



## LCD Temperature Controllers

# VX series



**High-performance temperature controller with wide LCD angle, convenient and excellent control performance**

- ▶ PV: 14-segment display  
(17% increased from existing products)
- ▶ SV: 11-segment, MV: 7-segment value display (VX2, 7, 9)
- ▶ 0.2 % Display accuracy
- ▶ 50 ms High-speed sampling
- ▶ Fast tuning time of 1.5 cycle  
(existing tuning time: 2.25 cycle)
- ▶ 4 PID groups, 4 SV settings, 4 auxiliary outputs  
(VX4: max 3 outputs)
- ▶ 63mm short body size
- ▶ Protective cover can be attached (Optional)
- ▶ Real time monitoring / recording /  
parameter setting by TCS

※ TCS freeware download at [www.hynux.com](http://www.hynux.com)



# Visibility



## Wide angle, Various colors, Increased visibility with large character size

- ▶ PV: 14 segment display(17% increased from existing products)
- ▶ SV: 11 segment, MV: 7 segment value display(VX2,7,9)
- ▶ MV display: Available for only VX2, VX7, VX9  
(VX4: Press the MD key to check MV value in RUN status)
- ▶ Improved visibility by characters in white, green, yellow color
- ▶ Control status, communication status and function fault can be checked immediately by various indicators



▶ Previous model



▶ VX



## Superior control performance



### ◆ High precision & high speed sampling

- ▶ Realization of high precision control(display accuracy  $\pm 0.2\%$  of FS  $\pm 1$  digit)
- ▶ Applicable to fast control system by high-speed sampling cycle
- ▶ Optimized for environments requiring high-speed response
- ▶ Heating & cooling simultaneous control



▶ 0.2 %



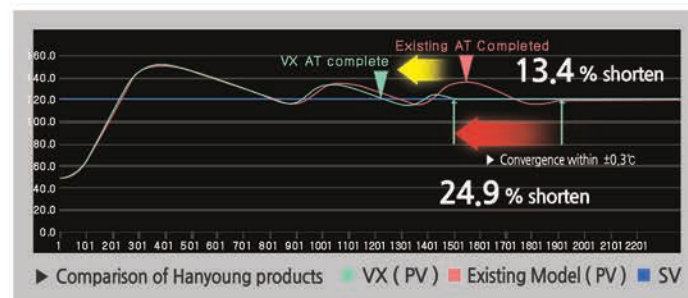
▶ 50 ms



▶ Heating & Cooling  
Display accuracy      High-speed sampling      control

### ◆ Reduced auto-tuning time

- ▶ Fast tuning time of 1.5 cycle(existing tuning time: 2.25 cycle)



### ◆ Various options

- ▶ Thermocouple, RTD, Analog Input
- ▶ Standard Control, Heating Cooling Control, Ramp Control
- ▶ 4 PID groups, 4 SV settings, 4 auxiliary outputs(VX4: max 3 outputs)
- ▶ Various alarm function and high capacity relay(5A, 220Va.c.)
- ▶ Loop Break Alarm(LBA), Retransmission output (RET),  
Digital Input(DI) Remote Input(REM), Heater Break Alarm(HBA)
- ▶ RS485 communication  
(Modbus RTU) (PC-Link, PC-Link SUM, ModbusASCII)





# Convenience



## Space saving, Front panel protection structure, Improved button operation

- ▶ 63 mm depth short body  
(78.4 mm depth with additional protective cover)
- ▶ Front panel protection(VX4:IP66, VX2,7,9:IP65)
- ▶ Easy to maintain/repair with front separation structure
- ▶ Smooth touch and durability with tact switch  
(ABS material)



▶ 63mm short body size



▶ Safe use in dust and waterproof environments



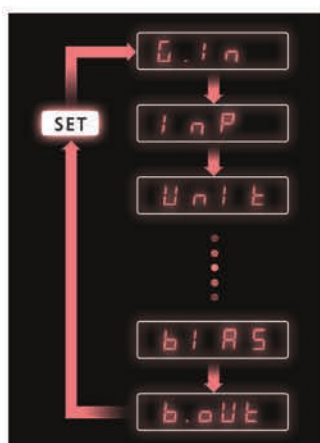
▶ Improved durability using ABS tact switch



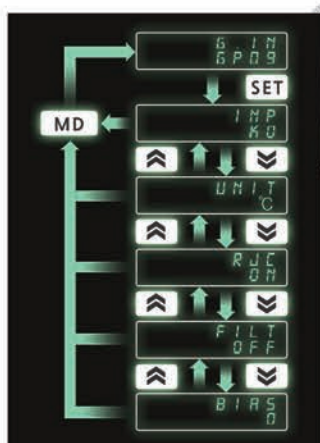
▶ Easy replacement without re-wiring through front detachment



▶ Protective cover can be attached (Sold separately)



▶ Existing parameter setting method  
(One-way movement)



▶ VX parameter setting method  
(Two-way movement)

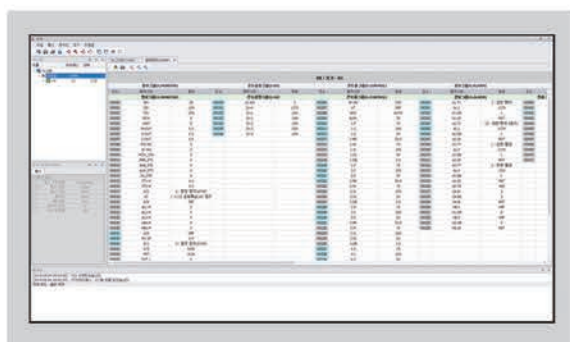


## ◆ Easy menu settings

- ▶ Convenient and time saving setting by up/down key
- ▶ Easy operation through full/basic/easy menu
- ▶ Front function key  
(RUN/STOP, AT, MANUAL/AUTO output, Lock)

## ◆ Parameter setting on PC

- ▶ Hanyoung Nux total communication software(TCS)
- ▶ Real time monitoring / recording / parameter setting by TCS
- ※ TCS freeware download at [www.hynux.com](http://www.hynux.com)



## ◆ USB Loader Function


- ▶ MINI USB 2.0 cable(NMC-UM210)/ Sold separately
- ▶ Easy parameter value backup
- ▶ Can be set in non-power source



▶ Simple and easy connection with USB cable



▶ VX and TCS connection with USB cable

Classification		VX2		VX4		VX7		VX9	
Input	Thermocouple	K, J, E, T, R, B, S, L, N, U, W, PLII							
	Reference junction compensation accuracy	±1.5 °C (within -10~50 °C)							
	RTD	JPT100, PT100							
	Allowable line resistance	Each 3 wire within 10 Ω (but the resistance among 3 lines should be same)							
	DC voltage / current	1 ~ 5 V (4 ~ 20 mA), 0 ~ 5 V, 0 ~ 10 V, 0 ~ 50 mV, 0 ~ 100 mV							
	Sampling cycle	50 ms							
Control output	Relay output	● Rated switching capacity: 5A 250Va.c., 5 A 30Vd.c. ● Max. switching power: 750 VA, 90 W ● Max. switching voltage: 250Va.c., 110Vd.c. ● Max. switching current: 5 A ● Mechanical life: 20 million times (at 180 CPM)							
	Voltage pulse output	12Vd.c. ± 1Vd.c. pulse voltage (load resistance min. 600 Ω)							
	Current output	4 ~ 20 mA ± 0.2% of FS ± 1 digit, load resistance: max. 600 Ω							
Control	Control type	ON/OFF, PID control, 2DOF PID control							
	Output operation	Reverse action, direct action							
Memory	Non-volatile memory life	EEPROM unlocked: when setting E2P.L: OFF in G.SET group (EEPROM life: 1 million times write guaranteed) /EEPROM locked: when setting E2P.L: ON in G.SET group (store in RAM)							
Display part (H * W) mm	Display method	Wide viewing angle LCD							
	PV character	20.5 x 6.9	15.2 x 6.8	19.8 x 9.3	29.0 x 13.6				
	SV character	12.8 x 5.9	7.4 x 3.9	10.2 x 4.9	15.0 x 7.2				
	MV character	9.3 x 4.4	7.4 x 3.9	7.5 x 3.3	11.0 x 4.8				
USB Loader	Communication method	USB 2.0							
	Protocol	Protocol : PC-LINK	Baudrate : 38400 bps	Start bit : 1 bit	Data bit : 8bit	Parity bit : None	Stop bit : 1bit		
	Communication distance	Within 5 m							
Option	Sub output	Relay 1 ~ 4 outputs, rated switching capacity: 5A 250Va.c., 5 A 30Vd.c.							
	Digital input	2 points or 4 point	Contact input ON : 1 KΩ max., OFF: 100 KΩ min., Non-contact input ON : 1.5 V max., OFF: 0.1 mA max. Current Flow : approx. 2 mA per contact, Voltage at open : Approx. 5 V DC						
	Retransmission output	1 output, 4 ~ 20 mA ± 0.2% of FS ± 1 digit, load resistance: max. 600 Ω							
	Remote input	1 input, 4 ~ 20 mA (1 ~ 5 V)							
	Current detection input	1 input or 2 inputs, 0.0 ~ 50.0 A, CT-70 current transformer (sold separately)							
	RS-485	Communic. method	EIA RS485 standard, 2-wire half-duplex						
		Max. connections	31 (address setting 1~99 available)						
		Communic.sequence	No sequence						
		Communic.distance	Within 1.2 km						
		Communic. speed	4800, 9600, 14400, 19200, 38400, 57600 BPS						
		bit	Start bit : 1 bit, Data bit : 7 or 8 bit, Parity bit : NONE / EVEN / ODD, Stop bit : 1 or 2 bit						
Protocol		PC-LINK STD, PC-LINK WITH SUM, MODBUS-ASCII, MODBUS-RTU							
Response time	Actual response time = processing time + (response time X 50 ms)								
Power	Power voltage	100 - 240Va.c., 50/60 Hz							
	Voltage fluctuation rate	±10 % of power voltage							
	Insulation resistance	Min. 20 MΩ, 500Vd.c.							
	Dielectric strength	3,000Va.c., 50/60 Hz for 1 minute (between 1st and 2nd terminal)							
	Power consumption	Max. 8.5 VA	Max. 8.5 VA	Max. 8.5 VA	Max. 9.0 VA				
	Ambient temperature & humidity	-10 ~ 50 °C, 35 ~ 85 % RH (without condensation)							
	Storage temperature	-25 ~ 65 °C							
Approval									
		Electrostatic discharge (ESD) : KN61000-4-2 EFT(RS) : KN61000-4-3 Conductive RF (CS) : KN61000-4-6 SURGE : KN61000-4-5							
Weight (g)		IP65 (front panel)	IP66 (front panel)	IP65 (front panel)	IP65 (front panel)				
Basic components		202	120	194	290				
		Main body, Bracket, 250 Ω resistor (1%) , Rubber packing, Instruction manual							

Model	Code										Content
VX	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	LCD Digital Temperature Controller
Size	2										48(W) × 96(H) × 63(D) mm
	4										48(W) × 48(H) × 63(D) mm
	7										72(W) × 72(H) × 63(D) mm
	9										96(W) × 96(H) × 63(D) mm
Sensor	U										Universal input
OUT 1 (control output 1)	M										Relay output
	S										Voltage pulse output (voltage pulse output for SSR drive)
	C										Current output (4-20 mA current output for SCR drive)
OUT 2 (control output 2)	N										None
	M										Relay output
Power	A										100 - 240Va.c. 50/60 Hz
Sub output	A1										1 relay output (VX4 basic option)
	A2										2 relay outputs (VX2, VX7, VX9 basic option)
	A3										3 relay outputs (※ *1 *2)
	A4										4 relay outputs (※ *2)
Communication											None
	C										RS-485 communication
Retransmission output RET											None
	T										Retransmission output (4 ~ 20 mA)
Digital input DI											None
	D2										2 digital inputs (DI 1 ~ 2)
	D4										4 digital inputs (DI 1 ~ 4)
Current detection input CT											None
	H1										Current detection input (CT) 1 contact
	H2										Current detection input (CT) 2 contacts
Remote input REM											None
	R										1 input 4 20 mA 1 5 V

※ \*1) Not available for VX4 However when OUT2 is selected as M SUB3 can be used according to the parameter setting  
 ※ \*2) You can select from VX2 VX7 VX9 VX4 is excluded  
 ※ Please refer to our user s manual catalog or homepage for the model names of VX available for order

※ Sold separately  
 - Current transformer: CT-70  
 - USB Loader Cable: NMC-UM210  
 - Protective cover

VX2	VX4	VX7	VX9
TC2A-COV	TC4A-COV	TC7A-COV	TC9A-COV