

ECC-PFCU Series

14- and 16-Point LONMARK® Certified
Powered Fan Coil Unit Configurable
Controller

Applications

- Designed to meet the requirements of:
 - Two-pipe coil – cooling only
 - Two-pipe coil – heating only
 - Two-pipe coil – heating & cooling with changeable sensor
 - Four-pipe coil cooling and heating
- Valve applications can be digital, floating or modulating
- Control fan coil applications with up to 4 stages of cooling or heating
- Lighting applications

Features

Supported Platforms

- LNS®
- NiagaraAX Framework®

Interoperability

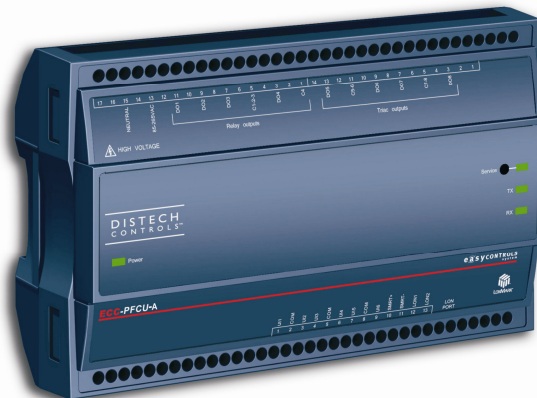
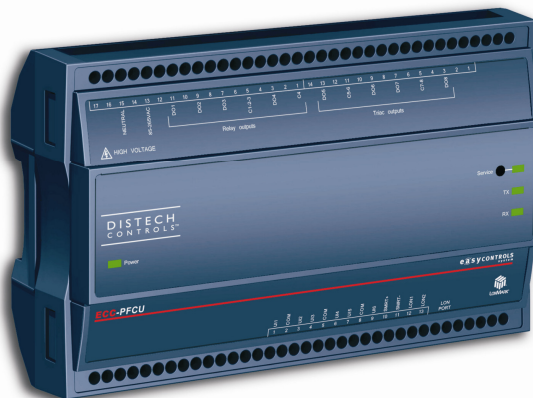
- Based on LONWORKS® technology for peer-to-peer communication between controllers
- LONMARK certified according to the Interoperability Guidelines Version 3.4
- LonMark Functional Profile: Fan Coil Controller #8501

Hardware

- Controller power voltage ranging from 85 to 265VAC
- 6 universal inputs (jumper-less selection). Input types include: Resistance, 0-10VDC, 4-20mA, Digital and Pulse
- 4 digital relay (on/off) outputs (up to 277VAC)
- 4 digital (triac) outputs (up to 265VAC). Output types include: Digital, PWM or floating
- 2 universal outputs.¹ Output types include: Digital (0-12VDC), PWM, 0-10VDC and floating
- 1 Smart-Sensor supported
- Integrated EnOcean 868.3MHz wireless receiver (ECC-PFCU-W and ECC-PFCU-AW models)
- 24VAC power supply output. Power supply is fuse protected¹
- Separable base plate allows base with connectors to be shipped to site for installation while engineering is done at the office
- Din-rail mounting integrated into the fire retardant plastic enclosure
- Transmit, receive and power LED indicators
- Status indicator on each output

Software

- LNS® plug-in or Niagara Framework™ EC-Net or NiagaraAX Framework EC-NetAX wizards available for configuration and monitoring
- Easily configure all features including:
 - Input and output types and properties
 - Heating and cooling stages
 - Control variable speed fans and floating valves
 - PID control loops
- Additional built-in features:
 - Optimum start/stop
 - Load shedding
 - Frost protection
 - Slave operation mode
 - Three fan speed controls
 - Changeable network variable types
- Allows the use of spare I/O points to be linked to other controllers on the network



The ECC-PFCU Series are microprocessor-based fan coil unit controllers designed to control any fan coil unit application. The ECC-PFCU series uses the LonTalk® communication protocol and is LONMARK certified, using the fan coil functional profile #8501.

The ECC-PFCU series can be configured by using either any LNS-based software, such as Distech Controls' Lonwatcher 3 or EC-Configure LNS plug-ins, or by using a multi-protocol platform software supporting LONWORKS devices, such as the EC-NetAX software powered by the NiagaraAX Framework. These configuration interfaces are designed to simplify complex programming and sequencing methods by prompting the user for the necessary configuration data. The controller then automatically selects the operation sequence according to the input and output configurations and dynamically adapts itself to the network variables that are bound to the controller.

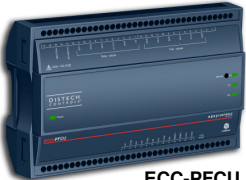
The ECC-PFCU series is compatible with the EC-Smart-Sensor-FC and EC-Smart-Sensor-FC-CF, a communicating sensor with 2-line LCD display. Functionality includes setpoint adjustment, fan speed control, indoor temperature display and occupancy state display.

1. ECC-PFCU-A and ECC-PFCU-AW models

Product Warranty & Total Quality Commitment

All Distech Controls product lines are built to meet rigorous quality standards and carry a two-year warranty. Distech Controls is an ISO 9001 registered company. Distech Controls' products provide both the contractor and the end user with the flexibility of using "best-of-breed" products in system design.

Available Controller Models

 ECC-PFCU	ECC-PFCU	14-Point Powered Fan Coil Unit Configurable Controller - 6 universal inputs - 4 digital relay outputs (up to 277VAC) - 4 digital (triac) outputs (up to 265VAC)
	ECC-PFCU-A	16-Point Powered Fan Coil Unit Configurable Controller - 6 universal inputs - 4 digital relay outputs (up to 277VAC) - 4 digital (triac) outputs (up to 265VAC) - 2 universal outputs
 ECC-PFCU-A	ECC-PFCU-W	14-Point Powered Fan Coil Unit Configurable Wireless Controller Same as ECC-PFCU but with integrated 868.3MHz receiver with internal antenna. Not intended for installation inside of a metal enclosure.
	ECC-PFCU-W (with External Antenna)	14-Point Powered Fan Coil Unit Configurable Wireless Controller Same as ECC-PFCU but with integrated 868.3MHz receiver with external antenna. Recommended when installed in a metal enclosure. 
	ECC-PFCU-AW	16-Point Powered Fan Coil Unit Configurable Wireless Controller Same as ECC-PFCU-A but with integrated 868.3MHz receiver with internal antenna. Not intended for installation inside of a metal enclosure.
	ECC-PFCU-AW (with External Antenna)	16-Point Powered Fan Coil Unit Configurable Wireless Controller Same as ECC-PFCU-A but with integrated 868.3MHz receiver with external antenna. Recommended when installed in a metal enclosure. 



All controller models requiring the external antenna must have the antenna ordered at the initial purchase. The external antenna cannot be added to the controller at a later time.

Supported Platforms



LonWorks Network Services (LNS)

LNS is a client-server platform that allows multiple users, running different LNS-compatible applications, to access a common source for directory, installation, management, monitoring and control services for the network system being managed. Distech Controls' Lonwatcher is an example of a LonWorks-based network management tools that can use Plug-Ins to configure and monitor controllers and devices in the control system.



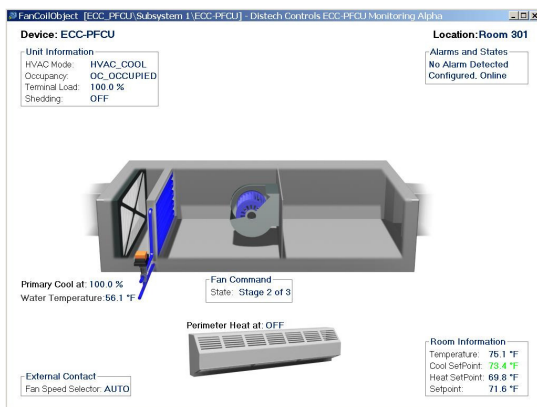
Niagara^{AX} Framework

The Niagara^{AX} Framework is the next generation of Niagara that builds on the multi-protocol, web-based concept of its predecessor. Niagara^{AX} normalizes the development environment for building new software. Distech Controls' EC-Net^{AX} Pro is a multi-protocol software platform that can use Wizards to configure and monitor controllers and devices in the control system.

Distech Controls Software LNS Plug-Ins and EC-Net^{AX} Wizards

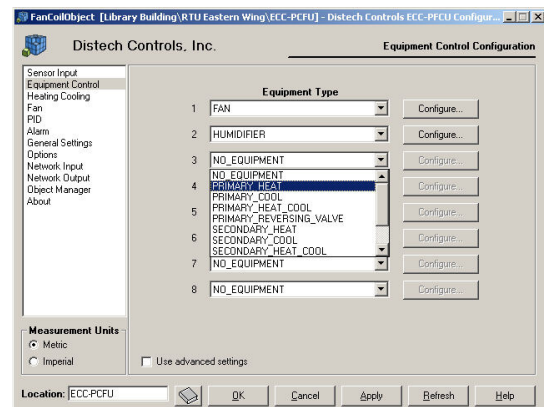
LNS Monitoring Plug-in

The monitoring plug-in is a graphical user interface that monitors all device parameters including inputs, outputs, alarms and device status. There is no more need to create any graphics pages and as it can be launched from any GUI that supports plug-in applications, graphics dynamically adapt themselves to the configuration of the device as well as the real time values being monitored.



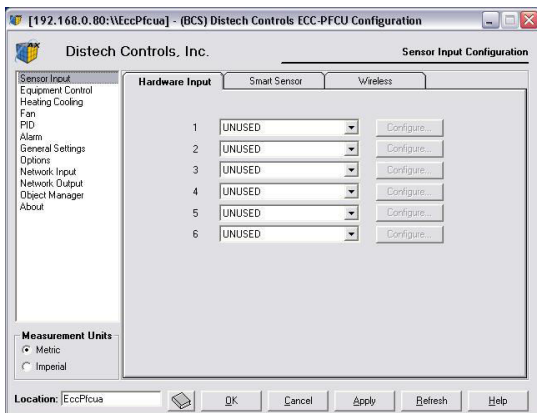
LNS Configuration Plug-in

Easily configure all of the devices' parameters including inputs, outputs, fan and valve settings, heating and cooling setpoints, amongst others. You can also enable and configure additional built-in features such as morning warm-up, load shedding, frost protection and slave operation mode.



EC-Net^{AX} and EC-Net Wizards

Designed for use with the Niagara^{AX} Framework and Niagara Framework, the EC-Net^{AX} and EC-Net Wizards offer all the same features accessible within the LNS plug-in. Simply add the device to your LON network and immediately launch the configuration wizard with a couple clicks of your mouse!



Recommended Peripherals

Supported Smart-Sensors



EC-Smart-Sensor-FC:

- Communicating sensor with 2-line LCD
- Setpoint adjustment
- Fan speed selection
- Room temperature display



EC-Smart-Sensor-FC-CF:

- Communicating sensor with 2-line LCD
- Setpoint adjustment
- Fan speed selection
- Room temperature display
- °C/°F toggle button

Temperature Sensors



EC-SENSOR

Room temperature sensor

EC-SENSOR-LO

Room temperature sensor with LED and override push button

EC-SENSOR-SLO-F

Room temperature sensor with LED, override push button and setpoint adjustment (°F)

EC-SENSOR-SLO-C

Room temperature sensor with LED, override push button and setpoint adjustment (°C)

EC-SENSOR-SLO-CW

Room temperature sensor with LED, override push button and setpoint adjustment (cool/warm)

EC-SENSOR-AVG

Averaging room temperature sensor, no setpoint (Up to 3 in parallel)

Wireless Sensors (Wireless models only)



SR04 Series

Wireless, solar-cell powered room temperature sensor with optional setpoint adjustment, override button and fan speed control.



SR04 rH Series

Wireless, solar-cell powered room temperature/humidity sensor with optional setpoint adjustment and override button.



SR65 VFG

Wireless, solar-cell powered surface temperature contact sensor.



SR-PIR 360°

Wireless motion detector.



2-channel Light Switch 4-channel Light Switch

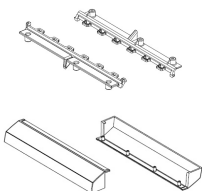
2-/4-channel wireless light switches (European models).



PTM265 PTM265D

2-/4-channel wireless light switched (North American models).

Other

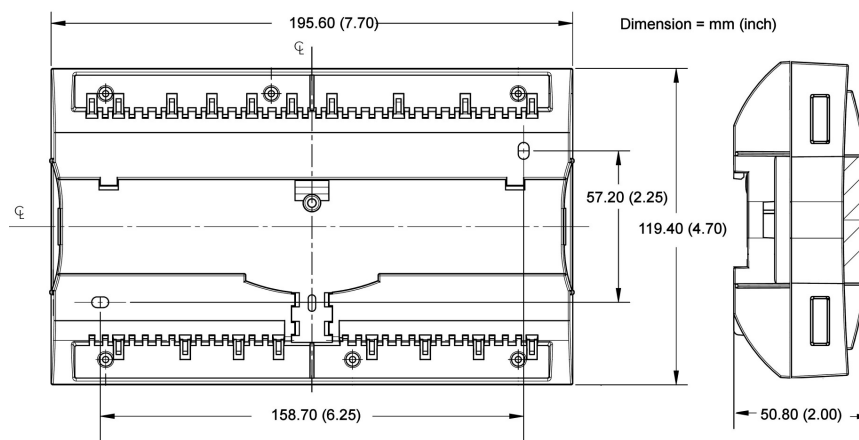


Strain Reliefs and Terminal Blocks Covers

A cover designed to conceal the wire terminals. Required to meet local safety regulations in certain jurisdictions.

For more information on these or other peripherals please refer to our web site at www.distech-controls.com or contact sales@distech-controls.com.

Product Specifications



Product Specifications (continued)

Power		Wireless Receiver ¹	
Voltage:	85-265VAC; 50/60HZ; Over-voltage category II Pollution degree 2	Wireless Receiver:	EnOcean RCM120 – 868.3MHz
Protection:	2.0A Fast-acting breaking capacity fuse	Number of Wireless Inputs: ⁴	14
ECC-PFCU series:		Inputs	
- Maximum Consumption:	20VA	Quantity:	6
ECC-PFCU-A series:		Input Types:	Universal (software configurable)
- Maximum Consumption:	33VA	-Voltage:	0-10VDC
 :	Double insulation devices	-Current:	4-20mA with 249Ω external resistor (wired in parallel)
Environmental		-Digital:	Dry contact
Operating Temperature:	0°C to 50°C; 32°F to 122°F (indoor use)	-Pulse:	Dry contact; 500ms minimum ON/OFF
Storage Temperature:	-20°C to 70°C; -4°F to 158°F	-Resistor:	
Relative Humidity:	0 to 90% Non-condensing	Thermistor ² :	10KΩ Type 2, 3 Range: -40°C to 150°C; -40°F to 302°F
General		Platinum:	Pt1000 (1KΩ) Range: -40°C to 150°C; -40°F to 302°F
Processor:	Neuron® 3150; 8 bits; 10MHZ	Pt100 (100Ω)	Range: -40°C to 135°C; -40°F to 275°F
Memory:	Non-volatile Flash 64K (APB application) Non-volatile Flash 128K (Storage)	Nickel:	Ni1000 (1KΩ) Range: -40°C to 150°C; -40°F to 302°F
Communication:	LonTalk protocol	Potentiometer:	Translation table configurable on several points
Channel:	TP/FT-10; 78Kbps	Input Resolution:	16-bit analog / digital converter
Status Indicator:	Green LEDs: power status & LON TX Orange LEDs: service & LON RX	 Measurement Category: CAT I	UIX COM } ≤ 10VDC
Communication Jack:	LON® audio jack mono 1/8" (3.5mm)		
Enclosure		Electromagnetic Compatibility	
Material:	ABS type PA-765A	CE -Emission:	EN61000-6-3: 2001; Generic standards for residential, commercial and light-industrial environments
Color:	Blue casing & grey connectors	-Immunity:	EN61000-6-1: 2001; Generic standards for residential, commercial and light-industrial environments
Dimensions overall:	7.7" x 4.7" x 2.0" (195.6mm x 119.4mm x 50.8mm)	FCC:	This device complies with FCC rules part 15, subpart B, class B
Shipping Weight:	1.17lbs (0.53kg)		
Installation:	Direct din-rail mounting or wall mounting through mounting holes (see figure above for hole positions)	Agency Approvals	
		UL Listed (CDN & US):	UL61010-1 Process Control Equipment, Electrical
		Material ³ :	UL94-5VA
			

1. Available only on ECC-PFCU-W and ECC-PFCU-AW models.

2. For temperature type inputs it is recommended that a 10KΩ thermistor be used due to better accuracy over the Pt1000, Pt100 or Ni1000.

3. All materials and manufacturing processes comply with the Waste Electrical and Electronic Equipment (WEEE) directive  and the RoHS directive .

4. Some wireless sensors may use more than one wireless input from the controller.

Output Configuration and Controller Selection Guide

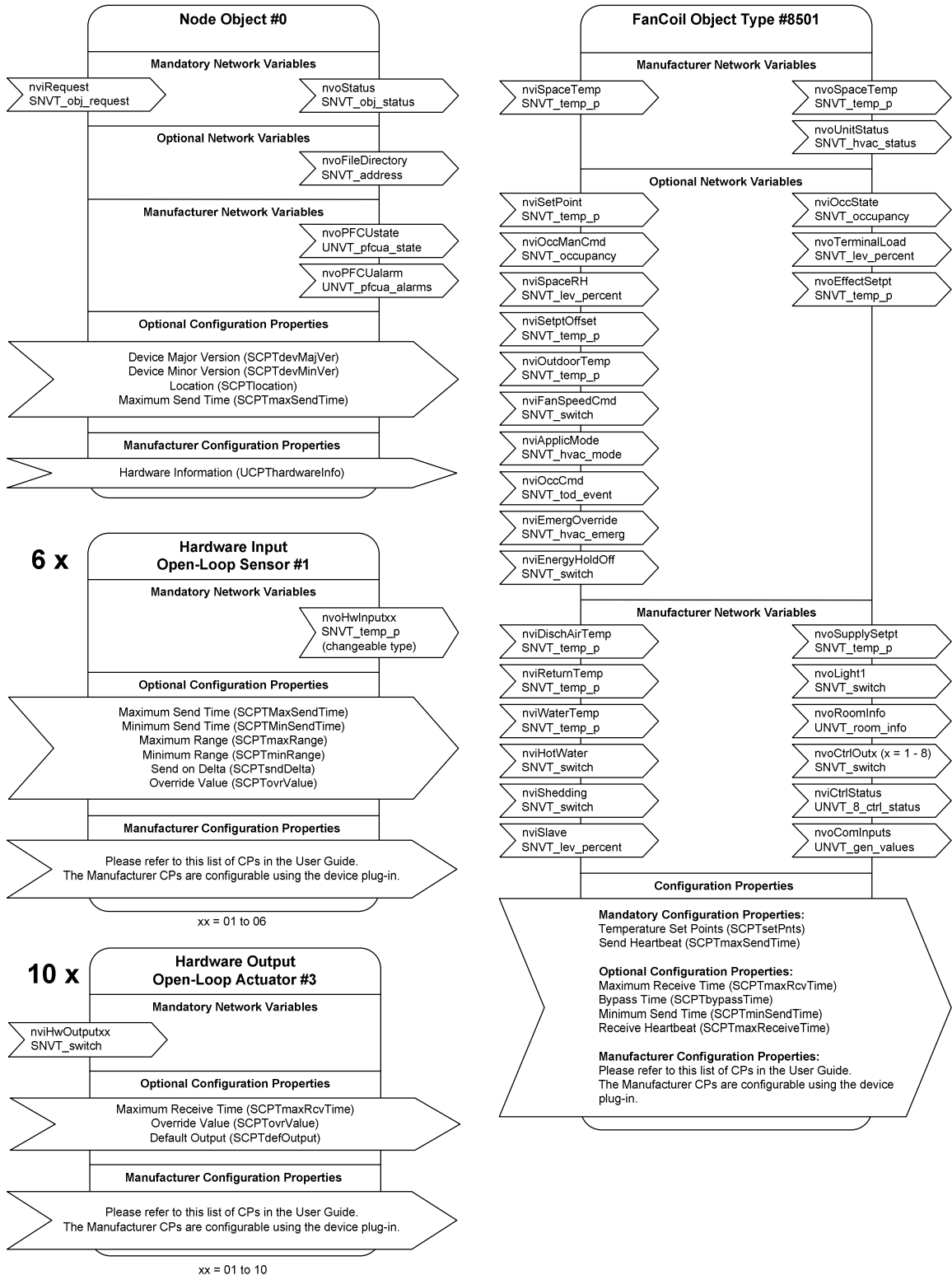
ECC-PFCU and ECC-PFCU-W

Quantity	8
3 Digital Relay Contacts (Fan Speeds)	Up to 277VAC, N.O. contacts 3A (inductive or resistive) All share the same common
1 Digital Relay Contact (Heater)	Up to 277VAC, N.O. contacts 3A (inductive) and 10A (resistive) Dedicated common
4 Digital	1A @ 20.4-265VAC Triac (digital - on/off, floating or PWM) - PWM control: adjustable period from 2 seconds to 15 minutes - Floating control: requires two consecutive outputs - Min pulse on/off: 500msec. - Adjustable drive time period Protect the output with an external 4A fast-acting, high-breaking fuse. 1 common per pair of outputs

ECC-PFCU-A and ECC-PFCU-AW

Quantity	10
3 Digital Relay Contacts (Fan Speeds)	Up to 277VAC, N.O. contacts 3A (inductive or resistive) All share the same common
1 Digital Relay Contact (Heater)	Up to 277VAC, N.O. contacts 3A (inductive) and 10A (resistive) Dedicated common
4 Digital	1A @ 20.4-265VAC Triac (digital - on/off, floating or PWM) - PWM control: adjustable period from 2 seconds to 15 minutes - Floating control: requires two consecutive outputs - Min pulse on/off: 500msec. - Adjustable drive time period Protect the output with an external 4A fast-acting, high-breaking fuse. Can also be powered by the internal 24VAC power supply (No fuse required) 1 common per pair of outputs
2 Universal	0-10VDC linear, digital 0-12VDC (on/off), PWM or floating - PWM control: adjustable period from 2 seconds to 15 minutes - Floating control: requires two consecutive outputs - Min pulse on/off: 500msec. - Adjustable drive time period - 20mA max. @ 12VDC - Minimum resistance 600Ω
Output Resolution	10-bit digital / analog converter
Onboard 24VAC output:	24VAC; +/-15%; 50Hz; 300mA max (7.2VA) @24VAC

Functional Profile



Specifications subject to change without notice.

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Niagara^{AX} Framework is a registered trademark of Tridium, Inc.; Windows is a registered trademark of Microsoft Corporation.

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05DI-DSPFCUX-20

ECC-PFCU Series

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