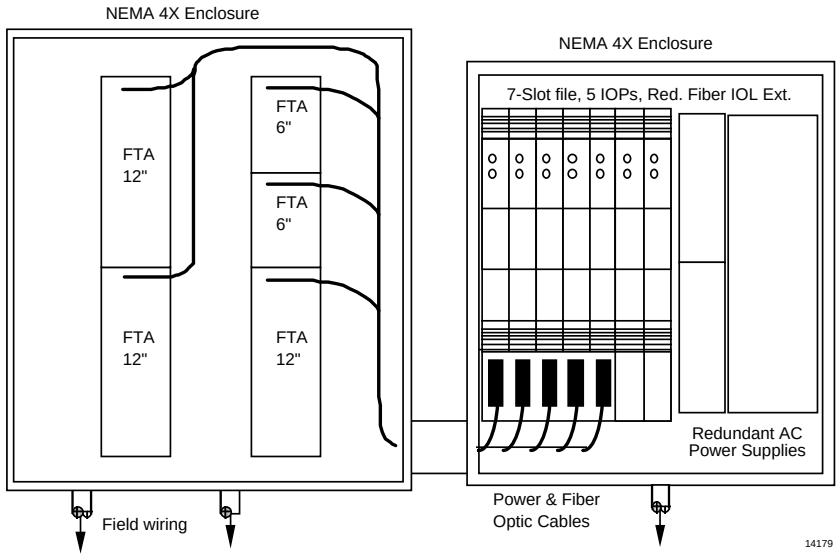

Figure 7 — Remote Hardened I/O Option

European Community (EC) Compliance

The APM and HPM are available in compliance with European Community (EC) directive requirements, denoted by the "CE mark" (Communauté Européenne). The PM is not covered. This compliance extends to the APMM/HPMM, cardfiles, power supplies, IOPs and FTAs, as well as to Rittal cabinets. Since January 1, 1996, all goods imported into the European community or moving between member countries must be compliant with the new EC directives.

For APMM/HPMM, customers must indicate whether or not CE compliance is required. APMMs, HPMMs, IOPs, and power supplies are only available CE-compliant. For cardfiles and some FTAs, both compliant and non-compliant versions are available. Only Rittal cabinets are CE-compliant. Please refer to Table 1 for IOP/FTA more information. Note that the system must be mounted in a standard Rittal cabinet per Honeywell specifications, use only standard Honeywell/Rittal mounting hardware, and be installed according to Honeywell instructions.

Specifications

Specifications apply to the PM/APM/HPM I/O modules mounted in a standard cabinets. See PM/APM/HPM Specification and Data Sheets for more information.

I/O Link Extender (Remote I/O)

Parameter	Specification	
	Remote I/O Link Extender	**Long Distance I/O Link Extender**
Fiber Link Length	1.2 km	8 km
Fiber Size	62.5/125 µm	62.5/125 µm
Wave Length	820 nanometers	1300 nanometers
Fiber Power Budget Over-Temperature Range	5.5 dB	10.0 dB
Note: Fiber optic cables are supplied by outside vendors in accordance with Honeywell specifications. For additional information, see the *PM/APM Process Manager Planning* manual, PM02-501, Section 9.		

European Community Compliance (CE-Mark)

CE Conformity (Europe)	This product is in conformity with the protection requirements of the following European Council Directives: 73/23/EEC, the Low Voltage Directive, and 89/336/EEC, the EMC Directive. Conformity of this product with any other "CE Mark" Directive(s) shall not be assumed. *Deviation from the prescribed procedures and conditions specified in the installation manuals may invalidate this product's conformity with the Low Voltage and EMC Directives.* See Table 1 for IOP and FTA model information.
Product Classification	Class I: Permanently mounted, permanently connected Industrial Control Equipment with protective earthing (grounding). (EN 61010-1-1993)
Installation Category	Category II: Energy-consuming equipment supplied from the fixed installation. Local Level Appliances and Industrial Control Equipment. (EN 61010-1-1993)
Pollution Degree	Pollution Degree 2: Normally non-conductive pollution with occasional conductivity caused by condensation. (IEC 664-1-1992)
EMC Classification	Group 1, Class A, Industrial, Scientific and Medical (ISM) Equipment. (EN55011-1991; Emissions)
Method of Assessment	EMC: Technical Construction File (TCF) LVD: Technical File (TF)