



CODESYS

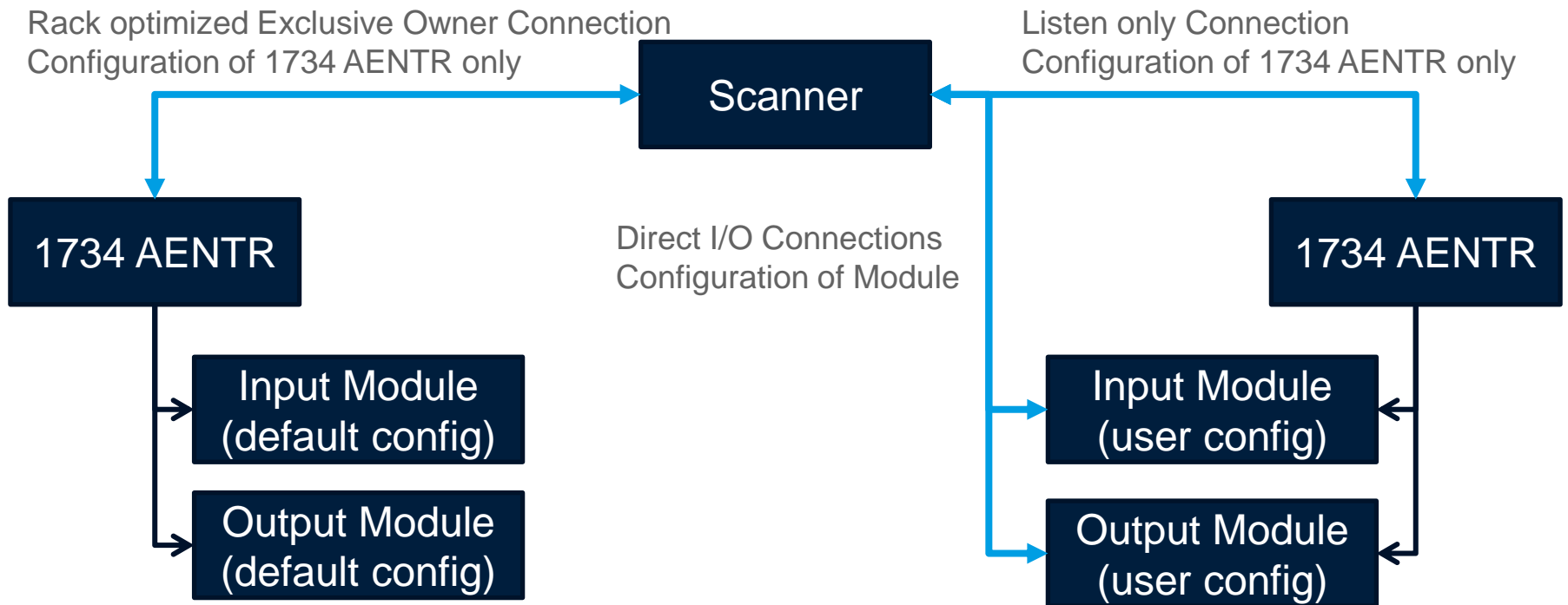
Public 12/2013



Configuration of Rockwell EtherNet/IP Adapter with CODESYS

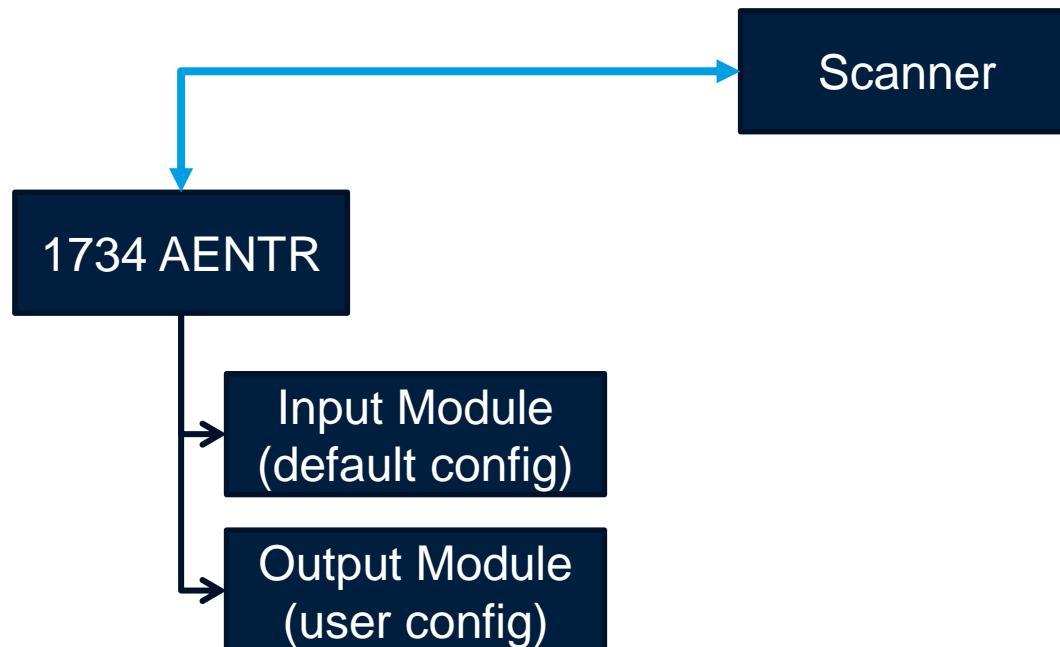
Constraints of Connections defined in the EDS File

Rack optimized vs. direct Connections



Publication 1734-UM016A-EN-P (October 2010)

- Properties of the Assembly Connection
 - Configuration of head station
 - Selective configuration of Modules
 - All I/O through one connection
- Combined best of rack optimized and direct Connections



Manual configuration of an Assembly Connection

Connection Path Settings

Connection Type	Configuration Assembly	Consumed Assembly	Produced Assembly
Exclusive Owner	102	100	101
Listen Only	102	191	101
Input Only	102	190	101
Excl. Owner no Status Header	102	100	103
Listen Only no Status Header	102	191	103
Input Only no Status Header	102	190	103

Manual configuration of an Assembly Connection

Connection Path Settings

Configuration of an Assembly Connection with Status Header



New connection

generic connection (free configurable)
 predefined connection (EDS-File)

Connection Path Settings

generate path automatically

Configuration Assembly
 Class ID 16#4 Instance ID 16#66 Attribute ID 16#3

Consuming Assembly (O-->T)
 Class ID 16#4 Instance ID 16#64 Attribute ID 16#3

Producing Assembly (T-->O)
 Class ID 16#4 Instance ID 16#65 Attribute ID 16#3

user-defined path

Generic Parameters
 Connection Path 20 04 24 66 2C 64 2C 65

Trigger Type **Cyclic** RPI (ms) 10
 Transport Type **Exclusive Owner** Timeout Multiplier 4

Scanner to Target (Output)

O-->T Size (Bytes) 0
 Config#1 Size (Bytes) 0
 Config#2 Size (Bytes) 0

Connection Type **Null**
 Fixed/Variable **Fixed**
 Transfer Format **32 Bit Run/Idle**
 Inhibit Time (ms) 0

Target to Scanner (Input)

T-->O Size (Bytes) 0

Connection Type **Null**
 Fixed/Variable **Fixed**
 Transfer Format **pure Data**
 Inhibit Time (ms) 0



Manual configuration of an Assembly Connection

Minimal Configuration Assembly (Config#2)

Field	Description
Byte 0	Reserved
Byte 1	Reserved
Byte 2	Reserved
Byte 3	Reserved
Byte 4	Chassis Size (Low Byte)
Byte 5	Chassis Size (High Byte)
Byte 6	Alignment for Produced Assembly (T→O)
Byte 7	Size per slot (T→O) (in Bytes)
Byte 8	Alignment for Consumed Assembly (O→T)
Byte 9	Size per slot (O→T) (in Bytes)

Manual configuration of an Assembly Connection



Add Module Configuration

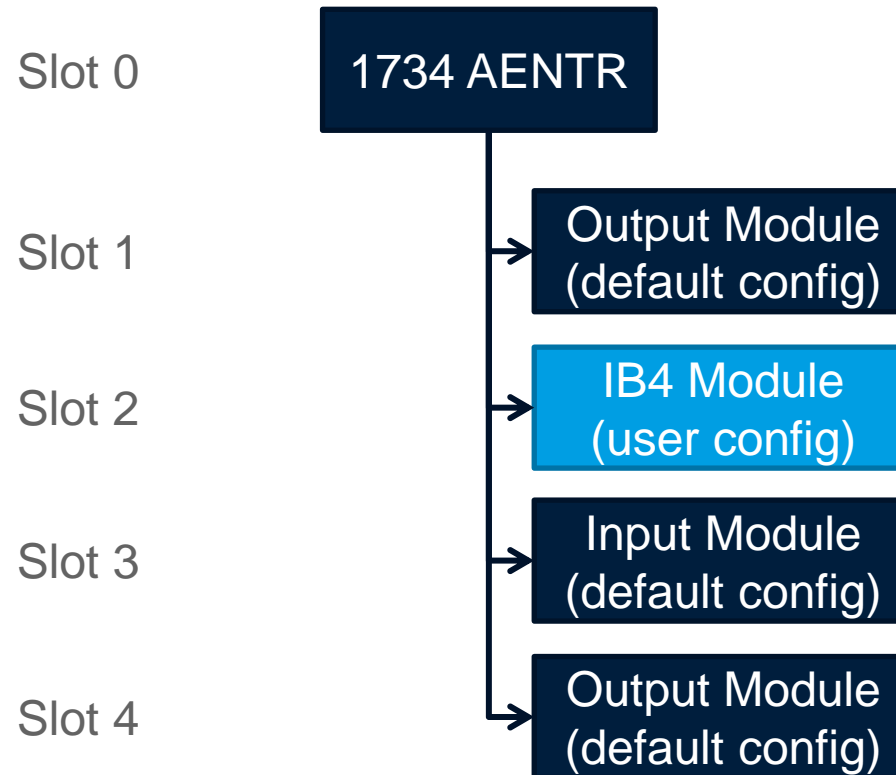
- Append to the minimal configuration described above.

Field	Data Type	Description
Slot Number	USINT	The slot number to identify modules that require configuration data.
Configuration Size	USINT	The size, in bytes, of the Configuration Data for the given module. It does not include the size of the first three fields shown here.
Configuration Assembly Instance	UINT	The adapter reads this field to access the module configuration assembly's instance number.
Configuration data	ARRAY OF BYTE	The configuration assembly data as defined by the module's EDS file.

Manual configuration of an Assembly Connection

Add Module Configuration

- Example Configuration for an IB4 connected to Slot #2



Manual configuration of an Assembly Connection

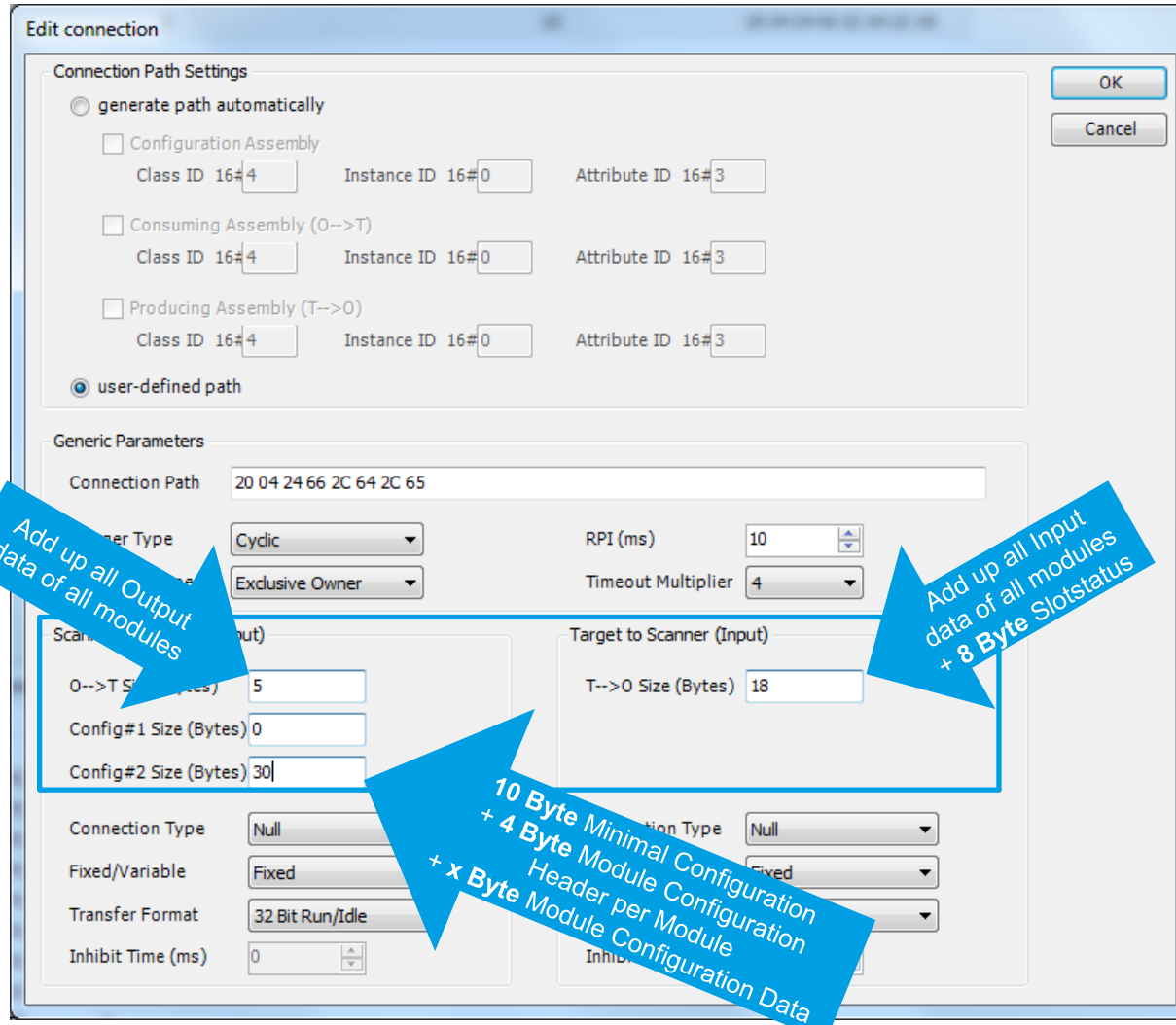
Add Module Configuration

- Example Configuration for an IB4 connected to Slot #2

	Field	Data Type	Value
Minimal Configuration	Reserved	UDINT	0
	Chassis Size	UINT	5
	Alignment T→O	BYTE	0
	Slot Size T→O	Byte	0
	Alignment O→T	BYTE	0
	Slot Size O→T	BYTE	0
Module Configuration #1	Slot Number	USINT	2
	Configuration Size	USINT	16
	Configuration Assembly Instance	UINT	0x67
	Config Data	ARRAY [0..15] OF BYTE	
Module Configuration #2

Manual configuration of an Assembly Connection

Assembly Sizes



Connection Path Settings

generate path automatically

Configuration Assembly
Class ID 16#4 Instance ID 16#0 Attribute ID 16#3

Consuming Assembly (O-->T)
Class ID 16#4 Instance ID 16#0 Attribute ID 16#3

Producing Assembly (T-->O)
Class ID 16#4 Instance ID 16#0 Attribute ID 16#3

user-defined path

Generic Parameters

Connection Path: 20 04 24 66 2C 64 2C 65

Owner Type: Cyclic RPI (ms): 10
Exclusive Owner Timeout Multiplier: 4

Scanner Parameters

Scanner (Output)

0-->T Size (Bytes): 5
Config#1 Size (Bytes): 0
Config#2 Size (Bytes): 30

Target to Scanner (Input)

T-->O Size (Bytes): 18

Connection Type: Null
Fixed/Variable: Fixed
Transfer Format: 32 Bit Run/Idle
Inhibit Time (ms): 0

Annotations:

- Add up all Output data of all modules
- Add up all Input data of all modules + 8 Byte Slotstatus
- 10 Byte Minimal Configuration + 4 Byte Module Configuration + x Byte Module Configuration Data

Manual configuration of an Assembly Connection

Complete the Connection Configuration

Edit connection

Connection Path Settings

generate path automatically

Configuration Assembly
 Class ID 16#4 Instance ID 16#0 Attribute ID 16#3

Consuming Assembly (O-->T)
 Class ID 16#4 Instance ID 16#0 Attribute ID 16#3

Producing Assembly (T-->O)
 Class ID 16#4 Instance ID 16#0 Attribute ID 16#3

user-defined path

Generic Parameters

Connection Path 20 04 24 66 2C 64 2C 65

Trigger Type **Cyclic** RPI (ms) 10

Transport Type **Exclusive Owner** Timeout Multiplier 4

Scanner to Target (Output) **Target to Scanner (Input)**

O-->T Size (Bytes) 5 T-->O Size (Bytes) 18

Config#1 Size (Bytes) 0

Config#2 Size (Bytes) 30

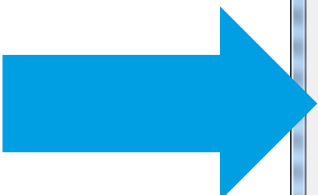
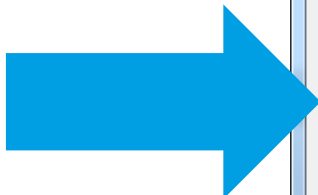
Connection Type **Point to Point** Connection Type **Multicast**

Fixed/Variable **Fixed** Fixed/Variable **Fixed**

Transfer Format **32 Bit Run/Idle** Transfer Format **pure Data**

Inhibit Time (ms) 0 Inhibit Time (ms) 0

OK
Cancel



Manual configuration of an Assembly Connection

Set the Config#2 Data

Connection Name	RPI (ms)	O->T size (byte)	T->O size (byte)	Config#1 size (byte)	Config#2 size (byte)
1. generic connection	10	5	18		30

Parameters	Value	Datatype	Default value
Config#2 Data			
Parameter 1	0	BYTE	0
Parameter 2	0	BYTE	0
Parameter 3	0	BYTE	0
Parameter 4	0	BYTE	0
Parameter 5	5	BYTE	0
Parameter 6	0	BYTE	0
Parameter 7	0	BYTE	0
Parameter 8	0	BYTE	0
Parameter 9	0	BYTE	0
Parameter 10	0	BYTE	0
Parameter 11	2	BYTE	0
Parameter 12	16	BYTE	0
Parameter 13	103	BYTE	0
Parameter 14	0	BYTE	0
Parameter 15	255	BYTE	0
Parameter 16	255	BYTE	0
Parameter 17	255	BYTE	0
Parameter 18	255	BYTE	0
Parameter 19	0	BYTE	0
Parameter 20	0	BYTE	0
Parameter 21	0	BYTE	0
Parameter 22	0	BYTE	0
Parameter 23	255	BYTE	0
Parameter 24	255	BYTE	0
Parameter 25	255	BYTE	0
Parameter 26	255	BYTE	0
Parameter 27	0	BYTE	0
Parameter 28	0	BYTE	0
Parameter 29	0	BYTE	0
Parameter 30	0	BYTE	0

← Head Station Configuration

← IB4 Configuration

Parameter 11 = Slot Number
 Parameter 12 = Configuration Data Size
 Parameter 13, 14 = Configuration Assembly Instance
 Parameter 15-30 = IB4 Configuration Data



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Thank you for your attention.