

DUAL CHANNEL INDICATOR WITH ALARMS DUAL CHANNEL PID CONTROLLER

6 DIs, 2 AOs, 7 RELAYS, RS485 / MODBUS RTU

NEX225



- Versions
 - Indicator with alarms
 - PID - Dual loop
 - Heat+cool
 - VMD
- 2 x universal input / RS485 input
- PID control with Fuzzy Logic
- Flameproof, IP65
- Sampling time 50ms/200ms programmable
- Control outputs - User programmable between relays / analog output
- 4/7 Setpoints for FLP / NON-FLP respectively
- Isolated 2 x 0/4~20 mA or 0~10V DC for control / retransmission output
- Isolated RS485/MODBUS RTU
- Autotuning function
- Auto/manual control
- Calibration & configuration through PC utility
- User friendly keyboard interface with password protection
- User key with assignable function



2 x large displays (0.8")



Dual loop PID



Min/Max function with reset



RS485 / MODBUS RTU slave

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LARGE PV DISPLAY



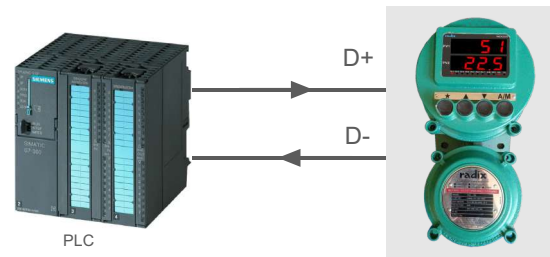
COMPACT DESIGN / LOW DEPTH



UNIVERSAL INPUT



RS485 / MODBUS RTU SLAVE INDICATOR



Values written by PLC are displayed as PV1 & PV2

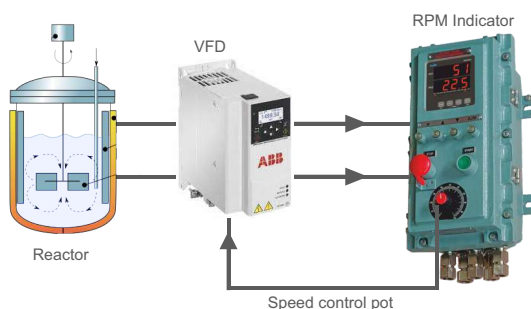
SOFTWARE VERSIONS

- ON/OFF control
- Dual PID loops
- Heat + Cool
- VFD

OUTPUTS

- 2 x isolated analog outputs
- 7 relays for alarm / onoff control
- Programmable alarm types

SPECIAL VERSION (ORDER CODE - 2992) FOR VFD DRIVE INPUT



MIN / MAX / RESET



VIEW mode shows maximum / minimum value of both the inputs

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SPECIFICATIONS

All specifications at ambient of 25 °C, unless specified otherwise

INPUTS	
No of input	2 (Input1, Input2)
Input group 1	
Thermocouple	B, E, J, K, N, R, S, T
RTD	Pt100
Voltage	0~50 mV, 0~10 V
Current	4~20 mA
RS485 input	Received from RS485/ MODBUS RTU master
Input group 2	
Thermocouple	B, C, D, E, G, J, K, N, R, S, T, L, U, PLII
RTD	Pt100, Cu53, JPT100
Current	0~20 mA, 4~20 mA, 4~20 mA with Square root
Voltage	-10~20mV, 0~50 mV, 0~200 mV, 0~2 V, 0~5 V, 0~10V
RS485 input	Received from RS485 / MODBUS RTU master
Sampling time	50 ms / 200 ms programmable
Transmitter supply (VTX)	22 V nominal, 30 mA max
Range limits	See Table 1
Accuracy	Thermocouple : $\pm 0.25\%$ of FS $\pm 1^\circ\text{C}$
	Pt100 : $\pm 0.05\%$ of FS $\pm 0.5^\circ\text{C}$
	Linear inputs : $\pm 0.1\%$ FS or less
Cold junction compensation	Automatic/User programmable
Sensor break protection	User programmable
OUTPUTS	
No. of relays	Maximum 7
Relay contact type	NO-C-NC, NO-C
Relay contact rating	7A/230 VAC
	5A/230 VAC
SSR drive	12 V DC drive signal for external SSR
No. of analog outputs	0 / 1 / 2
Current output	4~20 mA / 0~20 mA / 20~4 mA / 20~0 mA isolated from input
Maximum load for current output	500 ohms
Voltage output	0-10 V / user specified
Load for voltage output	>10 Kohms
INDICATION	
Display	2 x 4 digit, 7-segment 0.8" (20.32 mm), red LED display

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COMMUNICATION	
Port	RS485
Protocol	MODBUS RTU
Slave ID	User programmable (1~247)
Baud rate	User programmable (2.4K, 4.8K, 7.2K, 9.6K, 19.2K, 38.4K, 57.6K)
POWER SUPPLY	
Supply voltage	a. 85~265V AC, 50/60hz b. 18~30V DC
AUTO/MANUAL OPERATION	
Function	Output power is increased/decreased by UP/DOWN keys in manual mode
Auto / Manual transfer	Bumpless
ISOLATION	
Mutual isolation between input, supply, relays, analog output, digital input, RS485	1500 VAC RMS, 50hz / 1minute
ENCLOSURE	
Non-Flameproof	
Housing material	ABS plastic, grade : UL94V-0
Dimensions (in mm)	96(W) x 96(H) x 60(D)
Protection	Front IP66 (IEC) / NEMA 4X
Mounting	Panel
Terminals	M3 screw, suitable upto 2 mm ² wire
Flameproof	
Enclosure	Certified flameproof for gas groups I, IIA & IIB
Material	Aluminium alloy
Dimensions (in mm)	352(H) x 190(W) x 170(D)
Protection	IP65
Keyboard	4 Pushbuttons
Mounting	Wall mount
Mounting accessories	Included
Cable entries*	5 x 1/2" NPT
* Cable glands to be ordered separately	
TEMPERATURE, HUMIDITY	
Ambient operating temperature	-10 to 50 °C
Ambient operating humidity	Below 90% RH, non-condensing

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PROGRAMMABLE PARAMETERS

User key / Digital input	Programmable function such as start, stop, run, hold profile, autotune, etc
Setpoint lock	ON, OFF
Power on delay	0~999 seconds
Soft start function	Timer / setpoint / % output
Time out for run mode	None / 10 seconds / 1 min / 9 min
Input type	TC/RTD/Linear input
High/Low scales of input	Full range (See Table 1)
Setpoint	Full range (See Table 1)
Resolution	User selectable
	0.001, 0.01, 0.1 or 1 for linear input,
	0.1 or 1 for temperature
Unit	°C, °F, EU
Digital filter	None / low / high
CJC	Auto / off / -10 to 60°C
PID groups	1-4
Control type	Heat/Cool/Heat+Cool
Band (P)	0.1~999.9, 0~100% of span
Integral time (I)	Off, 1~6000 seconds
Derivative time (D)	Off, 1~6000 seconds
Cycle time	1~1000 second
Manual reset	-99 to 99 °C
High/low limits of power	-3~103%
Dead band for heat+cool	-50~50%
Cool coefficient heat+cool	0~100%
Cool Compressor delay	0~999 min
Alarm logic	a. Fullscale high alarm
	b. Full scale low alarm
	c. Deviation high alarm
	d. Deviation low alarm
	e. Inband alarm
	f. Outband alarm
	g. Heat
	h. Cool
Alarm delay	0~999 second/minute
Alarm acknowledge	Reset alarm through user key / digital input
Relay action	Reverse / direct
Single ramp/soak	Ramp: 0~999.9 °C / min or hour
	Soak time : 0~999 minutes

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TABLE 1

Input group 1

SENSOR / INPUT	RANGE LIMITS (°C / EU)	
	LOW SCALE	HIGH SCALE
Pt - 6% Rh / Pt - 30% Rh (B)	400	1800
Chromel / Constantan (E)	-200	850
Iron / Constantan (J)	-200	760
Chromel / Alumel (K)	-200	1370
Nicrosil / Nisil (N)	-200	1300
Pt / Pt - 13% Rh (R)	0	1700
Pt / Pt - 10% Rh (S)	0	1700
Copper / Constantan (T)	-200	400
Pt100, 3-wire	-200	850
Linear (0-50 mV, 4-20 mA, 0-10 V)	-1999	9999

Additional Inputs for Input group 2

SENSOR / INPUT	RANGE LIMITS (°C / EU)	
	LOW SCALE	HIGH SCALE
Tungsten - 5% Rh / Tungsten - 26% Rh (C)	0	2300
Tungsten - 3% Rh / Tungsten - 25% Rh (D)	0	2000
Tungsten / Tungsten - 26% Rh (G)	0	2310
Iron / Constantan (L)	-200	900
Copper / Constantan (U)	-200	600
Platinum - 40% Rh / Platinum - 20% Rh (2040)	0	1880
JPT100	-200	600
Cu53	0	150
Linear (-10-20mV, 0-50 mV, 0-200 mV, 0-2 V, 0-5 V, 0-10V)	-1999	9999
Linear (4-20 mA) with square root	0	9999

CONNECTION DIAGRAM

Fig 1 : PANEL MOUNT

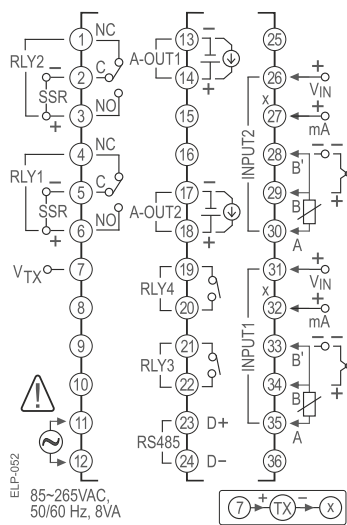
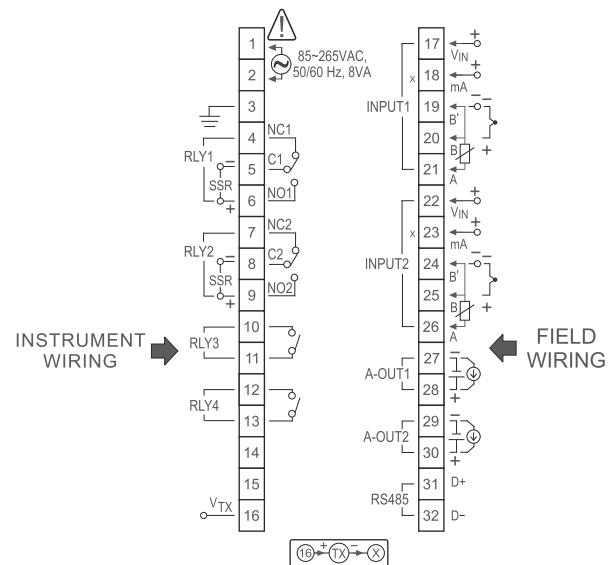


Fig 2 : SURFACE MOUNT FLAMEPROOF

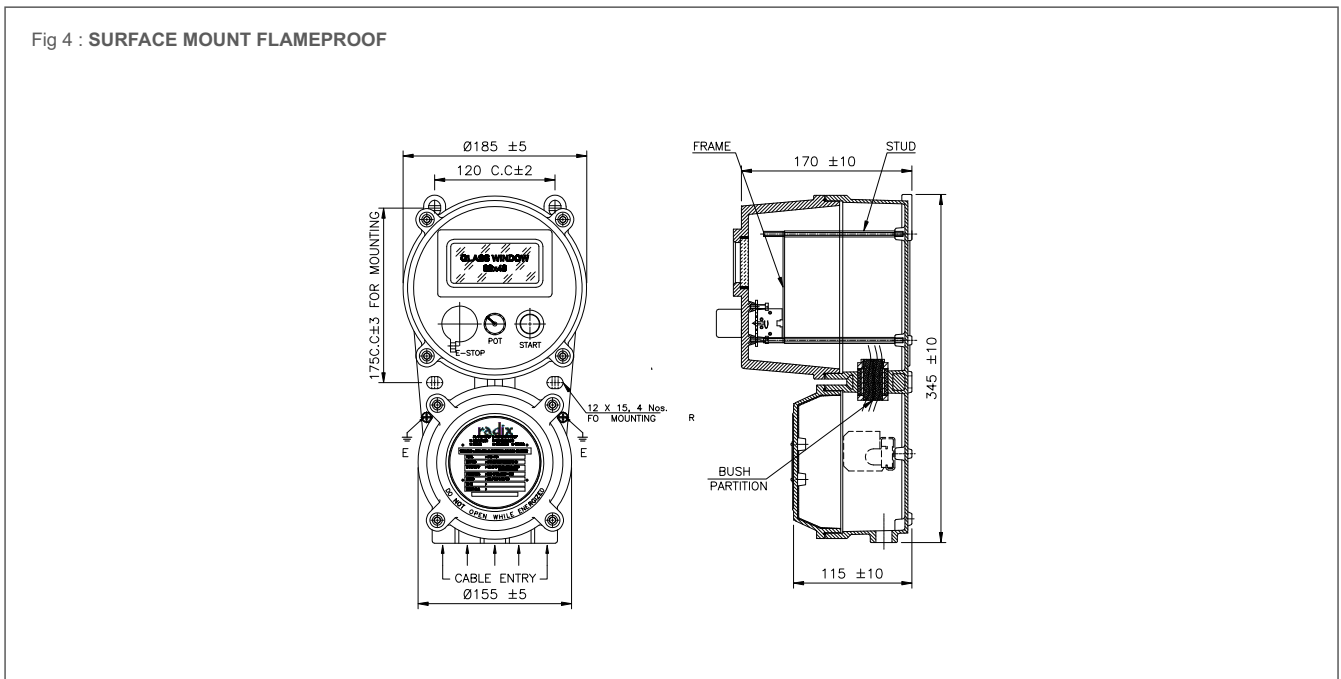
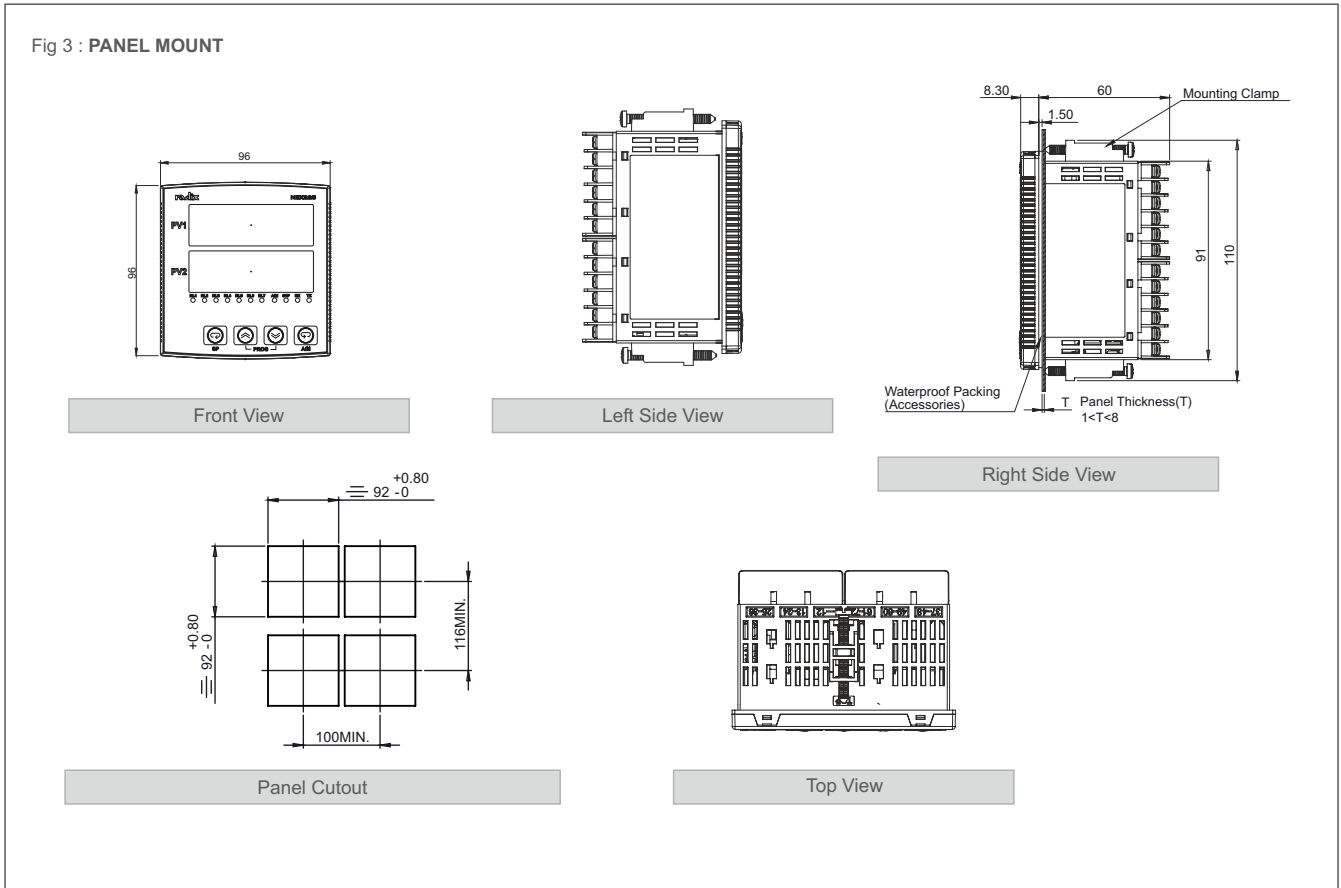


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DIMENSIONS mm



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ORDERING INFORMATION

PANEL MOUNT

CODE	SPECIFICATION	1	2	3	4	5	6
2971							
1	Version						
	Indicator with alarms	A					
	PID - Dual loop	B					
	PID - Heat + Cool	C					
2	Number of inputs (For Group2 - Contact Factory)						
	2 x Universal input (Group1)		2				
	2 x Universal input (Group1) + 3 x Digital input		6				
	2 x Universal input / RS485 input		7				
3	Relay outputs - Note1						
	None			N			
	2 Relays - (NO1-C1-NC1, NO2-C2-NC2)			2			
	3 Relays - (NO1-C1-NC1, NO2-C2-NC2, NO3-C3)			3			
	4 Relays - (NO1-C1-NC1, NO2-C2-NC2, NO3-C3, NO4-C4)			4			
	5 Relays - (NO1-C1-NC1, NO2-C2-NC2, NO3-C3, NO4-C4, NO5-C5)			5			
	7 Relays - (NO1-C1-NC1, NO2-C2-NC2, NO3-C3, NO4-C4, NO5-C5, NO6-C6, NO7-C7)			7			
4 Relays - (NO1-C1-NC1, NO2-C2-NC2, NO3-C3-NC3, NO4-C4-NC4)			8				
4	Analog outputs						
	None				N		
	1 x 4~20 mA				A		
	1 x 0~10V				B		
	2 x 4~20 mA				C		
	2 x 0~10V				D		
1 x 4~20 mA + 1 x 0~10V				E			
5	RS485						
	None					N	
	RS485 / MODBUS RTU					A	
6	Power supply						
	85~265 VAC						1
	20VDC - 55VDC						2

Note1 : Relay outputs : Contact sales for SSR drive outputs.

See Preferred Order Codes list. For order codes outside this list, larger MOQ will apply. Contact sales.

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ORDERING INFORMATION

SURFACE MOUNT FLAMEPROOF

CODE	SPECIFICATION	1	2	3	4	5	6
2972							
1	Version						
	Indicator with alarms	A					
	PID - Dual loop	B					
	PID - Heat + Cool	C					
	PID - Single loop, 16-segment profile	D					
2	Number of inputs (For Group2 - Contact Factory)						
	2 x Universal input (Group1)		2				
	2 x Universal input (Group1) + 3 x Digital input		6				
	2 x Universal input / RS485 input		7				
	2 x Universal input / RS485 input + 3 x Digital input		8				
3	Relay outputs - Note1						
	None			N			
	2 Relays - (NO1-C1-NC1, NO2-C2-NC2)			2			
	3 Relays - (NO1-C1-NC1, NO2-C2-NC2, NO3-C3)			3			
	4 Relays - (NO1-C1-NC1, NO2-C2-NC2, NO3-C3, NO4-C4)			4			
	4 Relays - (NO1-C1-NC1, NO2-C2-NC2, NO3-C3-NC3, NO4-C4-NC4)			5			
4	Analog outputs						
	None				N		
	1 x 4~20 mA				A		
	1 x 0~10V				B		
	2 x 4~20 mA				C		
	2 x 0~10V				D		
	1 x 4~20 mA + 1 x 0~10V				E		
5	RS485						
	None					N	
	RS485 / MODBUS RTU					A	
6	Power supply						
	85~265 VAC						1
	20VDC - 55VDC						2

Note1 : Relay outputs : Contact sales for SSR drive outputs.

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PREFERRED ORDER CODES

Sr. No.	Order Code	Version	Brief Specification	Power Supply
1	2971 A2NNN1 2972 A2NNN1	Indicator	2 Input	SMPS
2	2971 A22NN1 2972 A22NN1	Indicator with alarms	2 Relays	SMPS
3	2971 A22AN1 2972 A22AN1	Indicator with alarms	2 Relays+lout	SMPS
4	2971 A22NA1 2972 A22NA1	Indicator with alarms	2 Relays+Modbus	SMPS
5	2971 A24NN1 2972 A24NN1	Indicator with alarms	4 Relays	SMPS
6	2971 A24AN1 2972 A24AN1	Indicator with alarms	4 Relays+lout	SMPS
7	2971 A22BN1 2972 A22BN1	Indicator with alarms	2 Relays+Vout	SMPS
8	2971 B24CN1 2972 B24CN1	Dual loop PID	2 Inputs+4 Relays+2xlout	SMPS
9	2971 B24CA1 2972 B24CA1	Dual loop PID	2 Inputs+4 Relays+2xlout+RS485	SMPS



*Also available Process controller
with RPM Indicator CAT#805*

ENQUIRIES

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