



## APPLICATION NOTE

### COTEK MODELS

**AE-800**

**AE-1500**

**AE-3000**

**AEK-3000**

**AE-3000HV**

**NOTE:** The following application notes are for the Cotek models distributed by Kepco, Inc. that are listed above.

1. RS 232 Communication is only possible using the CT Series adapters listed below. (Pins 23 and 24 of CN2 are not connected and do not function.) See CT Series User Guide (free download) for details.

[www.kepcopower.com/support/opmanls.htm#ae](http://www.kepcopower.com/support/opmanls.htm#ae)

2. Computer control is also possible using the I<sup>2</sup>C interface. Refer to the Cotek I<sup>2</sup>C and RS 232/RS 485 Communication Protocol Manual (free download) for details.

[www.kepcopower.com/support/opmanls.htm#ae](http://www.kepcopower.com/support/opmanls.htm#ae)

**CT-201** - Used to control a single power supply from a PC via RS 232. Includes one (1) CT Series cable (Cotek P/N 47-0124-0001) to connect CT-201 to power supply and one 5-pin connector (ECH350R-05P) used for remote sense connections. Requires RS 232 cable to connect CT-201 DB-9F connector to computer RS 232 port (not supplied). See CT Series User Guide for details.

**CT-204** - Used to control up to four (4) power supplies configured in series from a PC via RS 232; maximum output voltage: <500V d-c. Includes four (4) CT Series cables (Cotek P/N 47-0124-0001) to connect CT-201 to power supplies. Optional 5-pin connector(s) (Dinkle P/N ECH350R-05P) used for remote sense connections are not supplied. Requires RS 232 cable to connect CT-201 DB-9F connector to computer RS 232 port (not supplied). See CT Series User Guide for details.

**NOTE:** More than four (4) power supplies may be connected in series and controlled via RS 232 by the use of multiple CT-204 modules and the optional CT-204 to CT-204 series cable (Cotek P/N 47-0103-0028); <500V d-c max still applies.

**CT-251** - Used to provide parallel control of multiple power supplies. Connecting a total of (N) power supplies in parallel requires (N-1) CT-251 modules plus one (1) CT-551 module which provides the RS 232/PC communication path. Each CT-251 and CT-551 module requires a CT series cable to connect to the associated power supply (supplied). See CT Series User Guide for details.

**CT-551** - Used to provide parallel control of multiple power supplies. Connecting a total of (N) power supplies in parallel requires (N-1) CT-251 modules plus one (1) CT-551 module which provides the RS 232/PC communication path. Each CT-251 and CT-551 module requires a CT series cable to connect to the associated power supply (supplied). See CT Series User Guide for details.

## User Guide For CT Series

### 1. Features

- Support COTEK Programmable Series power supply (Excluding AK Series)
- Support max. 8 unit serial or parallel control function
- Support RS232/485 protocol
- Easy installation for serial or parallel control.

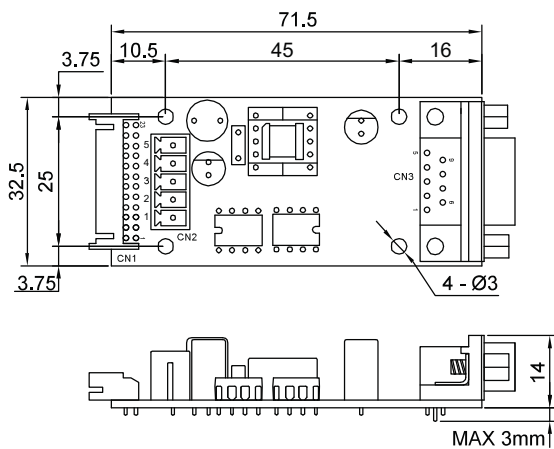
### 2. Specification

- Input Voltage: 5Vdc
- Operating Temperature Range: -10°C ~ 60°C
- Storage Temperature Range: - 30°C ~ 70°C
- Baud rate: 4800, N, 8, 1
- Connector: DB-9F fo RS232, RJ-11 (6P4C) for RS485
- Optical Isolation: I/P - O/P: 2500Vac rms for 1 minute

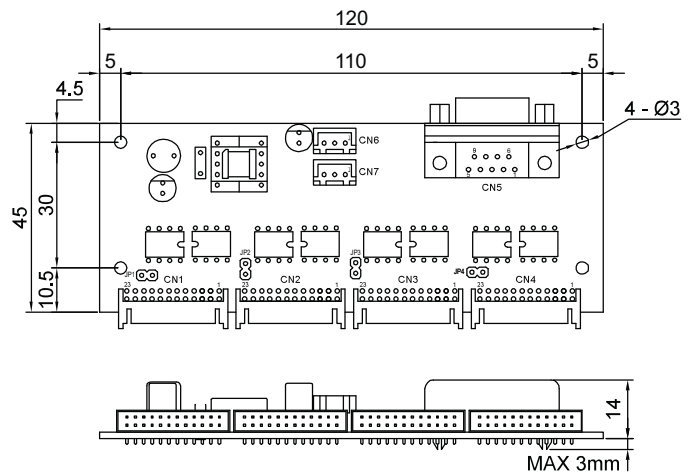
### 3. Mechanical dimension

Unit: mm

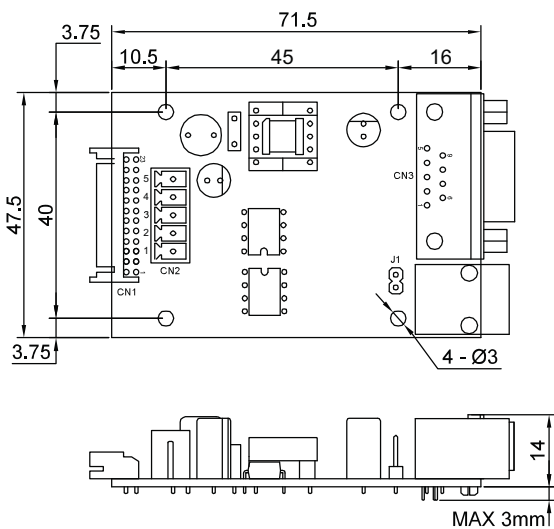
MODEL: CT-201



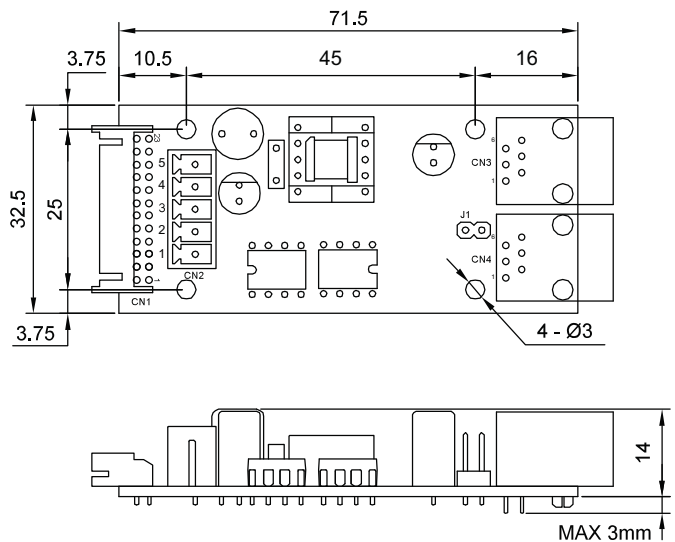
MODEL: CT-204



MODEL: CT-251



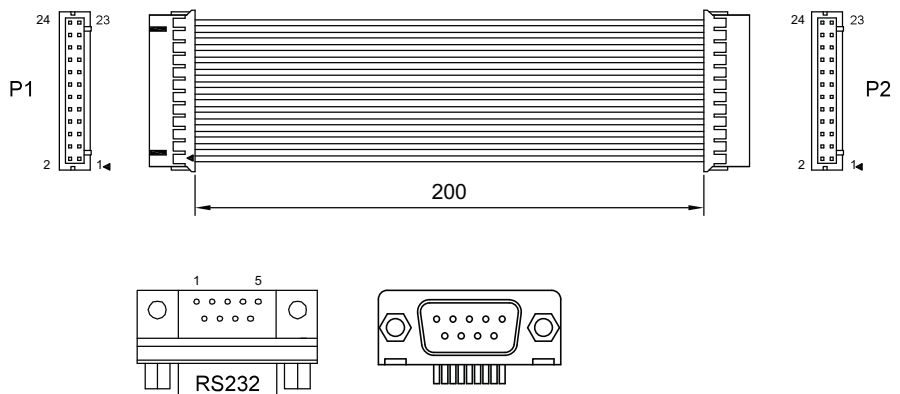
MODEL: CT-551



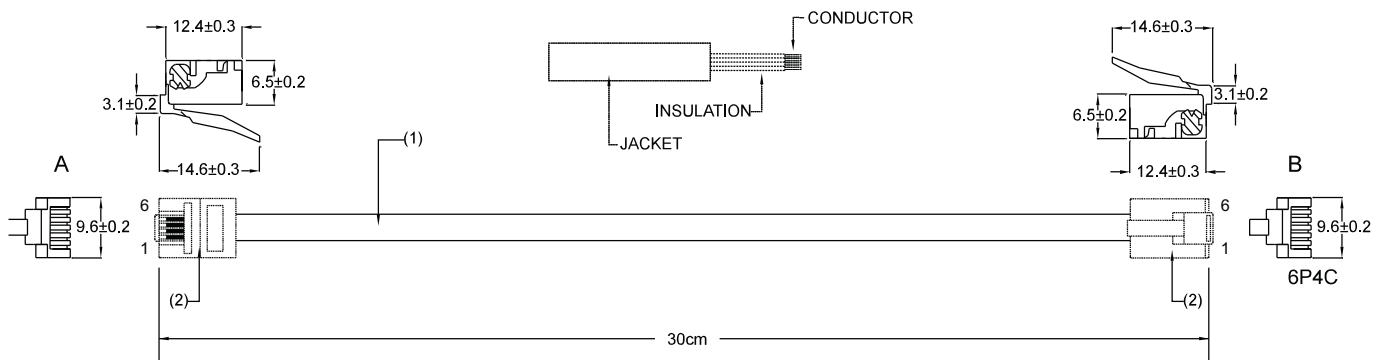
## 4. CT series cable drawing

- CT series cable  
(COTEK Part no.47-0124-0001)

Mating Housing / Contact	
JST PHDR-24VS or equivalent	JST SPHD-002T-P0.5 or equivalent

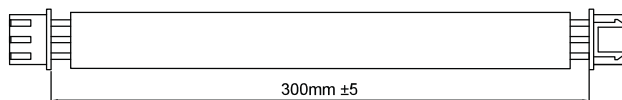


- CT parallel cable (For CT-551 Only)  
(COTEK Part no. 47-0106-0003)



**WARNING!**  
DO NOT use standard telephone cable.

- CT-204 to CT-204 series cable (Optional)  
(COTEK Part no. 47-0103-0028)



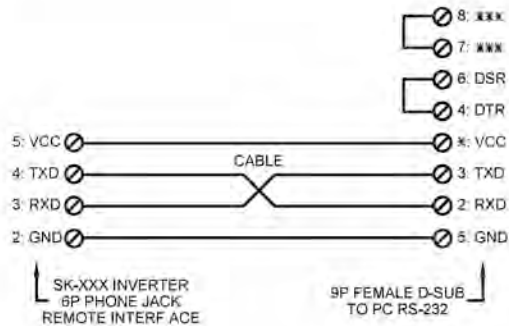
## 5. Accessories

Accessories	User Guide	CT series cable	CT parallel cable	EC350R-05P connector	CT-204 to CT-204 series cable
CT-201	1	1	---	1	---
CT-204	1	4	---	---	Optional
CT-251	1	1	---	1	---
CT-551	1	1	1	1	---

## 6. Pin assignment

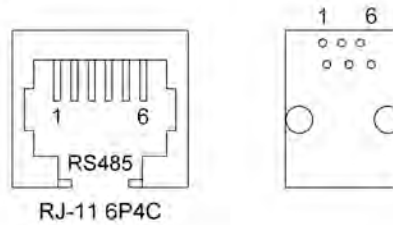
- DB-9F RS232 (only for CT-201/204/251)

1	NC
2	RxD
3	TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC



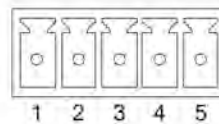
- RJ-11 6P4C RS485 (only for CT-251/551)

1	NC
2	GND
3	DATA +
4	DATA -
5	+5V
6	NC



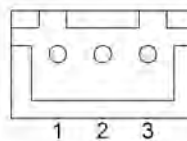
- ECH350V-05P DINKLE (only for CT-201/251/551)

1	GND
2	AUX
3	PAR
4	VS -
5	VS +



- B-XH-A 180°C (only for CT-204)

1	GND
2	RxD
3	TxD



- Control Pin connections: JST S24B-PHDSS or equivalent

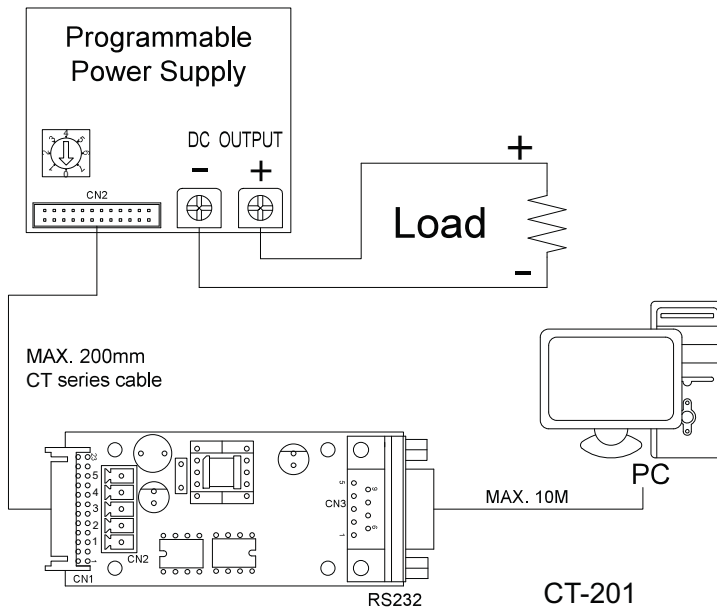
Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment
1	VS+	6	GND	11	EN+	16	GND	21	AUX
2	VO+	7	PAR	12	AUX	17	AUX	22	GND
3	VS-	8	VSET	13	ACI	18	GND	23	NC.
4	VO-	9	EN-	14	GND	19	SCL	24	NC.
5	POK	10	GND	15	VCI	20	SDA		

## 7. CT Series Quick Feature Guide

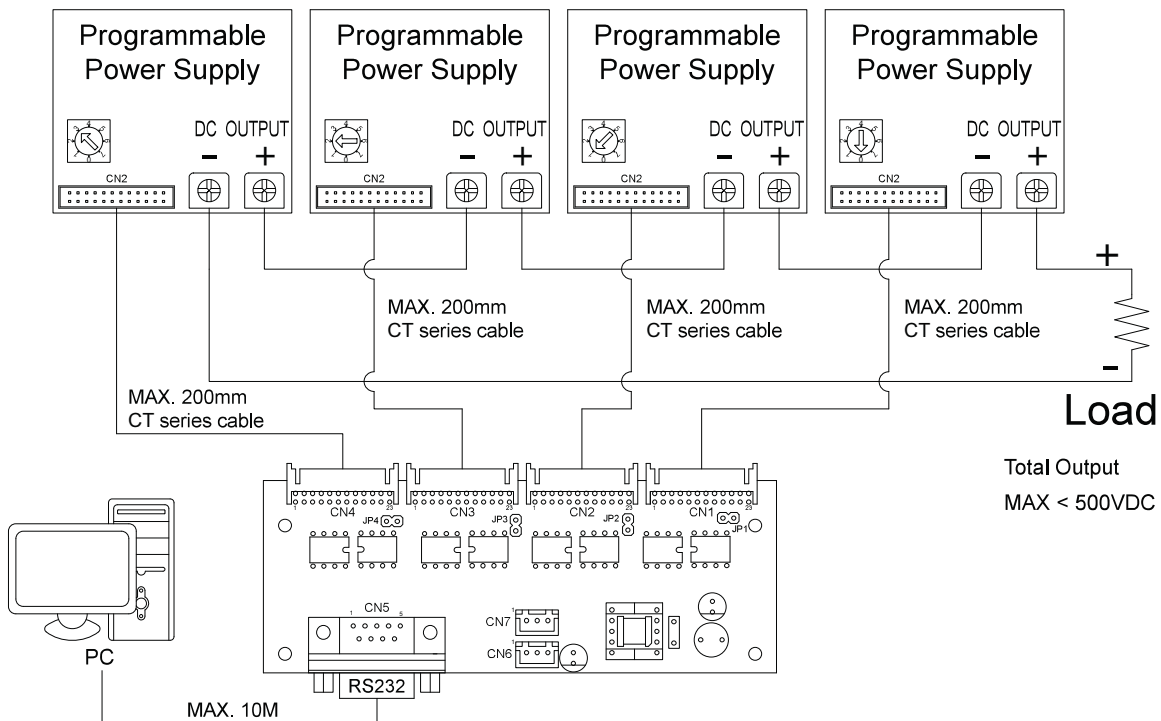
MODEL \ Function	Parallel / Remote sense	To Host	Power Connection	RS485 Expansion	RS232 Expansion
CT-201	✓	RS-232(DB-9F)	1 Unit	X	X
CT-204	X	RS-232(DB-9F)	4 Units	X	✓
CT-251	✓	RS-232(DB-9F)	1 Unit	✓	X
CT-551	✓	---	1 Unit	✓	X

## 8. Application Notes

MODEL: CT-201

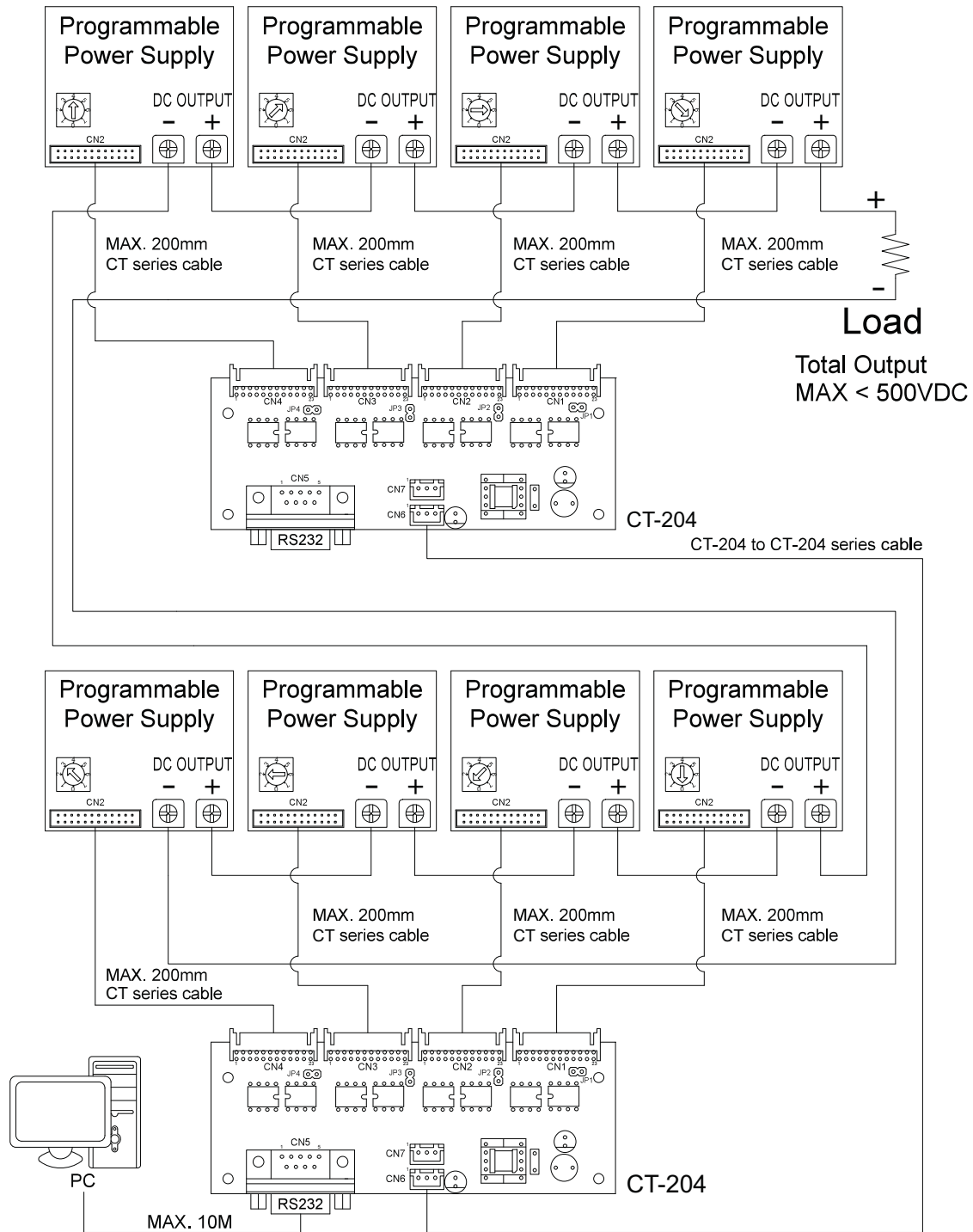


MODEL: CT-204 Series Control 4 EUT.

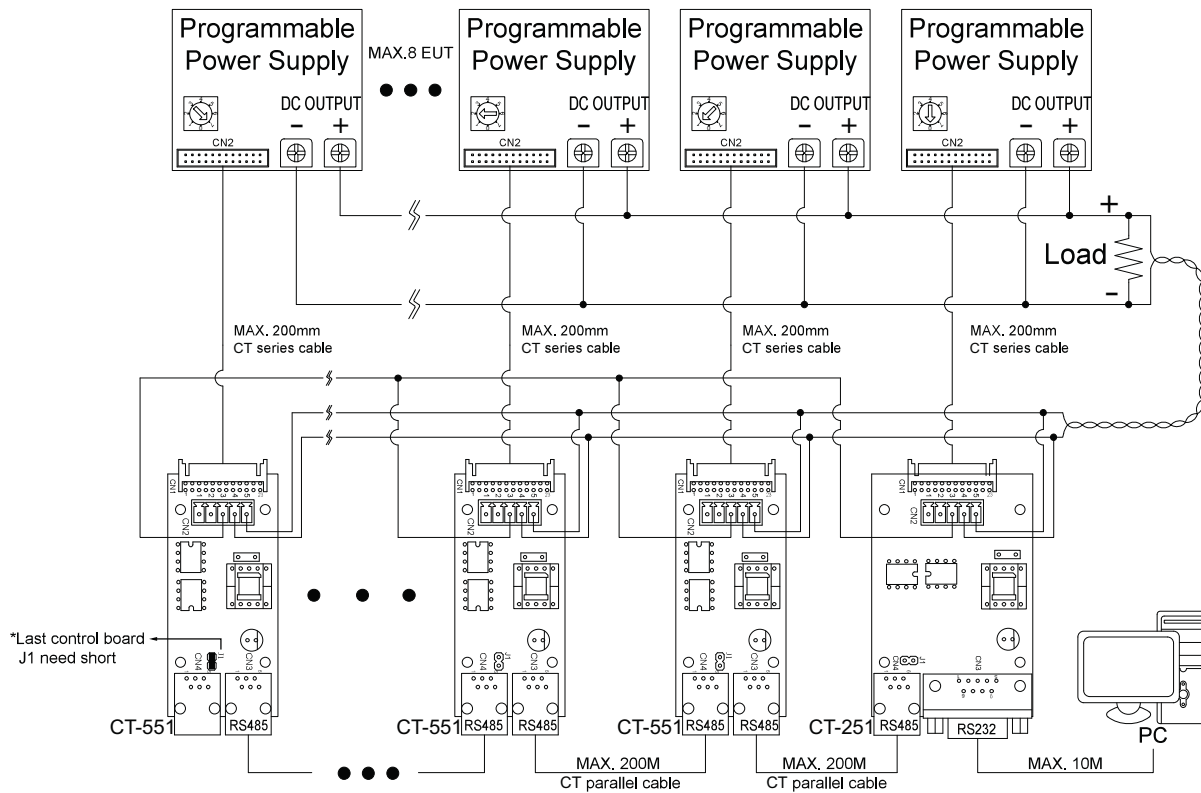


CT-204

MODEL: CT-204 Series Control 8 EUT.



## MODEL: CT-251 / 551 Parallel Control with Remote Sensing



Before using RS232/485 to control COTEK programmable SMPS (excl. AK Series), make sure to read the following notes:

1. Make sure the voltage and current setting has been correctly delivered to EUT before setting the command (Power <type>) to turn on / off the power supply. If OVP, or OLP LED signal has been activated due to incorrect operation, enter command POWER <type> will allow you to operate the EUT and setting command.
2. Every RS232/485 command character must be entered within 400ms, the ending point is judged by CR LF (0D0A), program will disregard the command if the command entering time exceeds 400ms per character.
3. After shut-down of the power of EUT, command setting will return to default, local mode.
4. After power on the EUT with command execution complete, EUT will switch to remote mode with orange LED signal status. For detail LED signal info, please refer to the EUT datasheet.
5. Please refer to the CT-xxx user manual (Page 02) for the cable spec. connect in between the CT-xxx controller board and EUT. Make sure to connect the cable as instructed on the user manual to avoid CT-xxx damage.
6. CT-xxx boards could support max. 8 units serial or parallel control function (ADDS 0-7). Before controlling the EUT, make sure the address is not in conflict with each other.
7. When controlling multiple EUT's, make sure to query the Address (ADDS x) first before entering command to avoid EUT retrieving the incorrect value. If only single EUT, there is no need to query ADDS before entering command.

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