



**THE REYNOLDS
COMPANY**
ELECTRICAL SUPPLY

PowerFlex Integration with Fisher ROC

May 26, 2021

Our Guest Panelists

Roger McClary

Automation Specialist

The Reynolds Company - Waco

2021 Online Events

Register to receive a calendar invite



- Tech Talks
- Stratix 5800/ Networks update
Wed, June 9, 2021 @ 10am
- Rockwell Automation Integrated Services Agreements
Wed, June 23, 2021 @ 10am

- User Groups
- System Redundancy Best Practices
Wed, May 19, 2021 @ 10am

reynoldsonline.com

Upcoming Events



A Rockwell Automation Virtual Event

Get Inspired to Innovate! Join us for ROKLive 2021, happening June 29-30, to explore the explosion of digital technologies in manufacturing today. We'll discuss how leading companies are applying analytics for actual insights, the newest collaboration tools designed for operations teams, and how we're tackling uncertainty in the supply chain.

This two-day virtual experience features exciting keynotes, discussions with industrial leaders, interactive value workshops, the Smart Industry Awards, and over 100 product and technology sessions – all focused around digital transformation.

Register at <https://events.rockwellautomation.com/profile/108681>



PowerFlex Drives & ROC 800

Modbus RTU Communications



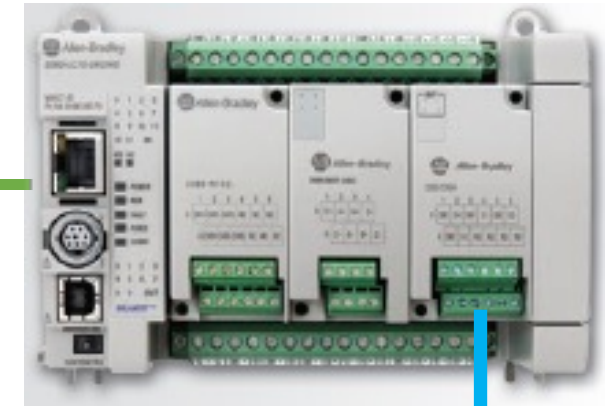


Modbus/TCP



Ethernet/IP
Modbus/TCP

Micro870 Controller



Modbus/RTU



PowerFlex 525



CompactLogix 5380

Modbus/TCP



Modbus/RTU

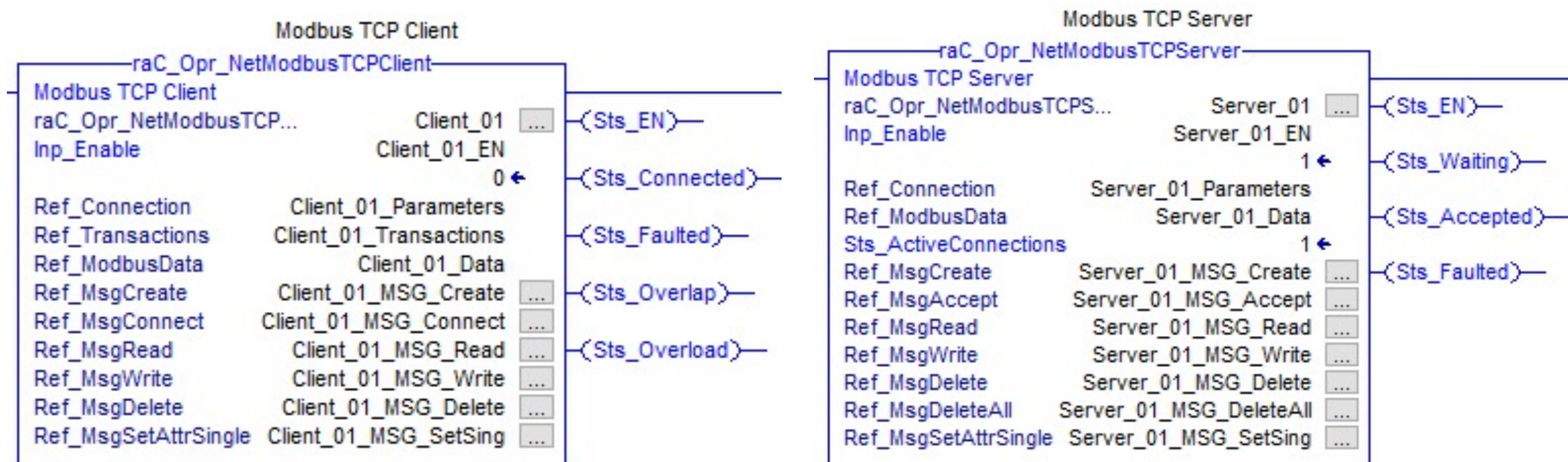


Ethernet/IP
Modbus/TCP



PowerFlex 525

New Modbus TCP AOI-based code



Availability

- Free download from the Sample Code Library
- Published on February 6, 2020
- Commercial Engineering contacts
 - Arkady Nabutovsky
 - Rich Ruggeri

Modbus TCP Add-On instructions for ControlLogix and CompactLogix controllers, AOI Version 2.03.00

ID 101037 Uploaded May 6, 2021

Preferred

↓ DOWNLOAD

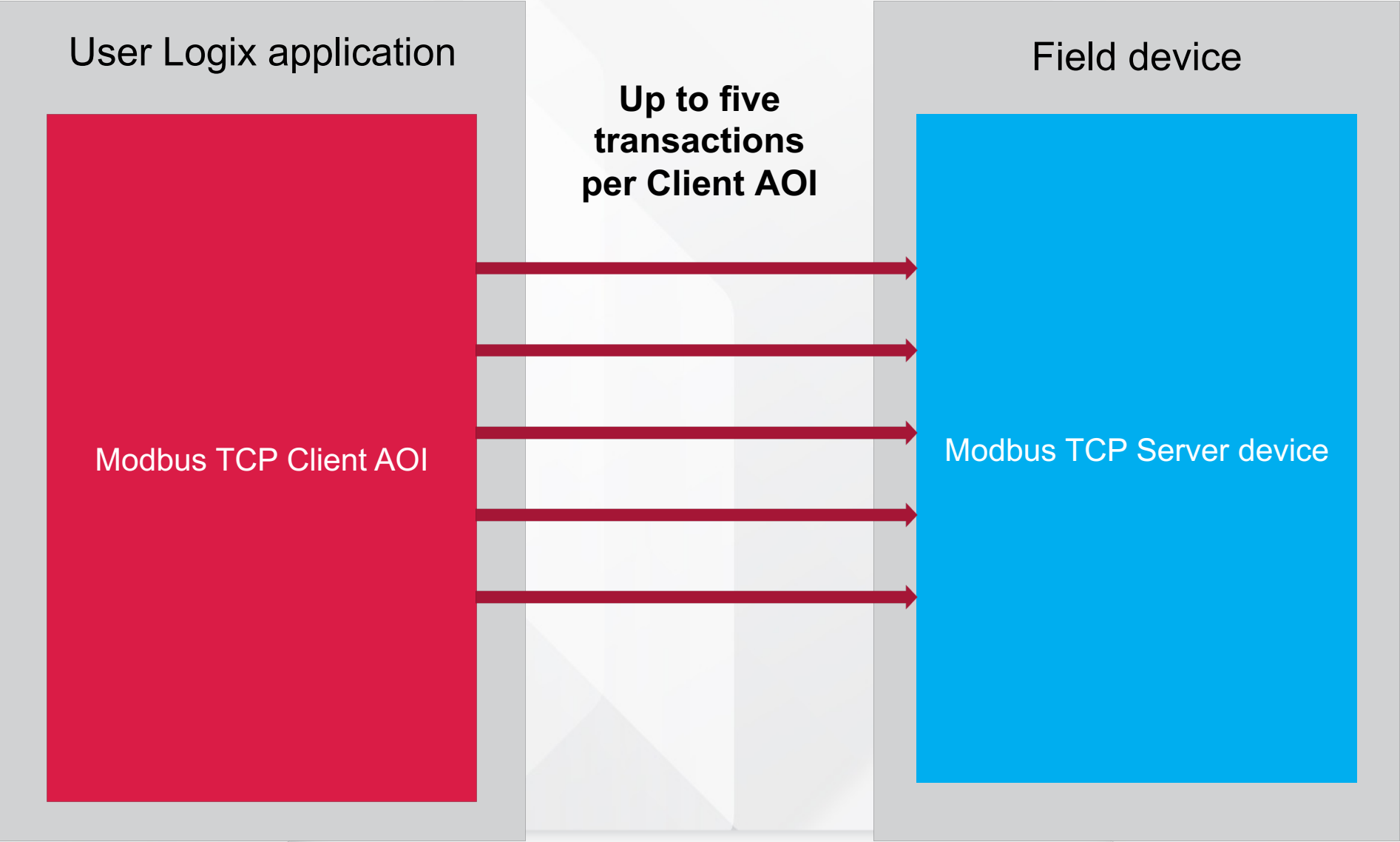
Write a Review

4322 Downloads

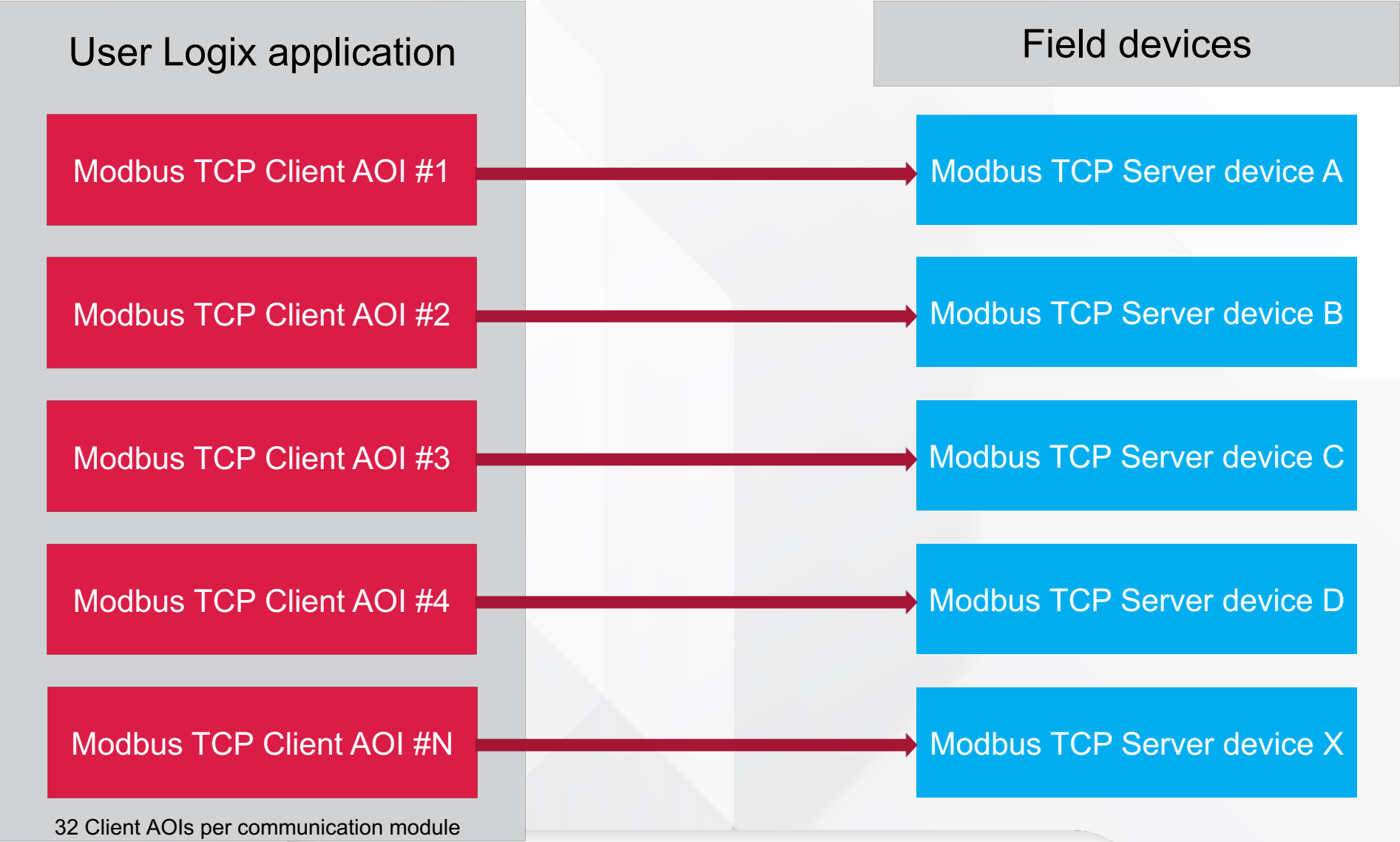
Modbus TCP Client/Server implementation for ControlLogix and CompactLogix controllers using Add-On instructions with optional visualization components. Recommended for new Modbus TCP code implementations. Requires V20 or later controllers with Logix



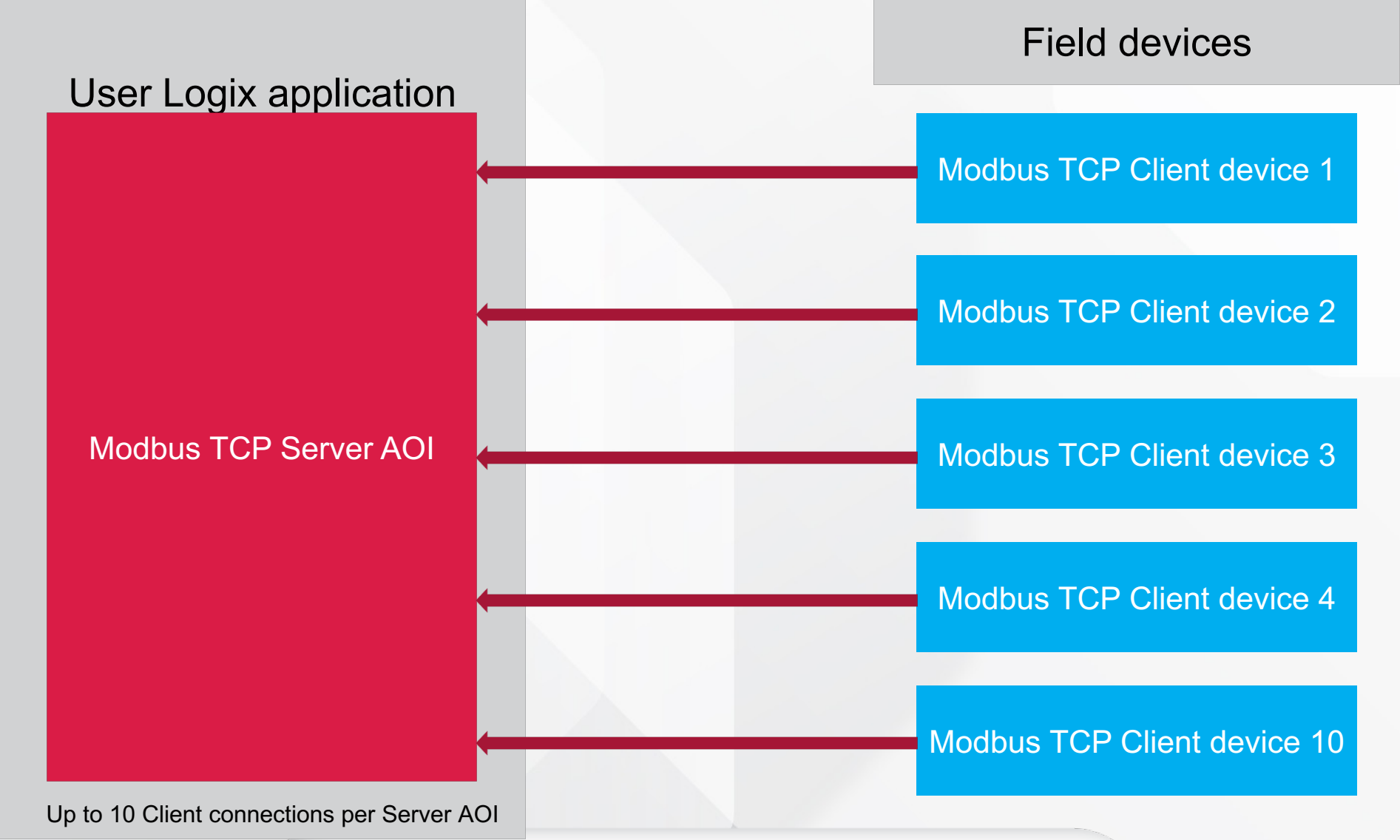
Client AOI functionality use case



Client AOI functionality use case



Server AOI functionality use case



Modbus protocol data flow

- Commonly used industrial protocol
- Developed in 1979 by Gould Modicon, Inc. for Modicon PLCs
- Currently administered by modbus.org
- Standard method for the transfer of simple information (bits and integers)
- Widely accepted, open and public-domain protocol
- Originally developed for serial communications (Modbus RTU and Modbus ASCII)
- Modbus TCP is Modbus implementation over Ethernet
- There are many non-standard extensions of the Modbus protocol

Modbus protocol data flow

- Devices communicate using a Client-Server (Master-Slave)
- Client can initiate transactions called “Queries” and send them to Server.
- Server responds by
 - Supplying the requested data to the client
 - Or taking the action requested in the query
 - Or sending an exception



Micro870 Controller



Connected Components Workbench™

Simplify standalone machine development for multiple industries with the Connected Components Workbench™ software. As part of our Integrated Architecture® system, Connected Components Workbench software provides device configuration, controller programming, and integration with Human Machine Interface (HMI) editor. This software helps reduce initial machine development time and cost.



ROCLINK™ 800 Configuration Software

ROCLINK 800 Configuration Software incorporates the features you need for fast, efficient configuration and operation of ROC and FloBoss products.



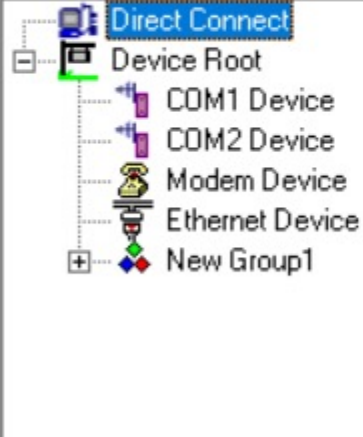
ROCLINK™ 800

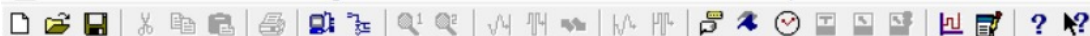
ROCLINK 800 - [Device Directory]

File Edit View ROC Configure Meter Utilities Tools Window Help

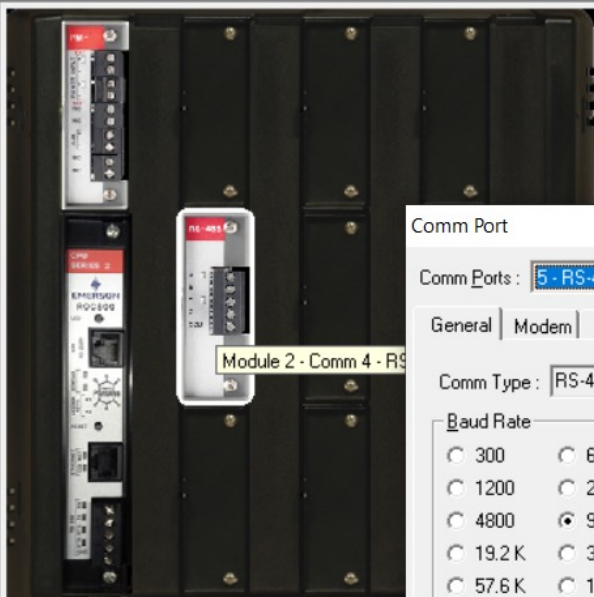
ROCLINK 800 - [On Line - Ethernet - ROC800L - Remote Optrns Cntrlr]

File Edit View ROC Configure Gas Meters Utilities Tools Window Help





- On Line - Ethernet - ROC800L - Remote Oprtn
- I/O
- Control
- Meter
- System
- History
- User Program
- User Display



Comm Port

Comm Ports: 5 - RS-485 Tag: RS-485

General | Modem | SRBx | Store & Forward | Diagnostics

Comm Type: RS-485

Baud Rate: 300 600 1200 2400 4800 9600 19.2 K 38.4 K 57.6 K 115.2 K BRG: 1

Parity: None Even Odd

Data Bits: 7 8

Stop Bits: 1 2

Key On Delay: 0.01 Secs

Key Off Delay: 0.01 Secs

Port Owner:

- ROC Plus Protocol/Modbus Slave
- ROC Plus Protocol Only
- Modbus Slave Only
- Modbus Master
- DS 800
- LCD
- I/O Module
- Reserved
- User Program 1
- User Program 2
- User Program 3
- User Program 4
- User Program 5
- User Program 6
- User Program 7
- User Program 8

Update OK Cancel Apply

Comm Port : 5 - RS-485

General Scale Values

Byte Order
 Least Significant Byte
 Most Significant Byte

Slave Mode
 Exception Status : No Error

Master Mode
 Start Polling :
 Starting Request : 1
 Number of Requests : 6

Continuous Polling
 Enabled
 Disabled
 Request Delay : 1

Comm Port : 5 - RS-485

General Scale Values Master Table Master Mode

Logical Point : 10 - MastTbl 10 (RS-485)

	RTU Address	Function Code	Slave Register
1	1	16 - Preset Multiple Registers	0
2	1	16 - Preset Multiple Registers	2
3	2	6 - Preset Single Register	8192
4	2	6 - Preset Single Register	8193
5	2	3 - Read Holding Registers	8448
6	1	3 - Read Holding Registers	4
7	0	0 - Disabled	0
8	0	0 - Disabled	0
9	0	0 - Disabled	0
10	0	0 - Disabled	0
11	0	0 - Disabled	0
12	0	0 - Disabled	0
13	0	0 - Disabled	0
14	0	0 - Disabled	0
15	0	0 - Disabled	0
16	0	0 - Disabled	0
17	0	0 - Disabled	0
18	0	0 - Disabled	0
19	0	0 - Disabled	0
20	0	0 - Disabled	0

General Scale Values Master Table Master Mode Registers History Table

Table : 1 Tag : RNC TO AB

Index	Start Register	End
1	100	101
2	102	103
3	104	104
4	105	105
5	106	106
6	107	107
7	0	0
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0

ROCLINK 800 - [On Line - Ethernet - ROC800L - Remote Oprtns Cntrlr]

File Edit View ROC Configure Gas Meters Utilities Tools Window Help

On Line - Ethernet - ROC800L - Remote Oprtns

- I/O
 - System Analog Input
 - Soft Point
 - #1, ROC To AB Modbus Floats
 - #2, ROC to PF525
 - #3, Soft Pt 03
 - #4, Soft Pt 04
 - #5, Soft Pt 05
 - #6, Soft Pt 06
 - #7, Soft Pt 07
 - #8, Soft Pt 08
 - #9, Soft Pt 09
 - #10, Soft Pt 10
 - #11, Soft Pt 11
 - #12, Soft Pt 12
 - #13, Soft Pt 13
 - #14, Soft Pt 14
 - #15, Soft Pt 15
 - #16, Soft Pt 16
 - #17, Soft Pt 17
 - #18, Soft Pt 18
 - #19, Soft Pt 19
 - #20, Soft Pt 20



- On Line - Ethernet - ROC800L - Remote Oprtn
- I/O
- System Analog Input
- Soft Point
 - #1, ROC To AB Modbus Floats
 - #2, ROC to PF525
 - #3, Soft Pt 03
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 - #10, Soft Pt 10
 - #11, Soft Pt 11
 - #12, Soft Pt 12
 - #13, Soft Pt 13
 - #14, Soft Pt 14
 - #15, Soft Pt 15
 - #16, Soft Pt 16
 - #17, Soft Pt 17
 - #18, Soft Pt 18
 - #19, Soft Pt 19
 - #20, Soft Pt 20
 - #21, Soft Pt 21
 - #22, Soft Pt 22
 - #23, Soft Pt 23
 - #24, Soft Pt 24

? X

Soft Point

Softpoints: 1 - ROC To AB Modbus Floats Test

Tag: ROC To AB Modbus Floats Test

Event Logging
 Enabled
 Disabled

Parameters		Long	Short	Byte	Double
Float					
1	89.6213			0	1 0.0
2	16.0			0	2 0.0
3	0.0			0	3 0.0
4	3000.0			0	4 0.0
5	1549.0			0	5 0.0
6	60580.0			0	6 0.0
7	0.0	17 0.0	7 0	7 0	7 0.0
8	0.0	18 0.0	8 0	8 0	8 0.0
9	0.0	19 0.0	9 0	9 0	9 0.0
10	0.0	20 0.0	10 0	10 0	10 0.0

Copy Paste

Auto Scan Update OK Cancel Apply

← ROC Temp
 ← Just a number
 ← Drive Logic Command word
 ← Drive Speed Command
 ← Drive Logic Status word
 ← Analog Pot on Micro 870

The screenshot displays the Rockwell Automation Studio 5000 software interface. The top window is titled "Micro870_ROC_PF525 - Connected Components Workbench Developer Edition". The main editor window shows a project named "Micro870_ROC_PF525*" with a "PowerFlex 525_1*" drive. The "Programs" folder contains "Prog1", which includes "Local Variables", "Global Variables", "User-Defined Function Blocks", "User-Defined Functions", and "DataTypes". The ladder logic diagram shows a rung with a normally closed contact labeled "1" and a MOV instruction. The MOV instruction has an input "i1" connected to the variable "_IO_P2_AI_00" and an output "o1" connected to the variable "Analog_Value". The text editor above the ladder logic shows the instruction: `1 MOV _IO_P2_AI_00 Analog_Value`. The interface also includes a Project Organizer on the left, a search bar, and various toolbars for editing and simulation.

PowerFlex 525_1* Prog1-POU Micro870 Start Page

PowerFlex 525_1

Parameters

0 - PowerFlex 525 Communications Show Non-Defaults Filter Value Reset Defaults Print Expo

Port	#	Name	Value	Units	Internal Value	Default	Min	Max	
0	123	RS485 Data Rate	9600		3	9600	0	5	...
0	124	RS485 Node Addr	2		2	100	1	247	...
0	125	Comm Loss Action	Fault		0	Fault	0	3	...
0	126	Comm Loss Time	5.0	Sec	50	5.0	0.1	60.0	...
0	127	RS485 Format	RTU 8-N-1		0	RTU 8-N-1	0	5	...
0	128	EN Addr Sel	Parameters		1	BOOTP	1	2	...
0	129	EN IP Addr Cfg 1	192		192	0	0	255	...
0	130	EN IP Addr Cfg 2	168		168	0	0	255	...
0	131	EN IP Addr Cfg 3	1		1	0	0	255	...
0	132	EN IP Addr Cfg 4	29		29	0	0	255	...
0	133	EN Subnet Cfg 1	255		255	0	0	255	...
0	134	EN Subnet Cfg 2	255		255	0	0	255	...
0	135	EN Subnet Cfg 3	255		255	0	0	255	...

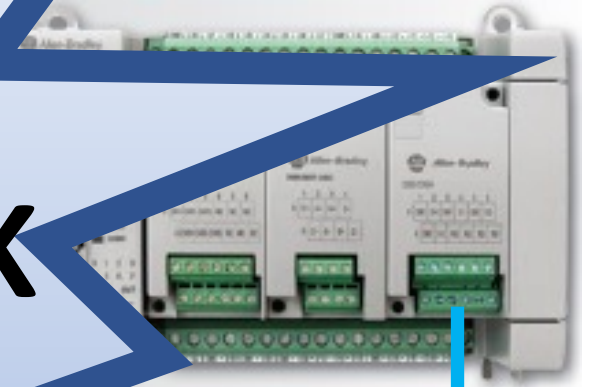


Mo

Modb



Micro870 Controller



**LET'S SEE IT WORK
ALREADY!!!!**

