ISO 9001
KEMA
CERT. No. 60033
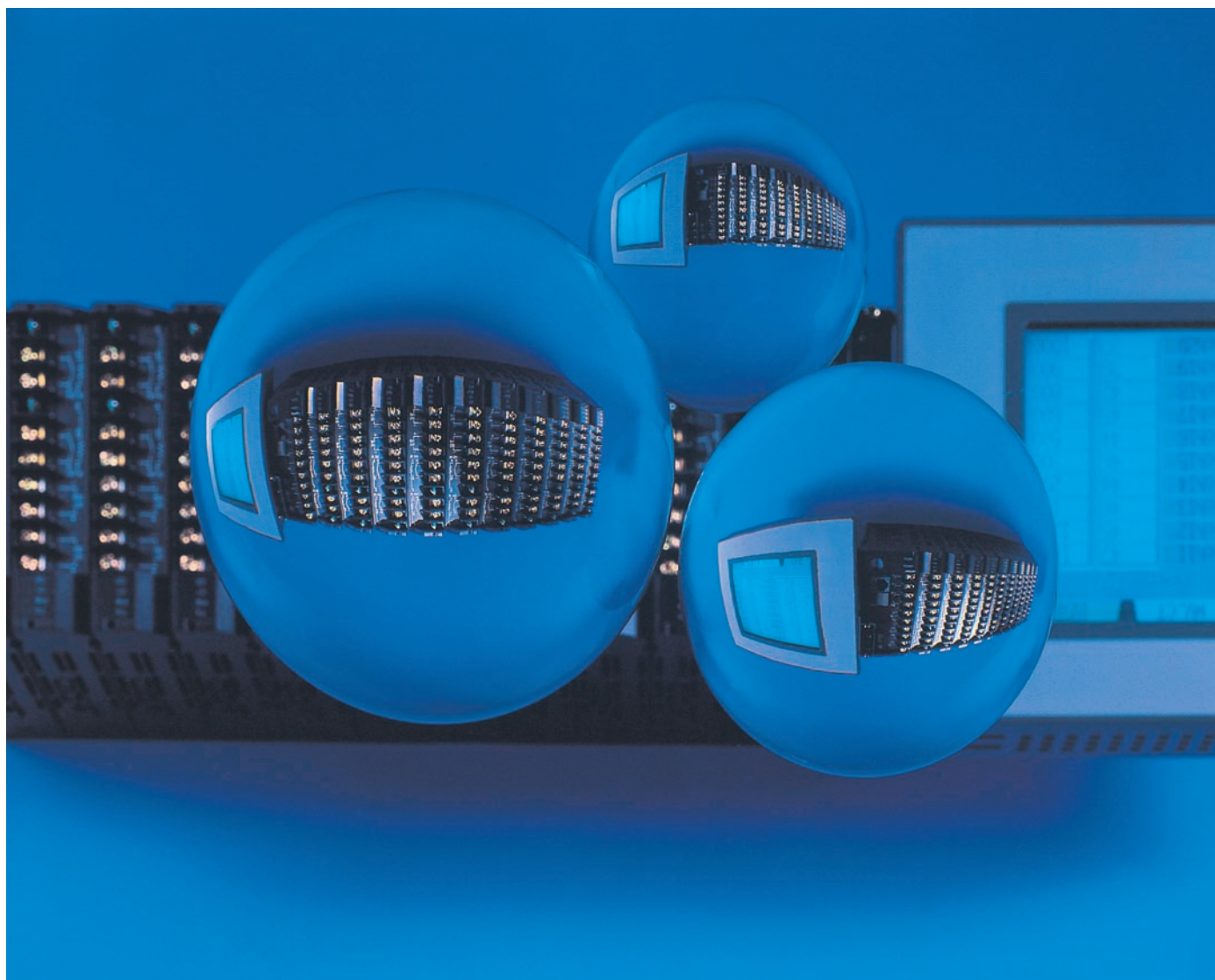DUTCH COUNCIL
FOR ACCREDITATION

C E

c **UL** US

C SERIES

Setting the standard in multi-point temperature control

Shinko

Save space by connecting only necessary points

C series is a multi-channel temperature control system which consists of power source host link unit, 2-ch temperature control unit, etc.
Approximately 50% less wiring is used than the usual type 1 channel temperature controllers.

SHINKO touch panel unit can be connected to other temperature control units without programming and performs various settings (setting parameters for temperature control, temperature alarm function, heater burnout alarm function, etc).
By connecting to a host computer or the PLC, even multiple tasks of monitoring can be carried out.
Use of a CC-Link link unit allows you to connect to a higher speed Open Network.
Sequence control and process control can be united by connection to CC-Link compatible PLC, other measuring instruments or controllers.

Save space and wiring !

Temperature control unit (CCT-235), CC Link link unit (CLT-200): 24 x 96 x100mm (W x H x D)
Power source host link unit (CPT-20A), PLC interface unit (CIT-200): 48 x 96 x 100mm (W x H x D)
Space for up to 20 points of temperature control: 288 x 96 x 100mm (W x H x D)
By using a base unit, a big reduction of wiring for communication and power supply has been achieved.

Connectable to CC-Link compatible devices !

Connection to Open Network via a CC-Link link unit (CLT-200) enables data processing by 10Mbps of maximum transmission speed and wider variety of applications.
Up to 8 units of temperature control unit (CCT-235) per block and 1 unit of CC-Link link unit (CLT-200) make 16 points of temperature control possible.
Multi-drop connection of the blocks enables **maximum 256 points (16 blocks)** of temprature control .

Easy-to-use SHINKO touch panel unit !

You can operate the C series interactively with just a touch of a finger. (Software for screen editing is available, so you can create your own display.)
Console unit for simplified monitoring (COT-200: 96mm square type) is also provided at a low cost.

## Multi-point (max. 320 points) temperature control !

With host link unit system, up to 10 units of temperature control unit (CCT-235) per block can be connected, which means that a [288 x 96 x 100mm (W x H x D)] unit can control 20 points of temperature control.
With multi-drop connection for power source host link unit (CPT-20A), **maximum 16 blocks (320 points)** of multi-point temperature control system can be achieved.

Simple connection and removal !

Each unit can be easily connected and removed with one touch.
■ How to connect and remove
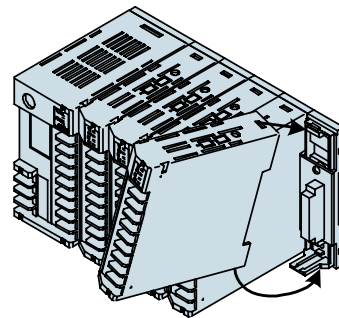
Hook the unit into the upper part of the base and insert it into the base.
Lock mechanism ensures that the unit is fixed tightly to the base enough to be resistant against vibration, and this also ensures easy maintenance.

System configuration example

[Wiring connection when controlling with 1 block of C series]

Communication
cable (sold separately)
(Model : CPM)
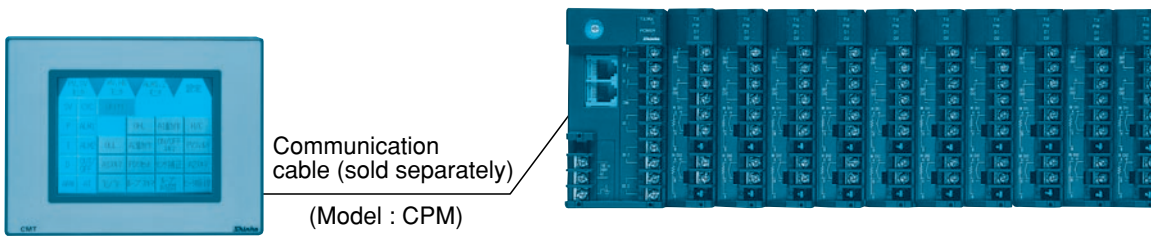
When performing 20 points or less of temperature control, it is possible to connect the SHINKO touch panel unit (CMT-200) to the temperature control units without programming.

One block consists of the CPT-20A (1 unit) and CCT-235 (1 to 10 units).

(Software for screen editing is available, so you can create your own display.)

[Wiring connection when connecting Console unit to 1 block of C series]
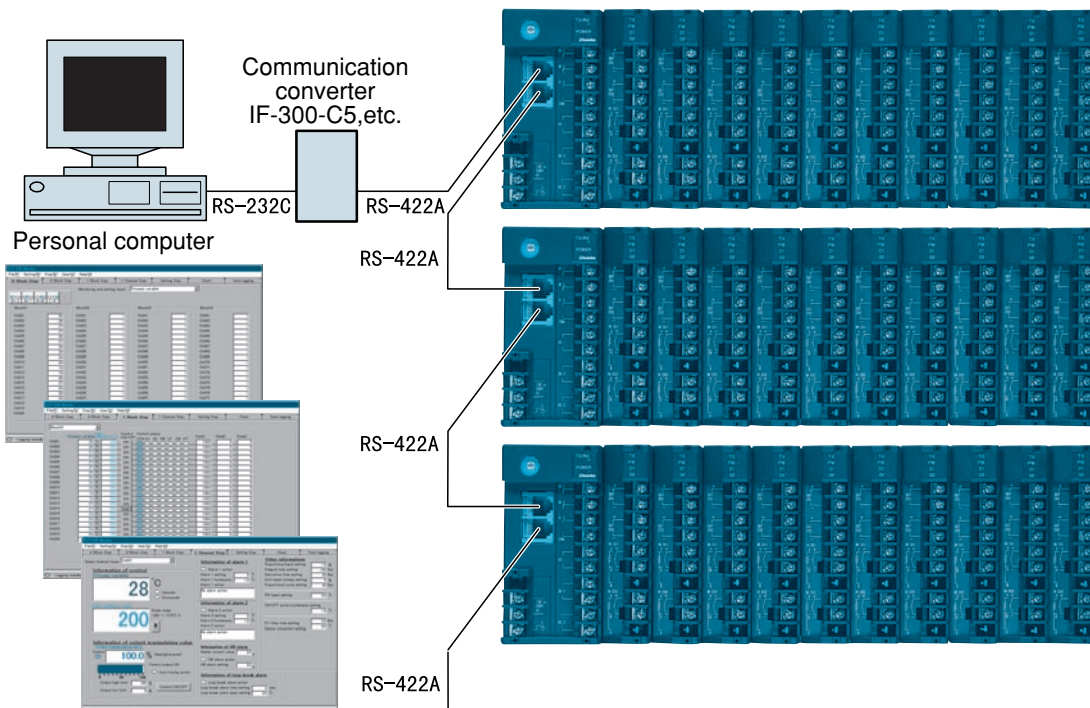

RS−422A
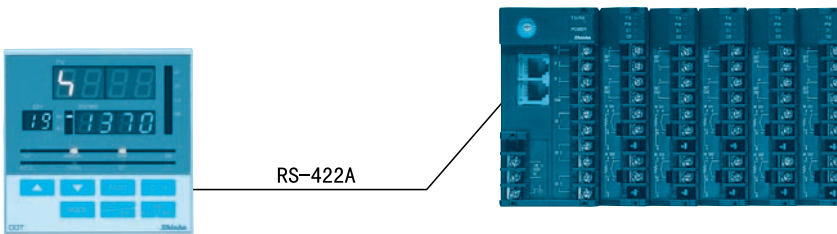
The Console unit in this application is used to provide 20 points or less of control at a low cost.

External dimensions of Console unit (COT-200): 96×96×110mm（W×H×D）

One block consists of the CPT-20A (1 unit) and CCT-235 (1 to 10 units).

[Wiring connection when controlling with plural blocks of C series]

Communication
converter
IF-300-C5,etc.

RS−232C   RS−422A

Personal computer

RS−422A

RS−422A

RS−422A

When performing 20 points or greater of temperature control, use a communication converter (IF-300-C5, etc.).

With multi-drop connection by RS-422A between the CPT-20A and communication converter, maximum 16 blocks (320 points) of temperature control can be performed.

One block consists of the CPT-20A (1 unit) and CCT-235 (1 to 10 units).

Using C series monitoring software compatible with Microsoft Windows, various parameters setting,

PV monitoring, SV changing, data logging and data trending can be carried out.
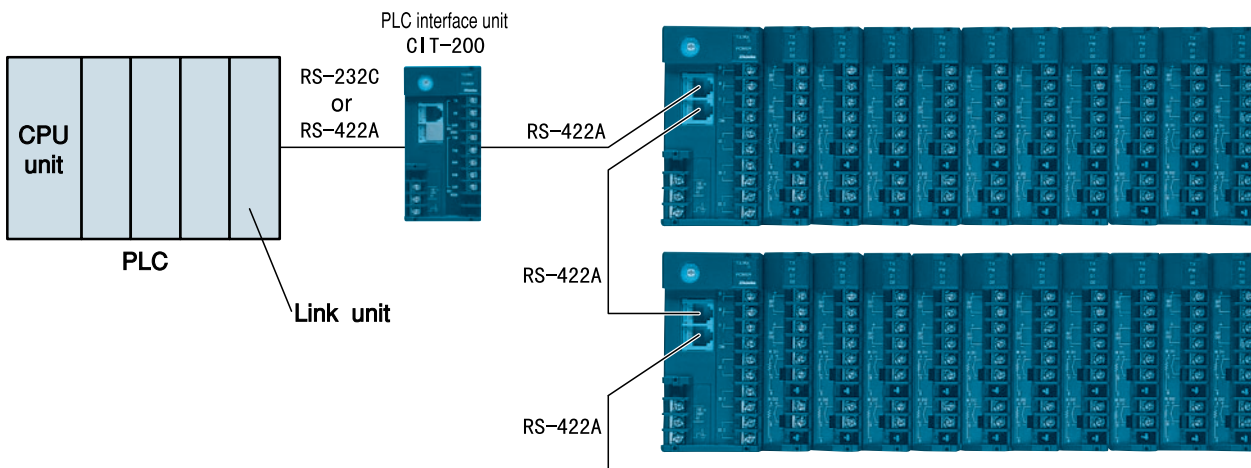
[Wiring connection when connecting the PLC to 1 block of C series]

CPU unit

PLC

RS-422A

Link unit
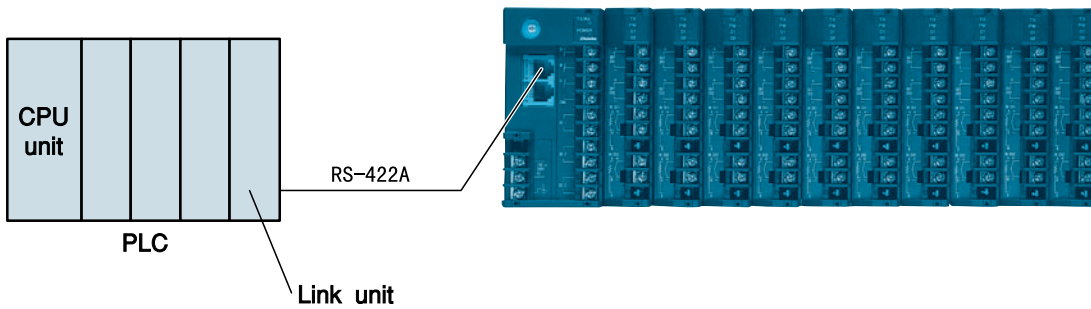
By connecting to the PLC, 20 points or less of temperature control can be performed.
One block consists of the CPT-20A (1 unit) and CCT-235 (1 to 10 units).

> PLCs SHINKO C series can be applied:
> MELSEC-A series, FX2N series, Q series : Mitsubishi Electric Corporation
> SYSMAC C200H : Omron Corporation
> MICREX-F70 : Fuji Electric Co., Ltd.
> and others
> For products not described here, please contact us.

[Wiring connection when connecting the PLC to plural blocks of C series]

PLC interface unit
CIT-200

CPU unit

PLC

RS-232C or RS-422A

RS-422A

RS-422A

RS-422A

Link unit

When performing 20 points or greater of temperature control while connected to the PLC, **maximum 16 blocks (320 points)** of temperature control can be performed via the PLC・Interface unit (CIT-200) with multi-drop connection.
One block consists of the CPT-20A (1 unit) and CCT-235 (1 to 10 units).

[Wiring connection when connecting the CC-Link compatible PLC to 1 block of C series]

CC-Link

CPU unit

PLC

CC-Link master unit

CC-Link link unit
CLT-200
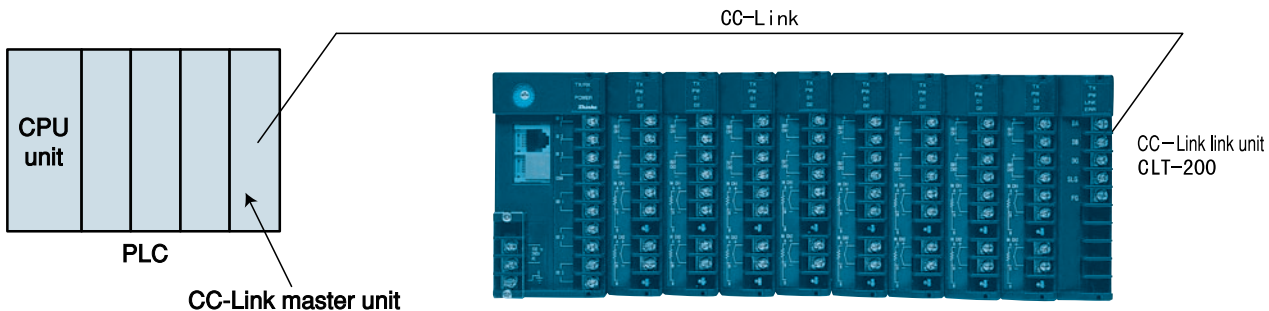
By connecting the CC-Link compatible PLC, 16 points or less of temperature control can be performed.
At this time, one CC-Link link unit (CLT-200) should be used in one block, and connected with the CC-Link compatible cable between CC-Link master unit of the PLC and CC-Link link unit (CLT-200).
With multi-drop connection of CC-Link link unit (CLT-200), **maximum 16 blocks (256 points)** of temperature control can be performed.
One block consists of the CPT-20A (1 unit), CCT-235 (1 to 8 units) and CLT-200 (1 unit).

2-channel temperature control unit CCT-235

There are 2 types of input and 3 types of control output (common to input 1 and input 2).
Control action (PID, PD, ON/OFF) can be selected by the command.
When ordering, specify as follows.

CCT-235-2□／□, □
- Option ·············· W: Heater burnout alarm, TC: Terminal cover
- Input ················· E : Thermocouple (K, J, R, B, PL-Ⅱ, N), R: RTD (Pt100, JPt100), V: Voltage, C: Current
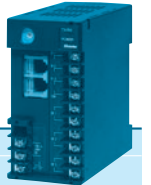- Control output······ R : Relay contact, S: Non-contact voltage, A: DC current

Mounting method	Base unit mounting		
Setting accuracy	Within±0.3%FS±1digit		
Input and rated scale	K: -200 to 1370℃(-320 to 2500℉) or 0.0 to 600.0℃(0.0 to 999.9℉), J: -200 to 1000℃(-320 to 1800℉) or 0.0 to 600.0℃(0.0 to 999.9℉) R: 0 to 1760℃ (0 to 3200℉), B: 0 to 1820℃ (0 to 3300℉), PL-Ⅱ: 0 to 1390℃ (0 to 2500℉), N: 0 to 1300℃ (0 to 2300℉) Pt100: -199.9 to 850.0℃ (-199.9 to 999.9℉), JPt100: -199.9 to 500.0℃ (-199.9 to 900.0℉)		
Alarm	Alarm 1 or Alarm 2 can be selected by the command from the following 13 types. Alarm function is set by ± deviation to the main setting (except the alarm actions marked *). High limit alarm, Low limit alarm, H/L limits alarm, H/L limit range alarm, Process high alarm*, Process low alarm*, High limit alarm w/standby, Low limit alarm w/standby, H/L limits alarm w/standby, H/L limit range alarm w/standby Process high alarm w/standby*, Process low alarm w/standby*and No alarm. Setting accuracy --- Within±0.3%FS±1digit Action ----------------- ON/OFF action Hysteresis ----------- TC: 0.1 to 100.0℃(℉), DC voltage, DC current: 1 to 1000		
Power supply	5±0.2V DC max.100mA, 12^{+2}_{0}V DC max.50mA (The power is supplied by the CPT-20A.)		
Power consumption	Approx. 3VA	Heater burnout alarm [W]	Rating (Shipped as specified type.) (Option) ·20A: When option [W(20A)] is applied. ·50A: When option [W(50A)] is applied.
Case, Color	Flame-resisting resin, Black		
External dimensions	24×96×100mm (W×H×D)		
Weight	Approx. 110g	Terminal cover [TC]	Electrical shock protection terminal cover (Option)

Power source host link unit CPT-20A

Link unit to supply the power to the CCT-235 and for communication with touch panel unit, a host computer, etc.

Mounting method	Base unit mounting		
Host communication function	Communication line : Based on RS-422A(RS-485) Communication method: Half-duplex communication start-stop synchronous Communication speed : 9600, 19200bps (Selectable by DIP switch.) Data format Start bit : 1 Data bit : 7 Parity : Even parity Stop bit : 1	Digital input	Contact input Terminal ⑤ and ⑧ Closed: DI1 ON, Open: DI1 OFF Terminal ⑥ and ⑧ Closed: DI2 ON, Open: DI2 OFF Terminal ⑦ and ⑧ Closed: DI3 ON, Open: DI3 OFF
		Digital output	Relay contact: 1a×3 (various alarm outputs) Contact capacity: 250V AC 3A (resistive load) 250V AC 1A (inductive load cos ϕ =0.4)
Power supply output for CCT and CLT	5±0.2V DC 2.0A，12^{+2}_{0}V DC 0.8A	Supply voltage	100 to 240V AC 50/60Hz
Power consumption	Approx. 28VA (When connecting 8 units of the CCT and one unit of CLT-200)	Allowable voltage fluctuation	85 to 264V AC
Case, Color	Flame-resisting resin, Black	Weight	Approx. 290g
External dimensions	48×96×100mm （W×H×D）	Terminal cover [TC]	Electrical shock protection terminal cover (Option)

PLC interface unit CIT-200

With multi-drop connection, up to 16 blocks can be connected.

Mounting method	DIN rail mounting		
PLC communication function	Communication line : Based on RS-232C and RS-422A(RS-485) Built-in terminator (120Ω) between RXA and RXB of RS-422A. Communication method : Half-duplex communication start-stop synchronous Communication speed : 9600, 19200bps(Selectable by DIP switch) Data format Start bit : 1 Data bit : 7, 8 Parity : No, Even and Odd Stop bit : 1, 2	Communication function between the CIT and CPT	Communication line : Based on RS-422A (RS-485) Built-in terminator (120Ω) between RXA and RXB of RS-422A. Communication speed: 19200bps Data format Start bit : 1 Data bit : 7 Parity : Even parity Stop bit : 1
		Case, Color	Flame-resisting resin, Black
Supply voltage	100 to 240V AC 50/60Hz	External dimensions	48×96×100mm (W×H×D)
Allowable voltage fluctuation	85 to 264V AC	Weight	Approx. 300g
Power consumption	Approx. 5VA	Terminal cover [TC]	Electrical shock protection terminal cover (Option)

CC-Link link unit CLT-200

Link unit to connect CC-Link master unit
The number of occupied station for CC-Link is 4.

Mounting method	Base unit mounting		
Setting	Baud rate and address of the CC-Link can be set by the rotary switch.		
Host communication function	Communication line : CC-Link (RS-485) Communication method : CC-Link method Communication speed : 156k，625k，2.5M，5M，10Mbps (Selectable by the Rotary switch.)		
Supply voltage	5±0.2V DC max. 200mA (Supplied by the CPT-20A.)	External dimensions	24×96×100mm （W×H×D）
Power consumption	Approx. 2VA	Weight	Approx. 100g
Case, Color	Flame-resisting resin, Black	Terminal cover [TC]	Electrical shock protection terminal cover (Option)

PC link unit CLT-20S

Mounting method	Base unit mounting
Host communication function	Communication line : RS-232C or RS-422A/RS-485 Communication method : Half-duplex communication start-stop synchronous Communication speed : 2400bps, 4800bps, 9600bps, 19200bps (Selectable by the Rotary switch) (Default: 9600bps) Data format Start bit : 1 　　　　　　 Data bit : 7 　　　　　　 Parity : Even parity 　　　　　　 Stop bit : 1

Supply voltage	5±0.2V DC	External dimensions	24 x 96 x 100mm (W x H x D)
Power consumption	Approx. 1VA	Weight	Approx. 90g
Case, Color	Flame-resisting resin, Black	Terminal cover [TC]	Electrical shock protection terminal cover (Option)

SHINKO touch panel unit CMT-200

Touch panel unit to set the CCT-235 individually
Monitoring of 20 points per block can be carried out.
Connection to the controller without programming is available.

Display specifications	Device　　　　　　　 : Color LCD Color　　　　　　　　 : 16 out of 512 colors Number of dots　　　 : 320×240 dots Size　　　　　　　　 : 5.7 inches Effective area　　　 : 115.2×86.4mm (H×V) Number of characters : Half size (8×16 dots) 40 characters×15 lines, Full size (16×16 dots) 20 characters×15 lines
Input specifications	Switch system　　　　　 : Transparent conductive touch switch Number of touch switch : 16×12

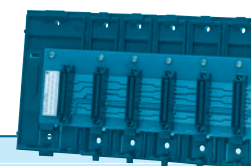|			
External interface	Serial: RS-232C 1 port, RS-485 1 port (Multi-drop possible)		
Mounting method	Flush	Dust-proof・Drip-proof	IP65F (When using drip-proof packing for front panel)
External dimensions	195×150×47mm（W×H×D）	Supply voltage	24V DC
Weight	850g or less	Allowable voltage fluctuation	20.5 to 28.8V DC (24W or less)

Console unit COT-200

The setting and monitoring per channel can be performed.
When using COT-200, only 20 points of temperature setting per block can be performed.

Mounting method	Flush		
Serial communication	Communication line : Based on RS-422A Communication method : Half-duplex communication 　　　　　　　　　　 start-stop synchronous Communication speed : 19200bps Data format Start bit : 1 　　　　　　 Data bit : 7 　　　　　　 Parity : Even parity 　　　　　　 Stop bit : 1	Communication error output	When communication error occurs, the output is turned on. Relay contact: 1a Control capacity : 250V AC 3A (resistive load) 　　　　　　　　　 250V AC 1A (inductive load cos ϕ =0.4)
		Supply voltage	100 to 240V AC 50/60Hz
		Allowable voltage fluctuation	85 to 264V AC
		Power consumption	Approx. 5VA
External dimensions	96×96×110mm（W×H×D）	Case, Color	Flame-resisting resin, Light gray
Weight	Approx. 500g	Terminal cover [TC]	Electrical shock protection terminal cover (Option)
Status output [SO] (Option)	When the status signal of temperature alarm, heater burnout alarm, loop break alarm, Overscale and Underscale in any channel of CCT-235 connected is turned on, the output of COT-200 will be also turned on. Open collector: Capacity 24V DC, max. 50mA		

Base unit CBT-200

Base unit for mounting the CPT, CCT and CLT

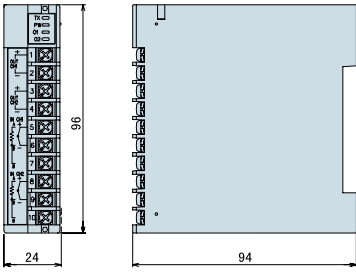|			
Mounting method	DIN rail mounting		
Model name	CBT-205 : When connecting a host computer , CMT-200 or COT-200, 1 unit of CPT and max. 5 units of CCT can be connected. 　　　　　　 When connecting CC-Link compatible PLC, 1 unit of CPT, max. 4 units of CCT and 1 unit of CLT can be connected. CBT-210 : When connecting a host computer , CMT-200 or COT-200, 1 unit of CPT and max. 10 units of CCT can be connected. 　　　　　　 When connecting CC-Link compatible PLC, 1 unit of CPT, max. 8 units of CCT and 1 unit of CLT can be connected.		
External dimensions	CBT-205 : 168×96mm（W×H） CBT-210 : 288×96mm（W×H）	Base, Color	Flame resisting resin, Black
		Weight	CBT-205: Approx. 200g CBT-210: Approx. 300g

Communication cable CPM, CPP

Communication cables for connecting between CPT and CMT, between CPT and COT, or for increasing the blocks
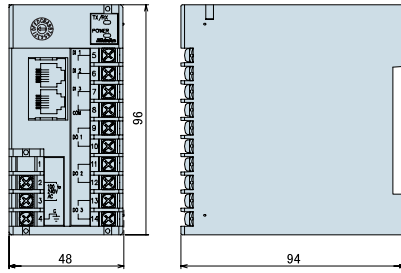
Model name	CPM: Communication cable to connect between CPT-20A and CMT-200, or between CPT-20A and COT-200. 　　　　 Cable length: 3m. CPP : Communication cable to connect between CPT units (to increase the blocks). 　　　　 Cable length: 50cm. For inquiries about extending the CPM, CPP or other communication cables, please contact us or our agency.

CCT—235
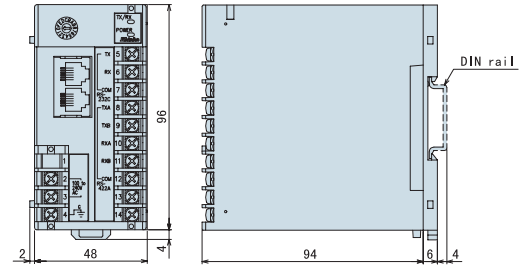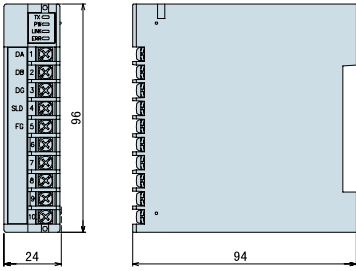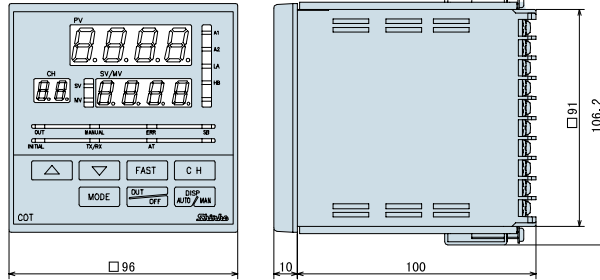

CPT—20A

CIT—200

DIN rail

CLT—200

COT—200

Panel cutout
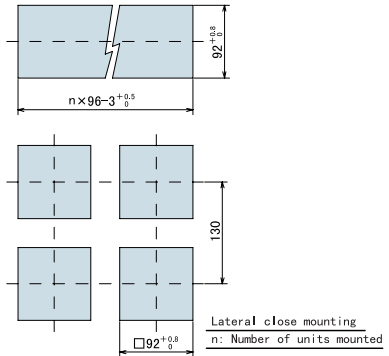
$92^{+0.8}_{0}$

$n \times 96 - 3^{+0.5}_{0}$

130

$\square 92^{+0.8}_{0}$

Lateral close mounting
n: Number of units mounted

CBT—200

168 (For CBT-210: 288)

CMT—200

Effective display area 115.2

Effective display area 86.4

CLT—20S

Panel cutout

143.5 ± 0.3

188.5 ± 0.3

CCT—235

R／□ { + S／□ or
      − A／□ } Ch1 output

R／□ { + S／□ or
      − A／□ } Ch2 output

Ch1 input

Ch2 input

TC   RTD
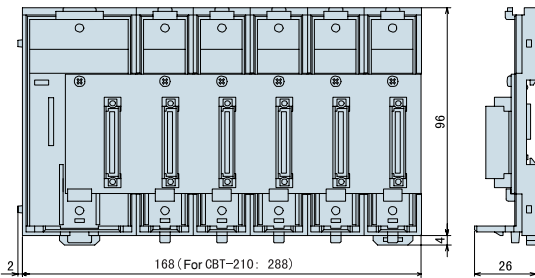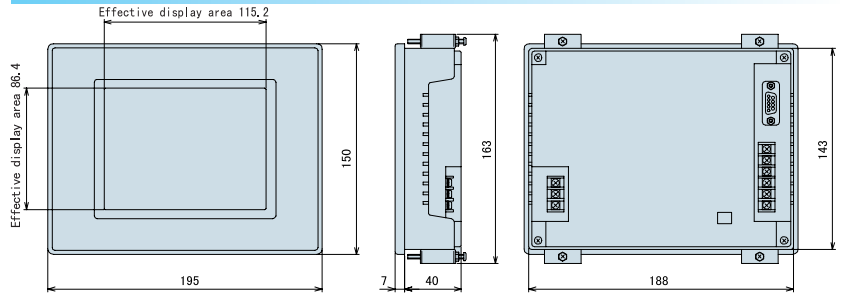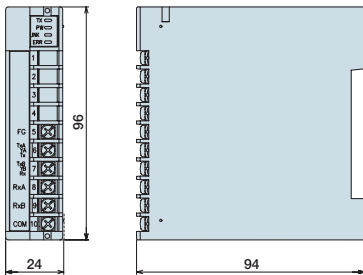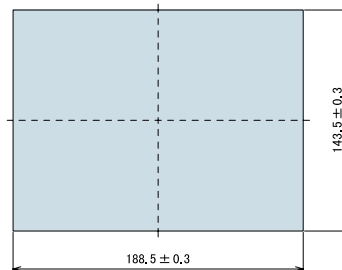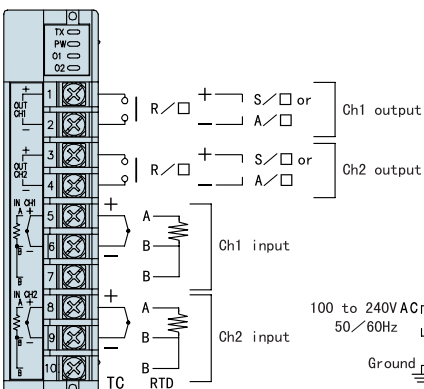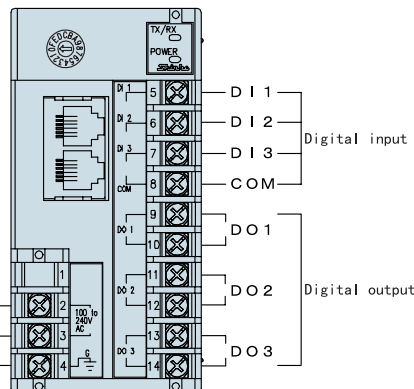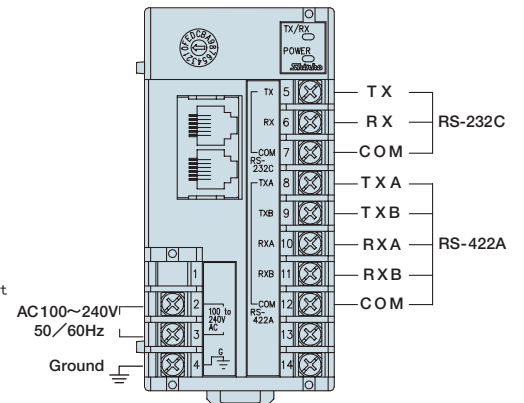
· R/□: Relay contact output
· S/□: Non-contact voltage output
· A/□: DC Current output

CPT—20A

D I 1
D I 2
D I 3   Digital input
C O M

D O 1
D O 2   Digital output
D O 3

100 to 240V AC
50／60Hz

Ground

CIT—200

T X
R X   RS-232C
C O M

T X A
T X B
R X A   RS-422A
R X B
C O M

AC100～240V
50／60Hz

Ground

CLT—200

DA 1 — DA
DB 2 — DB
DG 3 — DG   CC—Link
SLD 4 — SLD
FG 5 — FG

TX
PW
LINK
ERR

COT—200

Ground ⏚   ① ㉑ ㉛ ---- A1   ⑪ — TXA
                ② ㉒ ㉜ ---- A2   ⑫ — TXB
100 to 240V AC ③ ㉓ ㉝ ---- HB   ⑬ — RXA
                ④ ㉔ ㉞ ---- LA   ⑭ — RXB   RS-422A
                ⑤ ㉕ ㉟ ---- Overscale   ⑮
                ⑥ ㉖ ㊱ ---- Underscale ⑯ — COM
                ⑦ ㉗ ㊲   ⑰
                ⑧ ㉘ ㊳   ⑱
Communication error ⑨ ㉙ ㊴ ---- COM   ⑲
                ⑩ ㉚   ⑳

Option: S0

- A1 ： Alarm 1
- A2 ： Alarm 2
- HB ： Heater burnout alarm
- LA ： Loop break alarm

CLT—20S

TX
PW
LINK
ERR

                    RS-232C   RS-422A／RS-485
FG 5 —   FG   FG   FG
TXA/YA 6 —   TX   TXA —•— YA
TXB/YB 7 —   RX   TXB —•— YB
RXA 8 —   RXA
RXB 9 —   RXB
COM 10 —   COM   COM   COM

CMT—200

RS-232C connector →

RS-485
terminal

FG
SG
RD —
RD +
SD —
SD +

+ ⎤ 24V DC
— ⎦ (Power terminal)
⊗ Ground

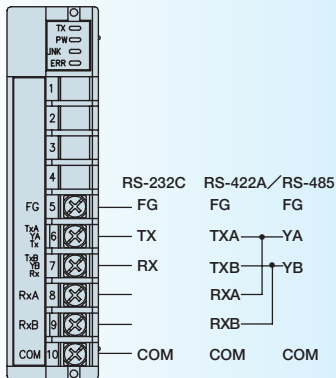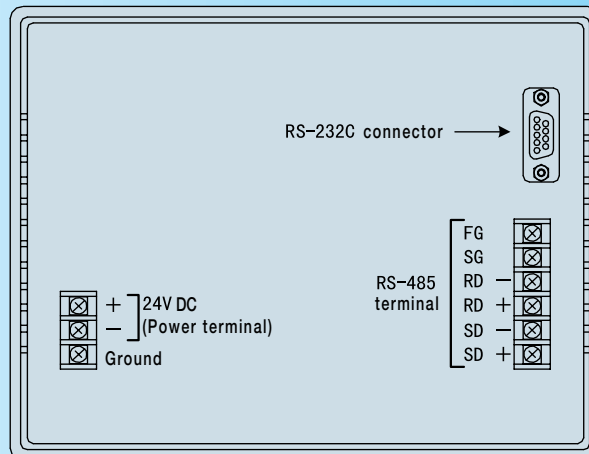# *What is "CC-Link" ?*

Full name: Control and Communication Link

CC-Link is a field network system that processes both control and information data at high speed, to provide efficient, integrated factory and process automation.
By distributing CC-Link compatible instruments to the production line or machine devices, the wiring reduction of the entire system can be accomplished.
Connections can be made to different types of CC-Link compatible products, and functional combination of the products gives flexibility to the system
to fulfill your system requirements.

- This catalog is as of December 2003, and specifications are subject to change without notice.
- If you have any inquiries, please consult us or our agency.