HONEYWELL UDC120T & UDC170T
Three Position Step Control Product Manual (51-52-25-145-EN)

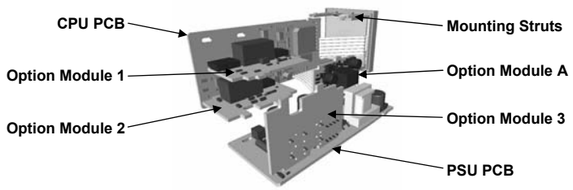
CAUTION: Installation should be only performed by technically competent personnel. Local Regulations regarding electrical installation & safety must be observed.

1. INSTALLATION

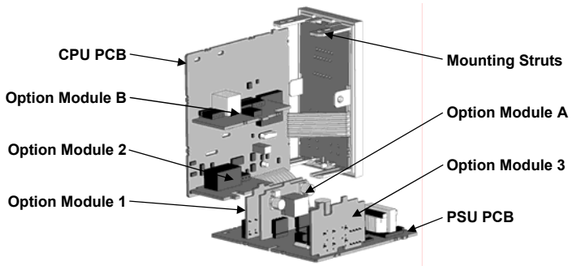
Models UDC120T and UDC170T have different case sizes *(refer to section 10).* Installation differences between the two models have been clearly shown.
Note: The functions described in sections 2 thru 9 are common to all models.

Installing Option Modules

UDC120T Module Positions



UDC170T Module Positions



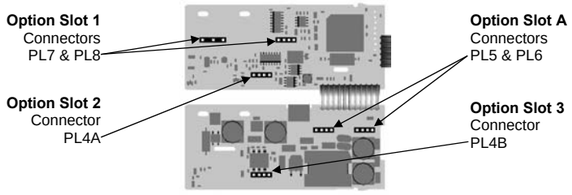
To access modules 1, A or B, first detach the PSU and CPU boards from the front by lifting first the upper, and then lower mounting struts. Gently separate the boards.

a. Plug the required option modules into the correct connectors, as shown below.
b. Locate the module tongues in the corresponding slot on the opposite board.
c. Hold the main boards together while relocating back on the mounting struts.
d. Replace the instrument by aligning the CPU and PSU boards with their guides in the housing, then slowly push the instrument back into position.

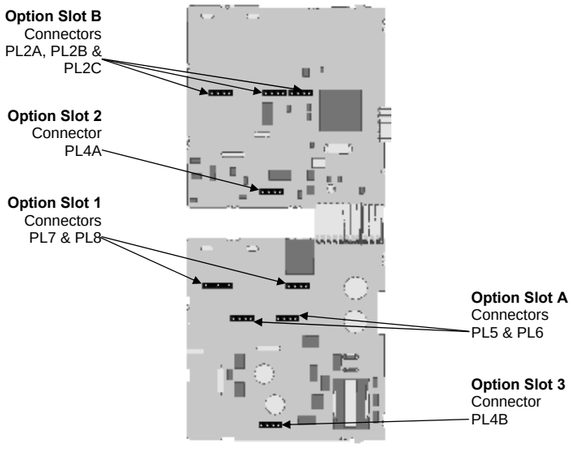
Note: Option modules are automatically detected at power up.

Option Module Connectors

UDC120T Module Connectors



UDC170T Module Connectors

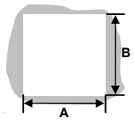


Panel-Mounting

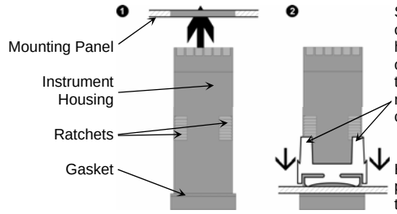
The mounting panel must be rigid, and may be up to 6.0mm (0.25inch) thick. Cut-out sizes are:

UDC120T	UDC170T
Dim A = 45mm	Dim A = 45mm
Dim B = 45mm	Dim B = 92mm

For *n* multiple instruments mounted side-by-side, cut-out dimension A is 48*n*-4mm



Tolerance +0.5, -0.0mm



Slide mounting clamp over the instrument housing towards rear face of mounting panel until the tongues engage in ratchets and instrument is clamped in position.

Hold instrument firmly in position (apply pressure to bezel only)

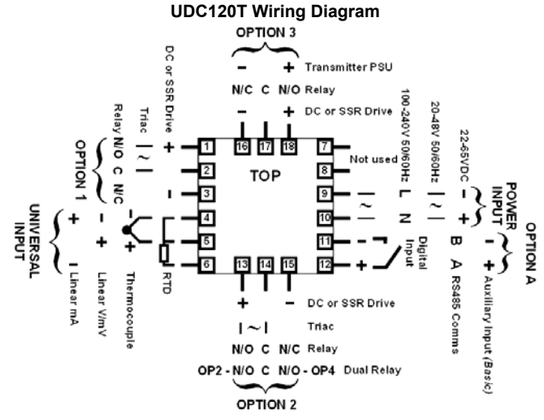
CAUTION: Do not remove the panel gasket; it is a seal against dust and moisture.

Rear Terminal Wiring

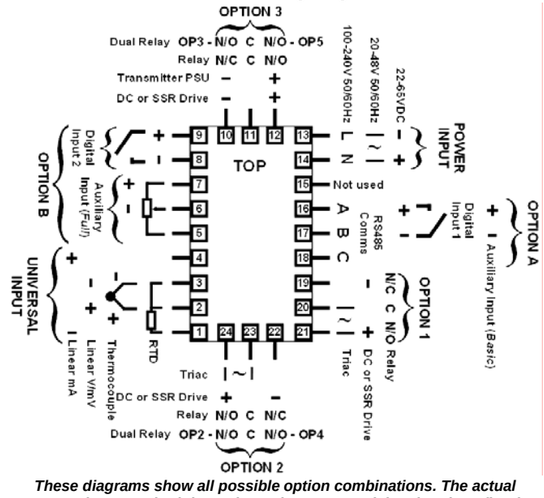
USE COPPER CONDUCTORS (EXCEPT FOR T/C INPUT)

Single Strand wire gauge: Max 1.2mm (18SWG)

UDC120T Wiring Diagram



UDC170T Wiring Diagram



These diagrams show all possible option combinations. The actual connections required depends on the exact model and options fitted.

Note: This controller uses Three-Point Stepping Control. This requires two identical outputs (2 Relays, 2 Triacs, 2 SSR Drivers or 1 Dual Relay) for the valve Open & Close functions. See Output Usage 1-5 in Configuration Mode.

CAUTION: Check information label on housing for correct operating voltage before connecting supply to Power Input
Fuse: 100 – 240V ac – 1amp anti-surge
24/48V ac/dc – 315mA anti-surge

Note: At first power-up the message `Goto Conf` is displayed, as described in section 7 of this manual. Access to other menus is denied until configuration mode is completed

2. SELECT MODE

Select mode is used to access the configuration and operation menu functions.
It can be accessed at any time by holding down SETUP and pressing ▲.
In select mode, press ▲ or ▼ to choose the required mode, press SETUP to enter.
An unlock code is required to prevent unauthorised entry to Configuration, & Setup modes. Press ▲ or ▼ to enter the unlock code, then press SETUP to proceed.

Mode	Upper Display	Lower Display	Description	Default Unlock Codes
Operator	`OPtr`	`SLCt`	Normal operation	None
Set Up	`SEtP`	`SLCt`	Tailor settings to the application	`10`
Configuration	`Conf`	`SLCt`	Configure the instrument for use	`20`
Product Info	`inFo`	`SLCt`	Check manufacturing information	None
Auto-Tuning	`Atun`	`SLCt`	Invoke Pre-Tune or Self-Tune	`0`

Note: The instrument will always return automatically to Operator mode if there is no key activity for 2 minutes.

3. CONFIGURATION MODE

First select Configuration mode from Select mode *(refer to section 2).*
Press SETUP to scroll through the parameters, then press ▲ or ▼ to set the required value. Press RUN/HOLD to accept the change, otherwise parameter will revert to previous value. To exit from Configuration mode, hold down SETUP and press ▲, to return to Select mode.
Note: Parameters displayed depends on how instrument has been configured. Refer to user guide (available from your supplier) for further details. Parameters marked ** are repeated in Setup Mode.

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value
Input Range/Type	`inPt`		*See following table for possible codes*	`JC`

Code	Input Type & Range	Code	Input Type & Range	Code	Input Type & Range
`bC`	B: 100 - 1824 ºC	`LC`	L: 0.0 - 537.7 ºC	`P24F`	PtRh20% vs 40%: 32 - 3362 ºF
`bF`	B: 211 - 3315 ºF	`LF`	L: 32.0 - 999.9 ºF		
`CC`	C: 0 - 2320 ºC	`nC`	N: 0 - 1399 ºC	`PtC`	Pt100: –199 - 800 ºC
`CF`	C: 32 - 4208 ºF	`nF`	N: 32 - 2551 ºF	`PtF`	Pt100: –328 - 1472 ºF
`JC`	J: –200 - 1200 ºC	`rC`	R: 0 - 1759 ºC	`Pt.C`	Pt100: –128.8 - 537.7 ºC
`JF`	J: –328 - 2192 ºF	`rF`	R: 32 - 3198 ºF	`Pt.F`	Pt100: –199.9 - 999.9 ºF
`J.C`	J: –128.8 - 537.7 ºC	`SC`	S: 0 - 1762 ºC	`0_20`	0 - 20 mA DC
`J.F`	J: –199.9 - 999.9 ºF	`SF`	S: 32 - 3204 ºF	`4_20`	4 - 20 mA DC
`KC`	K: –240 - 1373 ºC	`tC`	T: –240 - 400 ºC	`0_50`	0 - 50 mV DC
`KF`	K: –400 - 2503 ºF	`tF`	T: –400 - 752 ºF	`10.50`	10 - 50 mV DC
`K.C`	K: –128.8 - 537.7 ºC	`t.C`	T: –128.8 - 400.0 ºC	`0_5`	0 - 5 V DC
`K.F`	K: –199.9 - 999.9 ºF	`t.F`	T: –199.9 - 752.0 ºF	`1_5`	1 - 5 V DC
`LC`	L: 0 - 762 ºC	`P24C`	PtRh20% vs. 40%: 0 - 1850 ºC	`0_10`	0 - 10 V DC
`LF`	L: 32 - 1403 ºF			`2_10`	2 - 10 V DC

Note: Decimal point shown in table indicates temperature resolution of 0.1°

Parameter	Lower Display	Upper Display	Adjustment range & Description	Default Value
Scale Range Upper Limit	`rUL`		Scale Range Lower Limit +100 to Range Maximum	Range max (Lin=1000)
Scale Range Lower Limit	`rLL`		Range Minimum to Scale Range Upper Limit -100	Range min (Linear=0)
Decimal point position	`dPoS`		`0`=XXXX, `1`=XXX.X, `2`=XX.XX, `3`=X.XXX (non-temperature ranges only)	`1`
Primary Output Control Action	`CtrL`	`rEv`	Reverse Acting	`rEv`
		`dir`	Direct Acting	
Motor Travel Time	`tr`		`0.05` to `5.00` (5 secs to 5 mins 0 secs) Time Valve takes to move between its physical end stops (*full Open to full Closed*).	`1.00`
Alarm 1Type	`AL1`	`P_Hi`	Process High Alarm	`P_Hi`
		`P_Lo`	Process Low Alarm	
		`dE`	Deviation Alarm	
		`bAnd`	Band Alarm	
		`nonE`	No alarm	
High Alarm 1 value**	`PhA1`		Range Minimum to Range Maximum in display units	Range Max
Low Alarm 1 value**	`PLA1`			Range Min
Band Alarm 1 value**	`bAL1`		1 LSD to span from setpoint in display units	`5`
Dev. Alarm 1 value**	`dAL1`		+/- Span from setpoint in display units	`5`
Alarm 1 Hysteresis**	`AHY1`		1 LSD to full span in display units	`1`
Alarm 2 Type**	`AL2`		Options as for alarm 1	`P_Lo`
High Alarm 2 value**	`PhA2`			Range Max
Low Alarm 2 value**	`PLA2`			Range Min
Band Alarm 2 value**	`bAL2`			`5`
Dev. Alarm 2 Value**	`dAL2`		Options as for alarm 1	`5`
Alarm 2 Hysteresis**	`AHY2`			`1`
Loop Alarm	`LAEn`		`diSA` (disabled) or `EnAb` (enabled)	`diSA`
Alarm Inhibit	`Inhi`	`nonE`	No alarms Inhibited	`nonE`
		`AL1`	Alarm 1 inhibited	
		`AL2`	Alarm 2 inhibited	
		`both`	Alarm 1 and alarm 2 inhibited	
Output 1 Usage*	`USE1`	`OPN`	Valve Open	`OPN`
		`CLS`	Valve Close	
		`A1_d`	Alarm 1, Direct	
		`A1_r`	Alarm 1, Reverse	
		`A2_d`	Alarm 2, Direct	
		`A2_r`	Alarm 2, Reverse	
		`LP_d`	Loop Alarm, Direct	
		`LP_r`	Loop Alarm, Reverse	
		`Or_d`	Logical Alarm 1 OR 2, Direct	
		`Or_r`	Logical Alarm 1 OR 2, Reverse	
		`Ad_d`	Logical Alarm 1 AND 2, Direct	
		`Ad_r`	Logical Alarm 1 AND 2, Reverse	
		`rEtS`	Retransmit SP Output	
		`rEtP`	Retransmit PV Output	
Linear Output 1 Range	`typ1`	`0_5`	0 to 5 V DC output	`0_10`
		`0_10`	0 to 10 V DC output	
		`2_10`	2 to 10 V DC output	
		`0_20`	0 to 20 mA DC output	
		`4_20`	4 to 20 mA DC output	
Retransmit Output 1 Scale maximum	`roiH`		-1999 to 9999 (display value at which output will be maximum)	Range max
Retransmit Output 1 Scale minimum	`roiL`		-1999 to 9999 (display value at which output will be minimum)	Range min
Output 2 Usage*	`USE2`		As for output 1	Sec or Al2
Linear Output 2 Range	`typ2`		As for output 1	`0_10`
Retransmit Output 2 Scale maximum	`ro2H`		-1999 to 9999 (display value at which output will be maximum)	Range max
Retransmit Output 2 Scale minimum	`ro2L`		-1999 to 9999 (display value at which output will be minimum)	Range min
Output 3 Usage*	`USE3`		As for output 1	`A1_d`
Linear Output 3 Range	`typ3`		As for output 1	`0_10`
Retransmit Output 3 Scale maximum	`ro3H`		-1999 to 9999 (display value at which output will be maximum)	Range max
Retransmit Output 3 Scale minimum	`ro3L`		-1999 to 9999 (display value at which output will be minimum)	Range min
Output 4 Usage*	`USE4`		As for output 1 except Retransmit of PV or SP is not possible.	`OPN`
Output 5 Usage*	`USE5`			`A1_d`
Display Strategy	`diSP`		`1`, `2`, `3`, `4`, `5`, `6` or `7` *(refer to section 8)*	`1`
Serial Communications Protocol	`Prot`	`rtbn`	Modbus with no parity	`rtbn`
		`rtbE`	Modbus with Even Parity	
		`rtbo`	Modbus with Odd Parity	
Serial Communications Bit Rate	`bAud`	`1.2`	1.2 kbps	`4.8`
		`2.4`	2.4 kbps	
		`4.8`	4.8 kbps	
		`9.6`	9.6 kbps	
		`19.2`	19.2 kbps	
Comms Address	`Addr`	`1`	1 to 255	`1`
Comms Write	`CoEn`	`r_Wd`	Read/Write	`r_Wd`
		`r_O`	Read only	
Auxiliary Input A Usage	`AiPA`	`rSP`	Remote Setpoint (*basic*)	`Pin`
		`Pin`	Valve Position Indication (*basic*)	
Auxiliary Input B Usage	`AiPB`	`rSP`	Remote Setpoint (*Full*)	`Pin`
		`Pin`	Valve Position Indication (*Full*)	
Digital Input 1 Usage	`diG1`	`di51`	Setpoint 1 / Setpoint 2 select**	`di51`
		`diAS`	Automatic / Manual select	
Digital Input 2 Usage	`diG2`	`di51`	Setpoint 1 / Setpoint 2 select**	`dirS`
		`diAS`	Automatic / Manual select	
		`dirS`	Remote / Local setpoint select	

Note: `diG2` has priority over `diG1` if both are configured for the same usage. If `diG1` or `diG2` = `di51` the remote setpoint (RSP) input is disabled.

Continued on next page…

Parameter	Lower Display	Upper Display	Adjustment range & Description		Default Value
Remote Auxiliary Input Range	rinP	0_20	0 to 20 mA DC input		0_10
		4_20	4 to 20 mA DC input		
		0_10	0 to 10 V DC input		
		2_10	2 to 10 V DC input		
		0_5	0 to 5 V DC input		
		1_5	1 to 5 V DC input		
		100	0 to 100mV DC input	*Available on full Aux. (Slot B) only*	
		Pot	Potentiometer (2KΩ minimum)		
RSP Upper Limit	rSPu	-1999 to 9999. Remote SP for max. input			Range max
RSP Lower Limit	rSPL	-1999 to 9999. Remote SP for min. input			Range min
RSP Offset	rSPo	Constrained within Scale Range Upper & Scale Range Lower limits			0
Configuration Lock Code	CLoc	0 to 9999. Unlock Code for this mode			20

4. SETUP MODE

Note: Configuration must be completed before adjusting Setup parameters.
First select Setup mode from Select mode *(refer to section 2).* The MAN LED will light while in Setup mode. Press SETUP to scroll through the parameters, then press ▲ or ▼ to set the required value.
To exit from Setup mode, hold down SETUP and press ▲ to return to Select mode.
Note: Parameters displayed depends on how instrument has been configured.

Parameter	Lower Display	Upper Display Adjustment Range & Description	Default Value
Input Filter Time Constant	FiLt	0.0 (*Off*) or 0.5 to 100.0 secs.	2.0
Process Variable Offset	OFFS	±Span of controller	0
Primary Proportional Band	Pb_P	0.5 to 999.9 % of input span	10.0
Automatic Reset (Integral Time)	ArSt	0.01 to 99.59 1 sec to 99 mins 59 secs	5.00
Rate (Derivative Time)	rAtE	0.00 to 99.59 0 sec to 99 mins 59 secs	0.00
Setpoint Upper Limit	SPuL	Current Setpoint to Range max	R/max
Setpoint Lower limit	SPLL	Range min to Current Setpoint	R/min
Minimum Motor On Time	ton	0.0 secs to (Motor Travel Time / 10) secs. The minimum drive effort to begin moving valve.	0.0
Set Valve Open Position	PcuL	*See instructions below to set the valve's fully open and closed positions.*	Max. Aux.
Set Valve Closed Position	PcLL		Min. Aux.
Valve Open Limit	P_uL	P_LL +1 to 100. The minimum position valve will be driven to	0
Valve Closed Limit	P_LL	P_uL -1 to 100. The maximum position valve will be driven to	100
High Alarm 1 value	PhA1	Range Minimum to Range Maximum	R/max
Low Alarm 1 value	PLA1		R/min
Deviation Alarm 1 Value	dAL1	±Span from SP in display units	5
Band Alarm 1 value	bAL1	1 LSD to span from setpoint	5
Alarm 1 Hysteresis	AHy1	1 LSD to full span in display units	1
High Alarm 2 value	PhA2	Range Minimum to Range Maximum	R/max
Low Alarm 2 value	PLA2		R/min
Deviation Alarm 2 Value	dAL2	±Span from SP in display units	5
Band Alarm 2 value	bAL2	1 LSD to span from setpoint	5
Alarm 2 Hysteresis	AHy2	1 LSD to full span in display units	1
Auto Pre-tune	APt	d_SA (disabled) or EnAb (enabled)	d_SA
Auto/manual Control selection	PoEn		
Setpoint Select shown in Operator Mode	SSEn		
Setpoint ramp adjustment shown in Operator Mode	SPr		
SP Ramp Rate Value	rP	1 to 9999 units/hour or Off (blank)	Off
Setpoint Value	SP	Scale range upper to lower limits. (when dual or remote setpoint options are used, SP is replaced by SP1 & SP2 or LSP - or = before the legend indicates the currently active SP)	Scale Range Minimum
Local Setpoint Value	_LSP		
Setpoint 1 Value	_SP1		
Setpoint 2 Value	_SP2		
Setup Lock Code	SLoc	0 to 9999	10

Setting the Valve Opened & Valve Closed Positions

With PcuL in the lower display press Man/Auto. The top display shows oPnG.
Press ▲ to drive open the valve until it reaches the "fully open" end stop.
Press Man/Auto. The top display will go *Blank* and the Auxiliary Input value will be measured and stored as the value equal to the fully open valve position.
Press SETUP. The lower display shows PcLL. Press Man/Auto. The top display shows cLSG.
Press ▼ to drive closed the valve until it reaches the "fully closed" end stop.
Press Man/Auto. The top display will go *Blank* and the Auxiliary Input value will be measured and stored as the value equal to the fully closed valve position.

5. AUTOMATIC TUNING MODE

First select Automatic tuning mode from Select mode *(refer to section 2).*
Press SETUP to scroll through the modes, then press ▲ or ▼ to set the required value.
To exit from Automatic tuning mode, hold down SETUP and press ▲, to return to Select mode.
Pre-tune is a single-shot routine and is thus self-disengaging when complete.
If APt in Setup mode = EnAb, Pre-tune will attempt to run at every power up*.
Refer to the full user guide (available from your supplier) for details on controller tuning.

Parameter	Lower Display	Upper Display	Default Value
Pre-Tune	Ptun	On or OFF. *Pre-tune will not engage if setpoint is ramping, or the PV is less than 5% of input span from the setpoint . Indication remains OFF	OFF
Self-Tune	Stun		
Tune Lock	tLoc	0 to 9999	0

6. PRODUCT INFORMATION MODE

First select Product information mode from Select mode *(refer to section 2).*
Press SETUP to view each parameter. To exit from Product Information mode, hold down SETUP and press ▲ to return to Select mode.
Note: These parameters are all read only.

Parameter	Lower Display	Upper Display	Description
Input type	In_1	Un_1	Universal input
Option 1 module type fitted	OPn1	nonE	No option fitted
		rLY	Relay output
		SSr	SSR drive output
		tr_1	Triac output
		L_in	Linear DC voltage / current output
Option 2 module type fitted	OPn2	nonE	No option fitted
		drLY	Dual Relay output
		rLY	Relay output
		SSr	SSR drive output
		tr_1	Triac output
		L_in	Linear DC voltage / current output
		dc24	Transmitter power supply
Option 3 module type fitted	OPn3	As Option 2	
Auxiliary Option A module type fitted	OPnA	nonE	No option fitted
		r485	RS485 communications
		d_iG_1	Digital Input*
		rSP_1	Auxiliary Input *(basic)**
Auxiliary Option B module type fitted	OPnb	nonE	No option fitted
		rSP_1	Auxiliary Input *(full)* and Digital Input 2*
Firmware type	FuJ	Value displayed is firmware type number	
Firmware issue	ISS	Value displayed is firmware issue number	
Product Revision Level	PrL	Value displayed is Product Revision level	
Date of manufacture	dOMn	Manufacturing date code *(mmyy)*	
Serial number 1	Sn1	First four digits of serial number	
Serial number 2	Sn2	Middle four digits of serial number	
Serial number 3	Sn3	Last four digits of serial number	

7. MESSAGES & ERROR INDICATIONS

These messages indicate that an error has occurred, or there is a problem with the process variable input connection or signal.
Caution: Do not continue with the process until the issue is resolved.

Parameter	Upper Display	Lower Display	Description	
Instrument parameters are in default conditions	Goto	Conf	Configuration & Setup required. This screen is seen at first turn on, or if hardware configuration has been changed. Press SETUP to enter the Configuration Mode, next press ▲ or ▼ to enter the unlock code number, then press SETUP to proceed	
Input Over Range	[HHJ	Normal	Process variable input > 5% over-range	
Input Under Range	[LLJ	Normal	Process variable input > 5% under-range	
Input Sensor Break	OPEN	Normal	Break detected in process variable input sensor or wiring.	
Aux. Over Range	Normal	[HHJ **	Auxiliary input over-range	*** also seen wherever Aux value would be displayed*
Aux. Under Range	Normal	[LLJ **	Auxiliary input under-range	
Auxiliary Input Break	Normal	OPEN **	Break detected in Auxiliary input signal	
Option 1 Error	Err	OPn1	Option 1 module fault	
Option 2 Error		OPn2	Option 2 module fault	
Option 3 Error		OPn3	Option 3 module fault	
Option A Error		OPnA	Option A fault or Aux fitted in both A & B	
Option B Error		OPnb	Option B module fault	

8. OPERATOR MODE

This mode is entered at power on, or accessed from Select mode *(see section 2).*
Note: All Configuration mode and Setup mode parameters must be set as required before starting normal operations.
Press SETUP to scroll through the parameters, then press ▲ or ▼ to set the required value.
Note: All Operator Mode parameters in Display strategy 6 are read only (see d_SP in configuration mode), they can only be adjusted via Setup mode.

Upper Display	Lower Display	Display Strategy and When Visible	Description
PV Value	Active SP Value	1 & 2 *(initial screen)*	PV and target value of selected SP *Local Setpoints are adjustable in Strategy 2*
PV Value	Actual SP Value	3 & 6 *(initial screen)*	PV and actual value of selected SP (e.g. ramping SP value). *Read only*
PV Value	*(Blank)*	4 *(initial screen)*	Process variable only *Read only*
Active SP Value	*(Blank)*	5 *(initial screen)*	Target value of selected setpoint only. *Read only*
PV Value	Auxiliary Input Value	7 *(initial screen)*	PV and Valve Position or Flow *Read only*
SP Value	SP	1 – 3 & 4 - 7 if digital input is not d_S1 and RSP not configured	Target value of SP *Adjustable except in Strategy 6*
SP1 Value	_SP1	Digital input = d_S1. _ lit if active SP = SP1	Target value of SP1 *Adjustable except in Strategy 6*
SP2 Value	_SP2	Digital input = d_S1. _ lit if active SP = SP2	Target value of SP2 *Adjustable except in Strategy 6*
Local SP Value	_LSP	RSP fitted. _ or = lit if the active SP = LSP	Target value of local setpoint *Adjustable except in Strategy 6*
Remote SP Value	_rSP	RSP fitted. _ or = lit if the active SP = rSP	Target value of remote setpoint *Read only*
d_iG_1, LSP or rSP	SPS	RSP is fitted, digital input is not d_S1 and SSEn is enabled in Setup mode	Selects local/remote active setpoint LSP = local SP, rSP = remote SP d_iG_1 = selection via digital input (if configured). *Note: selecting LSP or rSP will override digital input, active SP indication changes to = Adjustable except in Strategy 6*
Actual SP Value	SPrP	rP is not blank	Actual (ramping) value of selected SP. *Read only*
Ramp Rate	rP	SPr enabled in Setup mode	SP ramping rate, in units per hour *Adjustable except in Strategy 6*
Active Alarm Status	ALSt	When one or more alarms are active. ALM indicator will also flash	Alarm 2 active L2 1 — Alarm 1 active Loop Alarm active

Manual Valve Control

If PoEn is set to EnAb in Setup mode, manual control can be selected/de-selected by pressing the Man/Auto key in Operator mode, via serial communications, or by changing the status of a digital input if d_iG_1 or d_iG2 has been configured for d_iAS in Configuration mode.
While in Manual Control mode, the MAN indicator will flash and the lower display will show MMAn. If Valve Position Indication is configured, the lower display will show Pxxx instead of MMAn, where *xxx* is the valve position as read by the Auxiliary Input. P0 means the valve is fully closed, P 100 means the valve is fully opened.

Press ▲ to move the valve mother in the "open" direction or ▼ to move the valve mother in the "close" direction. Keep pressing the key until the desired valve position is achieved

9. SERIAL COMMUNICATIONS

Refer to the full user guide (available from your supplier) for details.

10. SPECIFICATIONS

UNIVERSAL INPUT

Thermocouple Calibration:	±0.1% of full range, ±1LSD (±1°C for Thermocouple CJC). BS4937, NBS125 & IEC584.
PT100 Calibration:	±0.1% of full range, ±1LSD. BS1904 & DIN43760 *(0.00385Ω/Ω/°C).*
DC Calibration:	±0.1% of full range, ±1LSD.
Sampling Rate:	4 per second.
Impedance:	>10MΩ resistive, except DC mA (5Ω) and V (47kΩ).
Sensor Break Detection:	Thermocouple, RTD, 4 to 20 mA, 2 to 10V and 1 to 5V ranges only. "Close *Valve" outputs turn ON.*
Isolation:	Isolated from all outputs (except SSR driver). Universal input must not be connected to operator accessible circuits if relay outputs are connected to a hazardous voltage source. Supplementary insulation or input grounding would then be required.

AUXILIARY INPUT

Calibration:	±0.25% of input range ±1 LSD.
Sampling Rate:	4 per second.
Sensor Break Detection:	4 to 20 mA, 2 to 10V and 1 to 5V ranges only. *Valve control outputs turn off if RSP is the active SP.*
Isolation:	Slot A - Basic isolation, Slot B - Reinforced safety isolation from other inputs and outputs.

DIGITAL INPUTS

Volt-free(or TTL):	Open(2 to 24VDC) = SP1, Local SP or Auto Mode, Closed(<0.8VDC) = SP2, Remote SP or Manual Mode.
Isolation:	Reinforced safety isolation from inputs and other outputs.

OUTPUTS

Relay

Contact Type & Rating:	Single pole double throw (SPDT); 2A resistive. 120VAC max. (240V for alarm or indirect switching of valves).
Lifetime:	>500,000 operations at rated voltage/current.
Isolation:	Basic Isolation from universal input and SSR outputs.

Dual Relay

Contact Type & Rating:	2 x single pole single throw, with shared common; 2A resistive. 120VAC max. (240V for alarm or indirect switching of valves).
Lifetime:	>200,000 operations at rated voltage/current.
Isolation:	Reinforced safety isolation from inputs and other outputs.

SSR Driver

Drive Capability:	SSR drive voltage >10V into 500Ω min.
Isolation:	Not isolated from universal input or other SSR driver outputs.

Triac

Operating Voltage:	20 to 140Vrms (280V max. for alarm or indirect switching of valves) @ 47 to 63Hz.
Current Rating:	0.01 to 1A (full cycle rms on-state @ 25°C); derates linearly above 40°C to 0.5A @ 80°C.
Isolation:	Reinforced safety isolation from inputs and other outputs.

DC Linear

Resolution:	8 bits in 250mS (10 bits in 1s typical, >10 bits in >1s typical).
Isolation:	Reinforced safety isolation from inputs and other outputs.

Transmitter PSU

Power Rating:	19 to 28V DC (24V nominal) into 910Ω minimum resistance.
Isolation:	Reinforced safety isolation from inputs and other outputs.

SERIAL COMMUNICATIONS

Physical:	RS485, at 1200, 2400, 4800, 9600 or 19200 bps.
Protocol:	Modbus RTU.
Isolation:	Reinforced safety isolation from all inputs and outputs.

OPERATING CONDITIONS (FOR INDOOR USE)

Ambient Temperature:	0°C to 55°C (Operating), –20°C to 80°C (Storage).
Relative Humidity:	20% to 95% non-condensing.
Supply Voltage and Power:	100 to 240VAC ±10%, 50/60Hz, 7.5VA (*for mains powered versions*), or 20 to 48VAC 50/60Hz 7.5VA or 22 to 65VDC 5W (*for low voltage versions*).

ENVIRONMENTAL

Standards:	CE, UL, ULC.
EMI:	Complies with EN61326 (Susceptibility & Emissions).
Safety Considerations:	Complies with EN61010-1 & UL3121. Pollution Degree 2, Installation Category II.
Front Panel Sealing:	To IP66 (IP20 behind the panel).

PHYSICAL

Front Bezel Size:	UDC120T = 48 x 48mm, UDC170T = 96 x 48mm,
Depth Behind Panel:	UDC120T = 110mm, UDC170T = 100mm.
Weight:	0.21kg maximum.

Honeywell