

UCU10FC/K

The UCU10FC/K adds support for UCU Room Display to the existing Unitary Fancoil Controller.



- Dedicated Room Control Panel connector. Frees up 3 input connections by using sensors and control inputs from the Display Panel through a dedicated connector

- 3 Universal Inputs can be used as analog or digital inputs

- 2 Universal Outputs can be used as analog or digital outputs

- 2 Triac Digital Outputs can switch up to 24 V AC

- 3 Relay Digital Outputs can switch up to 230 V AC

- Up to 63 controllers per fieldbus

- 190 strategy blocks

- 4 datalogs with up to 102 entries per datalog

- Data security

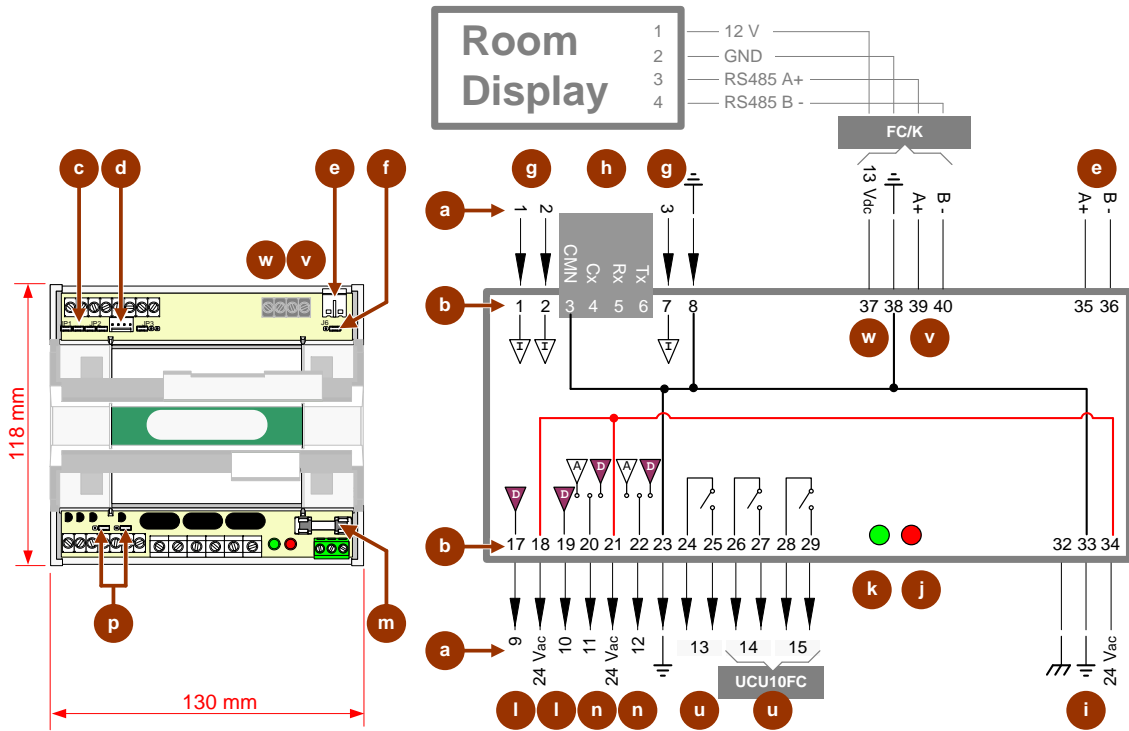
- Strategy and setpoints backed up in EEPROM

The use of the powerful UCU10FC/K Field Controller in this system means that while the Room Display can be used for local control, the fancoil equipment can be easily networked into the overall building control by simply connecting the UCU10FC/K to the Unifon Network.

An RS485 serial connector is provided to allow connection to the UCU Room Display module. This has the advantage that all mains cabling is contained within the Fancoil equipment.

Applications

For controlling the room temperature in individual rooms and zones



Note: Terminals 18, 21 and 34 are connected internally. When a controller is powered, 24 V AC is available for low current devices at terminals 18 and 21. The total combined current must be less than 1.8 A.

	Common
	Earth
a	Point Numbers
b	Terminal Numbers
c	Universal Input Configuration Jumpers
	Volt-free contacts
	Passive input
	0-20 mA input
	0-10 V input
d	Service Port (Molex header)
e	Fieldbus Port Important: In order for the Fieldbus to operate reliably, the common power connection (terminal 33 \perp) of the Communications Controller to which the Unitary Controller is connected must be Earthed.
f	Fieldbus Terminator
	ON (fieldbus terminated at this controller)
	OFF (fieldbus not terminated at this controller)
	OFF (fieldbus not terminated at this controller)
	Universal Input
g	Universal Input
v	Room Display RS485 (FC/K version only)
w	Room Display Power supply (FC/K version only)

h	Service Port (screw terminal)
i	Power 24 V AC Important : Earth this controller by connecting the common wire ($G_0 \perp$) on the secondary side of the 24 V AC transformer to Earth at one point.
	WARNING THIS UNIT MUST BE EARTHED
	Note : 24 V AC must be supplied by an isolation transformer
j	Power LED Red = on
k	Watchdog LED When GREEN, this LED indicates the CPU status.
	Digital Outputs (Switch neutral only)
l	
m	Fuse
	Universal Outputs
n	
p	Universal Output Configuration Jumpers
	0-10 V output
	Triac output
u	230 V AC Relay
	WARNING HAZARDOUS VOLTAGES. DISCONNECT SUPPLY TO MAINS RELAYS AND 24 V AC TO UNIT BEFORE WIRING.

Specifications

MECHANICAL

Size (excluding terminal plugs)	145 x 130 x 45 mm (5.7 x 5.12 x 1.78")
Enclosure	Injection moulded ABS
Mounting	DIN rail

FIELD CONTROLLER::ENVIRONMENT

Note: This equipment is intended for field installation within another enclosure.

Ambient Temperature	0° - 50°C (32°-122°F) ambient.
Ambient Humidity	0% - 90% RH non-condensing
EMC Immunity	EN 50082-1
EMC Emission	EN 55011 Class B
Safety	EN 61010

WIRING

Note: Use Copper or Copper Clad Aluminium conductors only.

Termination	I/O and Power : PCB mounted screw terminal connections. Fieldbus : PCB mounted plug terminal connections.
Conductor Area	Max: AWG 12 (3.09 mm ²) Min: AWG 22 (0.355 mm ²)

ELECTRICAL


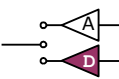


Supply Requirements	24 V AC +/- 20% 50/60 Hz
Transformer Rating	up to 55 VA (up to 10 VA internal power plus up to 45 VA supplied to Triac loads)
Fuse Rating	2 A 250 V anti-surge(250 Vac – 2 AT)

PROCESSOR

Type	Motorola 68HC11
Clock Speed	8 MHz
Operating System Memory	128K
User Programmable Memory	32k x 8 RAM 8k x 8 EEPROM backup for program. Maintenance free.

INPUTS/OUTPUTS

Note: Screened cable is recommended for all input connections.

3 Universal Inputs 	Active voltage input 0-10 V @ 134 K. Passive Input for a large range of temperature sensors, 10K3A1 sensors are recommended. Note: '10k option' controllers use 10k3A1 sensors only. Temperature input range: 0 – 50 °C Active current input 0-20 mA @ 120 Ω (screened cable). Digital Volt Free Contact. Note: UCU Universal inputs do not support pulse counting.
2 Universal Outputs 	Each A/T output is either one Analog 0-10 V, or one Digital. As analog, both are 0-10 V, 10 mA, 3 second response. As digital, both are rated @ 400 mA maximum, switch neutral only.
2 Digital Triac Outputs 	24 V AC Triac @ 500 mA maximum. Switch neutral only.
3 Digital Relay Outputs 	230 V AC Maximum Load: 2A inductive/resistive load
24 V AC output terminals	Total current drawn from 24 V AC terminals is limited to 1.8 A.

COMMUNICATIONS

Note: The default Fieldbus baud rate is 38400. The baud rate may be changed using the Unitron Palmtop program (DOS)

Local RS232 TTL port	@ 9600 Baud Max cable length 4m
Fieldbus port	RS485 @ 1200, 9600, 19200 or 38400 Baud
Keypad Port	RS485 @ 9600 Baud Max cable length 25m

INTERFACE

Software	Unitron Command Centre Unitron Engineering Centre WebLink
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SOFTWARE FEATURES

Note: The controller's Fieldbus address is set by Unitron Command Centre's CCView software module (Windows), or Unitron Palmtop program (DOS)

Maximum Controller Address	63
Maximum number of Strategy Blocks	190
Maximum number of Datalog Modules	4
Maximum Datalog capacity (standard)	102
Data Security	Strategy and Point numbers 200 – 255 analog and digital backed up in EEPROM

Strategy point setup

Type	Number	Use	Values
Analog	255	Temperature Setpoint	15-30 Deg C, 59-86 Deg F
Analog	254	Upper Setpoint Limit	15-30 Deg C, 59-86 Deg F
Analog	253	Lower Setpoint Limit	15-30 Deg C, 59-86 Deg F
Analog	252	Fan Speed	0 = off, 1 = low, 2 = medium, 3 = high
Analog	251	Room Temperature in	-40.0 – 959.9 Deg C/Deg F
Analog	250	Control Flags	(See description below)
Analog	249	Power Mode	0 = off, 1 = standby, 2 = comfort
Analog	248	Room Temperature out	-40.0 – 959.9 Deg C/Deg F
Digital	255	Operational Mode	0 = heating, 1 = cooling
Digital	254	Keypad Link Status	0 = offline, 1 = online
Digital	252	Manual Fan Control	0 = automatic, 1 = manual
Digital	251	Fan Type	0 = three speed fan, 1 = single speed fan

Control Flags (analog point 250)

Analog point 250 is used to specify all of the Control Flags. This is set in the Controller and sent from the Controller to the display. A value between 0 and 127 is used to represent the following bit pattern for Flag values:

- bit 0 Manual fan disable flag :** When this flag is set, the keypad will allow the user adjust the setpoint value but not the fan speed. If the user tries to change fan speed when this flag is set, the word "no" is displayed in order to give a feedback (assuming fan display inhibit flag is NOT set).
- bit 1 Fan display inhibit :** When this flag is set and the manual fan disable flag is set, the keypad does not display any fan status information. This allows for operation in VAV type applications where there is no requirement for user fan adjustment or status. If the manual fan disable flag is clear this flag is ignored.
- bit 2 Power control flag :** When this flag is set the user is not allowed to change the current power mode (i.e. comfort, standby, off). This is for out of occupancy lockdown.
- bit 3 Local echo flag :** When this flag is set the keypad will update the local display based on the users input without waiting for the update acknowledge from the UCU. This may improve the apparent user responsiveness of the display but could lead to some glitches if the UCU needs to vet user responses and override them.
- bit 4 Fahrenheit/Celsius flag :** This is set by the UCU and used by the display to decide which temperature units to use.
- bit 5 Error lockout flag :** When this flag is set, all keypad functionality is disabled, and the "Err3" code is displayed to indicate a fancoil error state.
- bit 6 Room Temperature override flag :** When this flag is set, the keypad will display the temperature value supplied by the Controller instead of the value from the keypad's internal temperature sensor. This would allow the use of external temperature sensors attached to the Controller or would allow the Controller adjust the temperature from the keypad sensor to compensate for errors.