i90 Scanner

Datasheet

A-i90S

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1. PREFACE

1.1. ABOUT THIS DOCUMENT

This document contains the technical data for the i90 Scanner.

1.2. FEATURES

The i90 Scanner allows interfacing between a Rockwell Automation Logix system and Bailey INFI 90® IO. (INFI 90® is a registered trademark of ABB Automation Inc.)

The i90 Scanner connects to a Rockwell Automation Logix Controller (e.g. ControlLogix or CompactLogix) via EtherNet/IP and plugs directly into the i90 IO rack (MMU). This allows the i90 Scanner to connect to, and control, the IO in the i90 rack(s).

The i90 Scanner derives all required power from the Bailey i90 rack (MMU).

A typical i90 Scanner (as a Standalone Master) connecting to the Bailey® i90 IO is shown below.

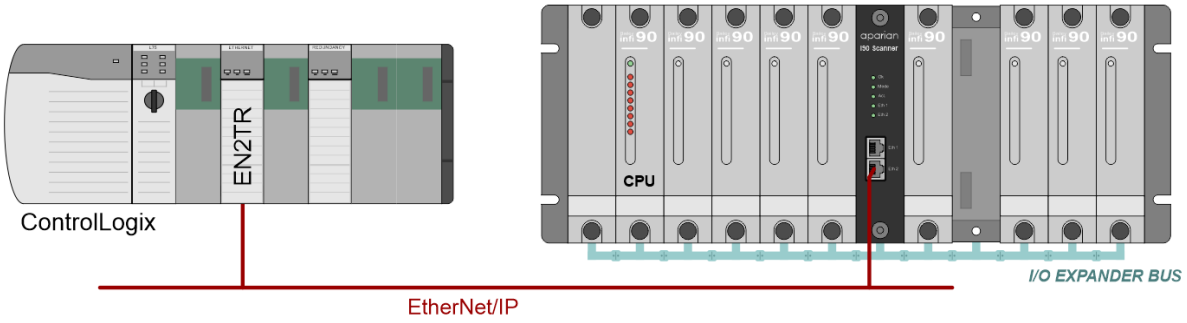


Figure 1.1 – Typical Standalone Setup

The i90 Scanner provides an interface between Bailey Network 90® IO and a Logix system using multiple EtherNet/IP class 1 connections. The i90 Scanner supports up to 34 Bailey® IO modules and consumes 7 Logix IO connections.

The i90 Scanner is configured using the Aparian Slate application which can be downloaded from www.aparian.com free of charge.

Within the Slate environment each i90 IO module can be configured to match the application. The following IO modules are supported:

- **IMASI02/NASI02** – 15 Channel Analog Input
- **IMDSI02/NDSI02** – 16 Channel Digital Input
- **IMDSO04/NDSO04** – 16 Channel Digital Output
- **IMASO01/NASO01** – 14 Channel Analog Output
- **IMDSM05/NDSM05** – 2 x 8 Channel Digital Input/Output
- **IMCIS02/NCIS02** – Combination IO (4 Channel Analog Input, 2 Channel Analog Output, 3 Channel Digital Input, 4 Channel Digital Output)
- **IMFEC11 / IMFEC12** – 15 Channel Analog Input

Using the EDS AOP (Add-On-Profile) in Studio 5000, the i90 Scanner can be added directly into the Logix IO tree. AOIs (Add-On-Instructions) are provided for both Standalone and Redundant architectures and facilitate the mapping of IO and diagnostic information to meaningful (UDT) structures.

In the case of a redundant system, the AOI also automatically switches between the Active and Standby i90 Scanner.

To aid in migration, the i90 Scanner provides a Shadow mode where the i90 Scanner can run in parallel with the existing Bailey® processor. In this mode the existing CPU is controlling the IO modules and the i90 Scanner is listening-in and providing the input and output readback data to the Logix.

The i90 Scanner hosts two Ethernet ports which can either be used as an unmanaged switch or in a Device-Level-Ring (DLR) topology providing Ethernet redundancy.

The i90 Scanner has a range of diagnostics, statistics, and tools to support the user during the migration process. This will speed up fault finding and reduce down-time.

1.3. ARCHITECTURE

The i90 Scanner can be employed in a number of architectures.

STANDALONE MODE, LINEAR ETHERNET, SINGLE LOGIX CONTROLLER

In this architecture, a single i90 Scanner is inserted into the Bailey i90 MMU, with a linear Ethernet network connecting to a single Logix Controller.

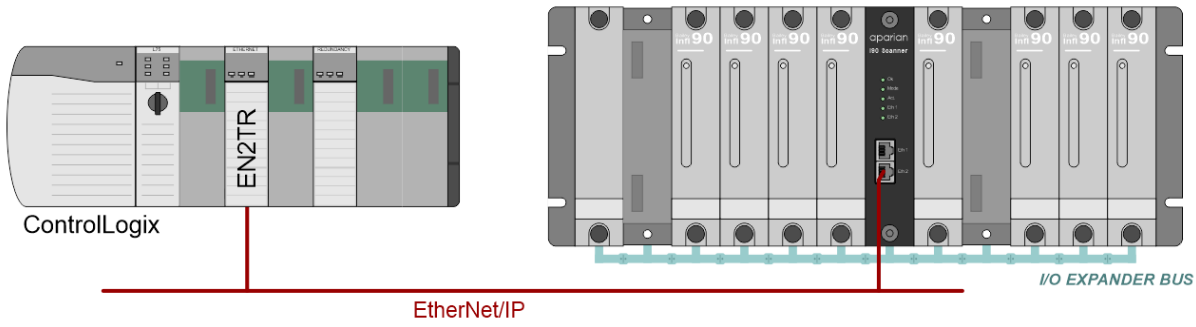


Figure 1.2 – Standalone mode, linear Ethernet, single Logix Controller

STANDALONE MODE, RING ETHERNET, SINGLE LOGIX CONTROLLER

In this architecture, a single i90 Scanner is inserted into the Bailey i90 MMU, with a ring DLR Ethernet network connecting to a single Logix Controller.

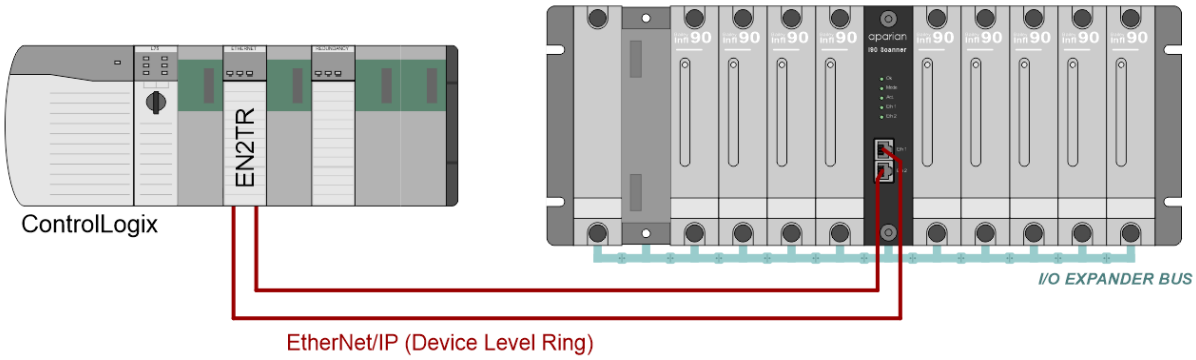


Figure 1.3 – Standalone mode, ring Ethernet, single Logix Controller

STANDALONE MODE, RING ETHERNET, REDUNDANT LOGIX CONTROLLER

In this architecture, a single i90 Scanner is inserted into the Bailey i90 MMU, with a DLR Ethernet network connecting to a redundant pair of Logix Controllers.

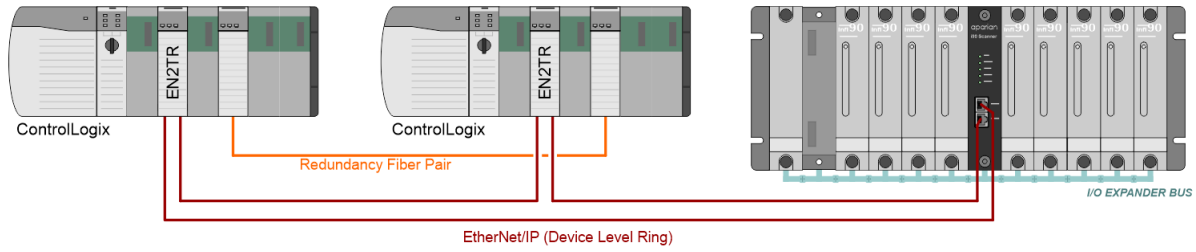


Figure 1.4 – Standalone mode, ring Ethernet, redundant Logix Controller

Redundant Mode, Ring Ethernet, Single Logix Controller

In this architecture, two i90 Scanners are inserted into the Bailey i90 MMU, with a DLR Ethernet network connecting them a single Logix Controller.

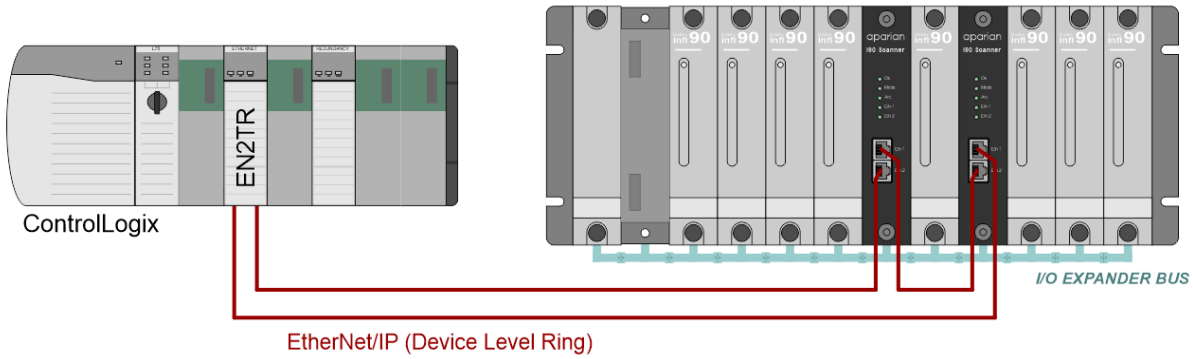


Figure 1.5 – Redundant mode, linear Ethernet, single Logix Controller

Redundant Mode, Ring Ethernet, Redundant Logix Controller

In this architecture, a two i90 Scanners are inserted into the Bailey i90 MMU, with a DLR Ethernet network connecting to a redundant pair of Logix Controllers.

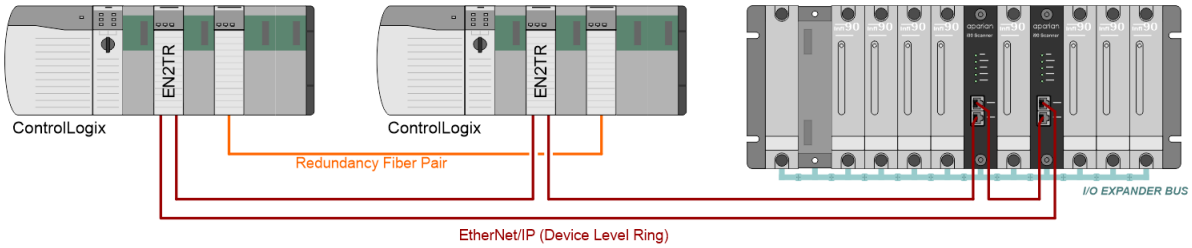


Figure 1.6 – Redundant mode, ring Ethernet, redundant Logix Controller

2. TECHNICAL SPECIFICATIONS

2.1. DIMENSIONS

Below are the enclosure dimensions. All dimensions are in millimetres.

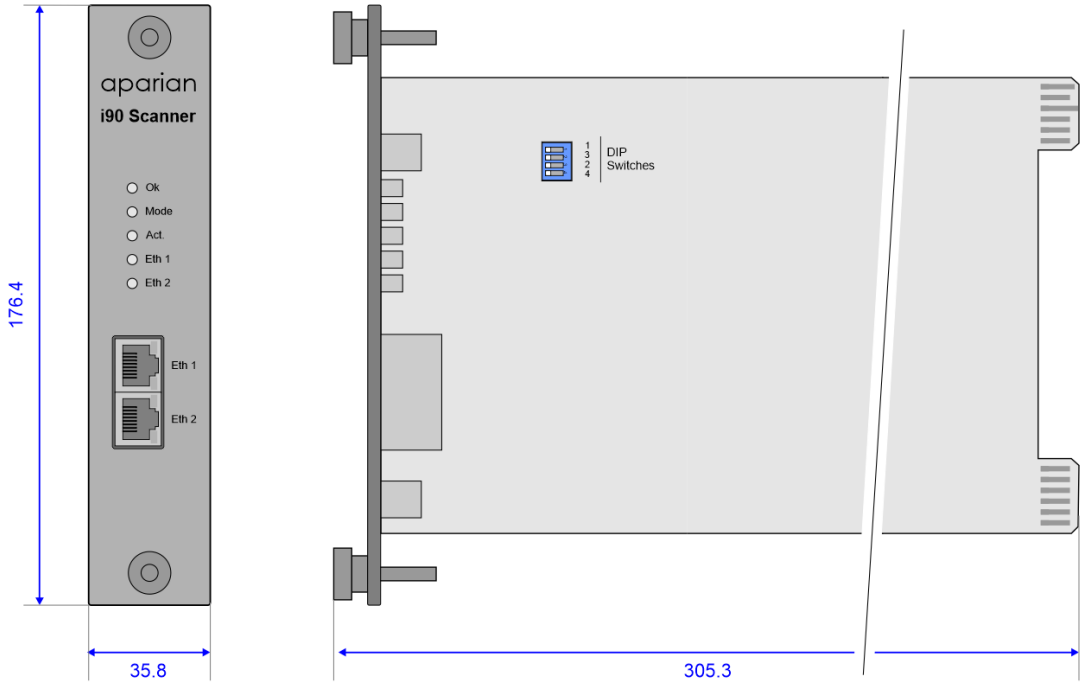


Figure 2.1 – i90 Scanner Dimensions

2.2. ELECTRICAL

Specification	Rating
Power requirements	5V DC, 540 mA (derived from INFI 90® MMU)
Power consumption	2.7 W
Emissions	IEC61000-6-4
ESD Immunity	EN 61000-4-2
Radiated RF Immunity	IEC 61000-4-3
EFT/B Immunity	EFT: IEC 61000-4-4
Surge Immunity	Surge: IEC 61000-4-5
Conducted RF Immunity	IEC 61000-4-6

Table 2.1 - Electrical specification

2.3. ENVIRONMENTAL

Specification	Rating
Mounting	Occupies single slot in standard INFI 90® MMU.
Temperature	-20 – 70 °C
Air Quality	Non-corrosive

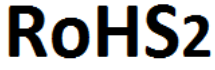
Table 2.2 - Environmental specification

2.4. ETHERNET

Specification	Rating
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP connections	Max 40
TCP connections	Max 40
CIP connections	Max 10
Communication rate	10/100Mbps
Duplex mode	Full/Half
Auto-MDIX support	Yes
Embedded switch	2 x Ethernet ports Supports DLR (Device-Level-Ring) and Linear topology.

Table 2.3 - Ethernet specification

2.5. CERTIFICATIONS

Certification	Mark
CE Mark	
RoHS2 Compliant	

UL Mark File: E494895	CLASS 1, DIV 2, GROUPS A, B, C, D
ODVA Conformance	
UKCA	

Table 2.4 – Certifications