PRODUCT NEWS

Product Discontinuation Notices

Temperature Controllers

OMRON

Issue Date
March 1, 2019

No. 2019045CE

Discontinuation Notice of Thermac R Digital Controllers Model E5AR/E5ER/E5AR-500/E5ER-500 series, Thermac R Programmable Digital Controllers Model E5AR-T/E5ER-T series, Digital Controllers (DeviceNet™ type) Model E5AR-DRT/E5ER-DRT series.

Product Discontinuation	Recommended Replacement
Thermac R Digital Controller	Digital Temperature Controller
Model E5AR series (1 input type) **Model E5ER series (1 input type)**	**Model E5AC series** **Model E5EC series**
Model E5AR series (2 input type) **Model E5ER series (2 input type)**	**Model E5EC series (2 units)** **Model E5EC series (2 units)**
Model E5AR series (4 input type)	**Model E5EC series (4 units)**
Model E5AR-500 series **Model E5ER-500 series**	**Please contact us for detailed information on the recommended replacement.**
Thermac R Programmable Digital Controller	Programmable Temperature Controller (Digital Controller)
Model E5AR-T series (1 input type) **Model E5ER-T series (1 input type)**	**Model E5AC-T series** **Model E5EC-T series**
Model E5AR-T series (2 input type) **Model E5ER-T series (2 input type)**	**Model E5EC-T series (2 units)** **Model E5EC-T series (2 units)**
Model E5AR-T series (4 input type)	**Model E5EC-T series (1 units)** **+** **Model E5EC series (3 units)**
Digital Controller (DeviceNet™ type)	Modular Temperature Controller
Model E5AR-DRT series (DeviceNet™) **Model E5ER-DRT series (DeviceNet™)**	**Model EJ1N-HFUB-DRT** **+** **Model EJ1N series**

[Final order entry date]
The end of March, 2021

[Date of The Last Shipping]
The end of June, 2021

[Scheduled date of maintenance close]
The end of March, 2021

[Caution on recommended replacement]

Because a lot of contents are complicated, please contact to our sales office if you have questions or concerns.

[Difference from discontinued product]

Model E5AR series (1 input type)
Model E5ER series (1 input type)

Recommended replacement Model	Body Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model E5AC series	*	*	*	**	--	--	--
Model E5EC series	*	*	*	**	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Model E5AR series (2 input type)

Recommended replacement Model	Bod y Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model E5EC series (2 units)	*	--	--	--	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Model E5ER series (2 input type)

Recommended replacement Model	Body Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model E5EC series (2 units)	*	--	--	--	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Model E5AR series (4 input type)

Recommended replacement Model	Body Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model E5EC series (4 units)	*	--	--	--	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Model E5AR-T series (1 input type)
Model E5ER-T series (1 input type)

Recommended replacement Model	Body Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model E5AC-T series	*	*	*	**	--	--	--
Model E5EC-T series	*	*	*	**	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Model E5AR-T series (2 input type)

Recommended replacement Model	Body Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model E5EC-T series (2 units)	*	--	--	--	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Model E5ER-T series (2 input type)

Recommended replacement Model	Body Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model E5EC-T series (2 units)	*	--	--	--	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Model E5AR-T series (4 input type)

Recommended replacement Model	Body Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model E5EC series	*	--	--	--	--	--	--
Model E5EC-T series (3 units)	*	--	--	--	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

Model E5AR-DRT series (DeviceNet™)
Model E5ER-DRT series (DeviceNet™)

Recommended replacement Model	Body Color	Dimen-sions	Wire connection	Mounting Dimensions	Charac-teristics	Operation ratings	Operation methods
Model EJ1N-HFUB-DRTEJ1-DRT	--	--	--	--	--	--	--
Model EJ1N series	--	--	--	--	--	--	--

** : Compatible
* : The change is a little/Almost compatible
-- : Not compatible
- : No corresponding specification

[Product Discontinuation and recommended replacement]

Model E5AR series (1 input type)
Model E5ER series (1 input type)

Product discontinuation	Recommended replacement
Model E5AR-QC43DB-FLK 100 to 240 VAC	Model E5AC-CQ4ASM-012 or Model E5AC-QQ4ASM-012 or Model E5AC-CC4ASM-014
Model E5AR-QC43DB-FLK 24 VAC/DC	Model E5AC-CQ4DSM-012 or Model E5AC-QQ4DSM-012 or Model E5AC-CC4DSM-014
Model E5AR-Q4B AC100-240	Model E5AC-QQ4ASM-011
Model E5AR-Q4B 24 VAC/DC	Model E5AC-QQ4DSM-011
Model E5AR-Q43DB-FLK 100 to 240 VAC	Model E5AC-QQ4ASM-012
Model E5AR-Q43B-FLK 100 to 240 VAC	Model E5AC-QQ4ASM-012
Model E5AR-PRQ43DF-FLK 100 to 240 VAC	Model E5AC-PR4ASM-014
Model E5AR-PRQ43DF-FLK 24 VAC/DC	Model E5AC-PR4DSM-014
Model E5AR-PR4DF 100 to 240 VAC	Model E5AC-PR4ASM-014
Model E5AR-PR4DF 24 VAC/DC	Model E5AC-PR4DSM-014
Model E5AR-C4B 100 to 240 VAC	Model E5AC-CC4ASM-013
Model E5AR-C4B 24 VAC/DC	Model E5AC-CC4DSM-013
Model E5AR-C43DB-FLK 100 to 240 VAC	Model E5AC-CC4ASM-014
Model E5AR-C43B-FLK 100 to 240 VAC	Model E5AC-CC4ASM-014
Model E5ER-QT3DB-FLK 100 to 240 VAC	Model E5EC-QQ4ASM-012
Model E5ER-QC43B-FLK 100 to 240 VAC	Model E5EC-CQ4ASM-012 or Model E5EC-QQ4ASM-012 or Model E5EC-CC4ASM-014
Model E5ER-QC43B-FLK 24 VAC/DC	Model E5EC-CQ4DSM-012 or Model E5EC-QQ4DSM-012 or Model E5EC-CC4DSM-014
Model E5ER-Q4B 100 to 240 VAC	Model E5EC-QQ4ASM-011
Model E5ER-Q4B 24 VAC/DC	Model E5EC-QQ4DSM-011
Model E5ER-Q43B-FLK 100 to 240 VAC	Model E5EC-QQ4ASM-012
Model E5ER-PRTDF 100 to 240 VAC	Model E5EC-PR4ASM-014
Model E5ER-PRTDF 24 VAC/DC	Model E5EC-PR4DSM-014
Model E5ER-PRQ43F-FLK 100 to 240 VAC	Model E5EC-PR4ASM-014
Model E5ER-PRQ43F-FLK 24 VAC/DC	Model E5EC-PR4DSM-014
Model E5ER-CT3DB-FLK 100 to 240 VAC	Model E5EC-CC4ASM-014
Model E5ER-C4B 100 to 240 VAC	Model E5EC-CC4ASM-013
Model E5ER-C4B 24 VAC/DC	Model E5EC-CC4DSM-013
Model E5ER-C43B-FLK 100 to 240 VAC	Model E5EC-CC4ASM-014

Model E5AR series (2 input type)
Model E5ER series (2 input type)

Product discontinuation	Recommended replacement
Model E5AR-QQ43DW-FLK 100 to 240 VAC	Model E5EC-QQ4ASM-012(Required number:2 units)
Model E5AR-QQ43DW-FLK 24 VAC/DC	Model E5EC-QQ4DSM-012(Required number:2 units)
Model E5AR-Q43DW-FLK 100 to 240 VAC	Model E5EC-QQ4ASM-012(Required number:2 units)
Model E5AR-C43DW-FLK 100 to 240 VAC	Model E5EC-CC4ASM-014(Required number:2 units)
Model E5ER-QT3DW-FLK 100 to 240 VAC	Model E5EC-QQ4ASM-012(Required number:2 units)
Model E5ER-QT3DW-FLK 24 VAC/DC	Model E5EC-QQ4DSM-012(Required number:2 units)
Model E5ER-CT3DW-FLK 100 to 240 VAC	Model E5EC-CC4ASM-014(Required number:2 units)
Model E5ER-CT3DW-FLK 24 VAC/DC	Model E5EC-CC4DSM-014(Required number:2 units)

Model E5AR series (4 input type)

Product discontinuation	Recommended replacement
Model E5AR-QQ43DWW-FLK 100 to 240 VAC	Model E5EC-QQ4ASM-012(Required number:4 units)
Model E5AR-CC43DWW-FLK 100 to 240 VAC	Model E5EC-CC4ASM-014(Required number:4 units)
Model E5AR-CC43DWW-FLK 24 VAC/DC	Model E5EC-CC4DSM-014(Required number:4 units)

Model E5AR-T series (1 input type)
Model E5ER-T series (1 input type)

Product discontinuation	Recommended replacement
Model E5AR-TQE3MB-FLK 100 to 240 VAC	Model E5AC-TQQ4ASM-020
Model E5AR-TQCE3MB-FLK 100 to 240 VAC	Model E5AC-TCQ4ASM-020 or Model E5AC-TQQ4ASM-020 or Model E5AC-TCC4ASM-022
Model E5AR-TQCE3MB-FLK 24 VAC/DC	Model E5AC-TCQ4DSM-020 or Model E5AC-TQQ4DSM-020 or Model E5AC-TCC4DSM-022
Model E5AR-TQ4B 100 to 240 VAC	Model E5AC-TQQ4ASM-019
Model E5AR-TQ4B 24 VAC/DC	Model E5AC-TQQ4DSM-019
Model E5AR-TQ43B-FLK 100 to 240 VAC	Model E5AC-TQQ4ASM-020
Model E5AR-TPRQE3MF-FLK 100 to 240 VAC	Model E5AC-TPR4ASM-022
Model E5AR-TPRQE3MF-FLK 24 VAC/DC	Model E5AC-TPR4DSM-022
Model E5AR-TPR4DF 100 to 240 VAC	Model E5AC-TPR4ASM-022
Model E5AR-TPR4DF 24 VAC/DC	Model E5AC-TPR4DSM-022
Model E5AR-TCE3MB-FLK 100 to 240 VAC	Model E5AC-TCC4ASM-022
Model E5AR-TC4B 100 to 240 VAC	Model E5AC-TCC4ASM-021
Model E5AR-TC4B 24 VAC/DC	Model E5AC-TCC4DSM-021
Model E5AR-TC43B-FLK 100 to 240 VAC	Model E5AC-TCC4ASM-022
Model E5AR-TRQE3MB-325 AC100-240	No recommended replacement
Model E5ER-TQC43B-FLK 100 to 240 VAC	Model E5EC-TCQ4ASM-020 or Model E5EC-TQQ4ASM-020 or Model E5EC-TCC4ASM-022
Model E5ER-TQC43B-FLK 24 VAC/DC	Model E5EC-TCQ4DSM-020 or Model E5EC-TQQ4DSM-020 or Model E5EC-TCC4DSM-022
Model E5ER-TQ4B 100 to 240 VAC	Model E5EC-TQQ4ASM-019
Model E5ER-TQ4B 24 VAC/DC	Model E5EC-TQQ4DSM-019
Model E5ER-TPRTDF 100 to 240 VAC	Model E5EC-TPR4ASM-022
Model E5ER-TPRTDF 24 VAC/DC	Model E5EC-TPR4DSM-022
Model E5ER-TPRQ43F-FLK 100 to 240 VAC	Model E5EC-TPR4ASM-022
Model E5ER-TPRQ43F-FLK 24 VAC/DC	Model E5EC-TPR4DSM-022
Model E5ER-TC4B 100 to 240 VAC	Model E5EC-TCC4ASM-021
Model E5ER-TC4B 24 VAC/DC	Model E5EC-TCC4DSM-021

Model E5AR-T series (2 input type)
Model E5ER-T series (2 input type)

Product discontinuation	Recommended replacement
Model E5AR-TQQE3MW-FLK 100 to 240 VAC	Model E5EC-TQQ4ASM-020(Required number:2 units)
Model E5AR-TQQE3MW-FLK 24 VAC/DC	Model E5EC-TQQ4DSM-020(Required number:2 units)
Model E5AR-TQ43DW-FLK 100 to 240 VAC	Model E5EC-TQQ4ASM-020(Required number:2 units)
Model E5AR-TC43DW-FLK 100 to 240 VAC	Model E5EC-TCC4ASM-022(Required number:2 units)
Model E5ER-TQT3DW-FLK 100 to 240 VAC	Model E5EC-TQQ4ASM-020(Required number:2 units)
Model E5ER-TQT3DW-FLK 24 VAC/DC	Model E5EC-TQQ4DSM-020(Required number:2 units)

Product discontinuation	Recommended replacement
Model E5ER-TCT3DW-FLK 100 to 240 VAC	Model E5EC-TCC4ASM-022(Required number:2 units)
Model E5ER-TCT3DW-FLK 24 VAC/DC	Model E5EC-TCC4DSM-022(Required number:2 units)

Model E5AR-T series (4 input type)

Product discontinuation	Recommended replacement
Model E5AR-TQQE3MWW-FLK 100 to 240 VAC	Model E5EC-TQQ4ASM-020(Required number:1 unit) + Model E5EC-QQ4ASM-012(Required number:3 units)
Model E5AR-TCCE3MWW-FLK 100 to 240 VAC	Model E5EC-TCC4ASM-022(Required number:1 unit) + Model E5EC-CC4ASM-014(Required number:3 units)
Model E5AR-TCCE3MWW-FLK 24 VAC/DC	Model E5EC-TCC4DSM-022(Required number:1 unit) + Model E5EC-CC4DSM-014(Required number:3 units)

Model E5AR-DRT series (DeviceNet™)
Model E5ER-DRT series (DeviceNet™)

Product discontinuation	Recommended replacement
Model E5AR-QQ4W-DRT 100 to 240 VAC	＜Special Unit＞(DeviceNet™ communication) Model EJ1N-HFUB-DRT ＜End Unit＞ Model EJ1C-EDUA-NFLK ＜Basic Unit＞ ① Model EJ1N-TC2A-QNHB ② Model EJ1N-TC4A-QQ ③ Model EJ1N-TC2A-CNB * Select the basic unit according to the number of control points and the output type.
Model E5AR-QQ4W-DRT 24 VAC/DC	
Model E5AR-QC4B-DRT 100 to 240 VAC	
Model E5AR-QC4B-DRT 24 VAC/DC	
Model E5AR-Q4B-DRT 100 to 240 VAC	
Model E5AR-Q4B-DRT 24 VAC/DC	
Model E5AR-PRQ4F-DRT 100 to 240 VAC	No recommended replacement
Model E5AR-PRQ4F-DRT 24 VAC/DC	No recommended replacement
Model E5AR-PR4F-DRT 100 to 240 VAC	No recommended replacement
Model E5AR-PR4F-DRT 24 VAC/DC	No recommended replacement
Model E5AR-CC4WW-DRT 100 to 240 VAC	＜Special Unit＞(DeviceNet™ communication) Model EJ1N-HFUB-DRT ＜End Unit＞ Model EJ1C-EDUA-NFLK ＜Basic Unit＞ ① Model EJ1N-TC2A-QNHB ② Model EJ1N-TC4A-QQ ③ Model EJ1N-TC2A-CNB * Select the basic unit according to the number of control points and the output type.
Model E5AR-CC4WW-DRT 24 VAC/DC	
Model E5AR-C4B-DRT 100 to 240 VAC	
Model E5AR-C4B-DRT 24 VAC/DC	
Model E5ER-QTW-DRT 100 to 240 VAC	
Model E5ER-QTW-DRT 24 VAC/DCV	
Model E5ER-QTB-DRT 100 to 240 VAC	
Model E5ER-QTB-DRT 24 VAC/DCV	
Model E5ER-PRTF-DRT 100 to 240 VAC	No recommended replacement
Model E5ER-PRTF-DRT 24 VAC/DCV	No recommended replacement
Model E5ER-CTW-DRT 100 to 240 VAC	＜Special Unit＞Model EJ1N-HFUB-DRT ＜End Unit＞Model EJ1C-EDUA-NFLK ＜Basic Unit＞ ① Model EJ1N-TC2A-QNHB ② Model EJ1N-TC4A-QQ ③ Model EJ1N-TC2A-CNB * Select the basic unit according to the number of control points and the output type.
Model E5ER-CTW-DRT 24 VAC/DCV	
Model E5ER-CTB-DRT 100 to 240 VAC	
Model E5ER-CTB-DRT 24 VAC/DCV	

Model E5AR-500 series (1/2/4 input type)
Model E5ER-500 series (1/2 input type)

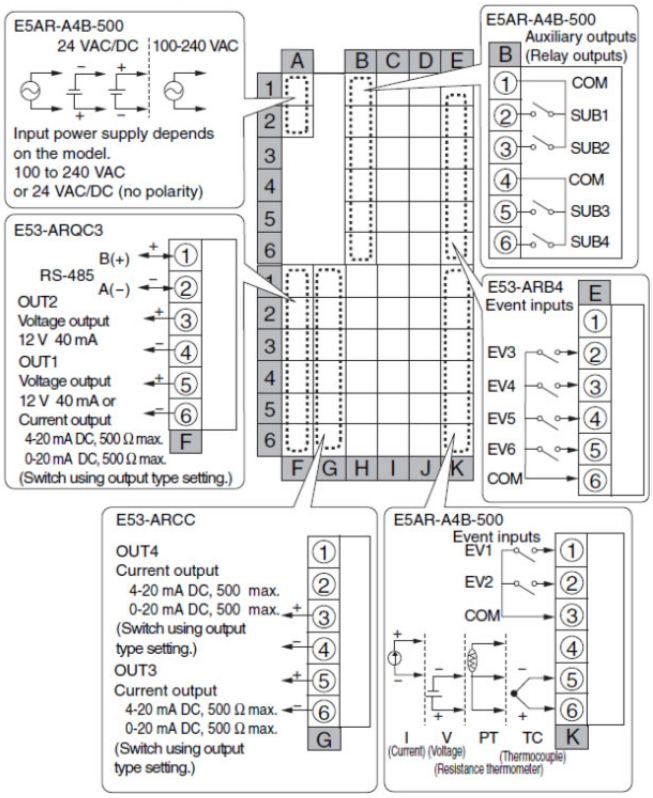
Product discontinuation	Recommended replacement
E5ER-PAF-500 AC100-240	Please contact us for detailed information on the recommended replacement.
E5ER-PAF-500 AC/DC24	
E5ER-AW-500 AC100-240	
E5ER-AW-500 AC/DC24	
E5ER-AB-500 AC100-240	
E5ER-AB-500 AC/DC24	
E5AR-PA4F-500 AC100-240	
E5AR-PA4F-500 AC/DC24	
E5AR-A4WW-500 AC100-240	
E5AR-A4WW-500 AC/DC24	
E5AR-A4W-500 AC100-240	
E5AR-A4W-500 AC/DC24	
E5AR-A4B-500 AC100-240	
E5AR-A4B-500 AC/DC24	

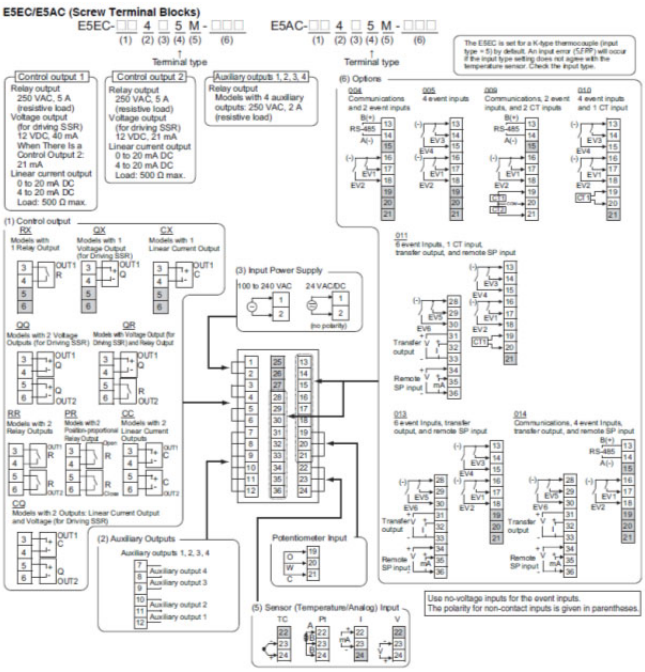
[Body color]

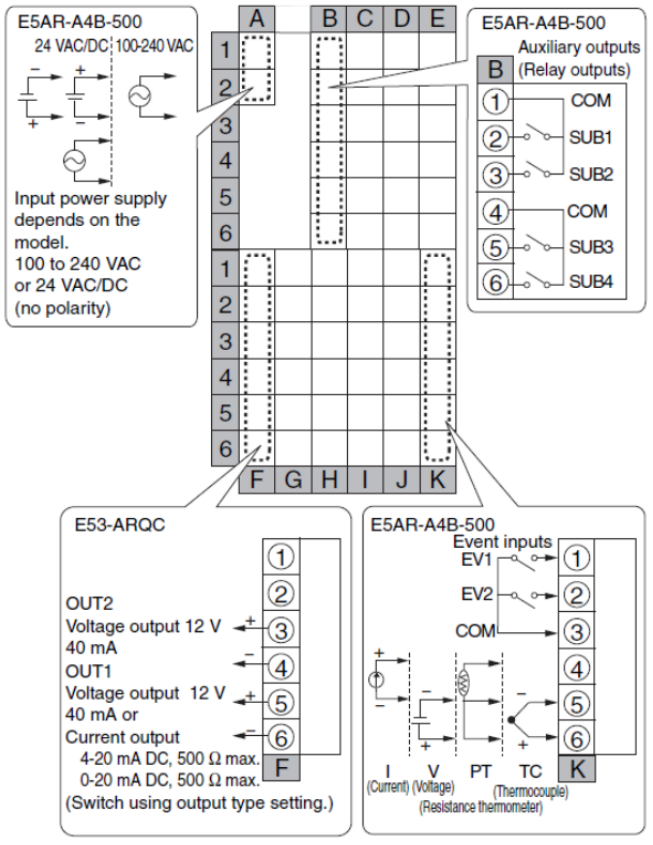
Product discontinuation Model E5AR series, Model E5AR-T series Model E5AR-DRT series, Model E5ER series Model E5ER-T series, Model E5ER-DRT series	Recommendable replacement Model E5ACseries, Model E5AC-T series Model E5EC series, Model E5EC-T series Model EJ1 series
Black (Munsell N1.5) 	**Model E5AC series, E5AC-T series, E5EC-T series** **Black (Munsell N1.5)** **Model EJ1 series** **Rear side of the case: Ivoly 8.5 (5Y 8.5/1)** **Front side of the case: Panlite LN-2250#EN60384**

[Terminal arrangement／Wire connection]

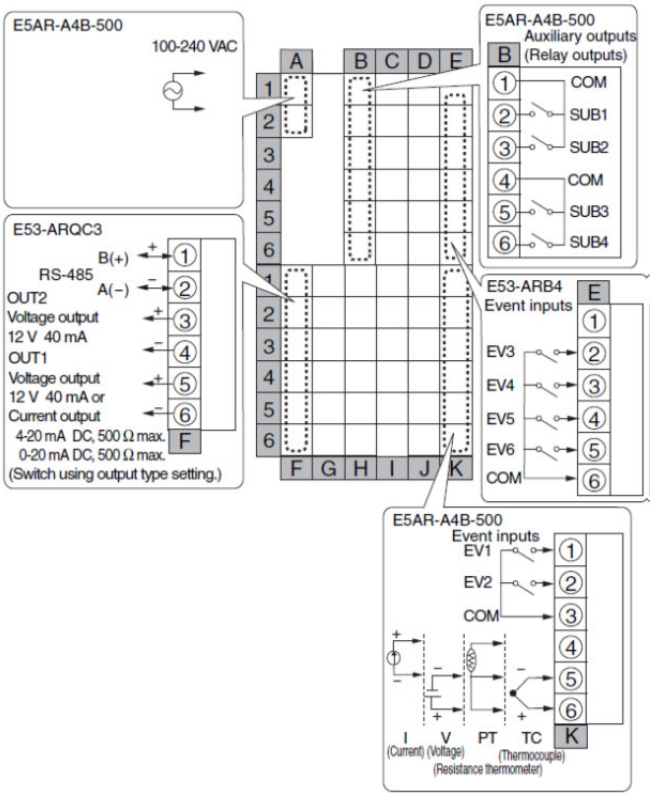
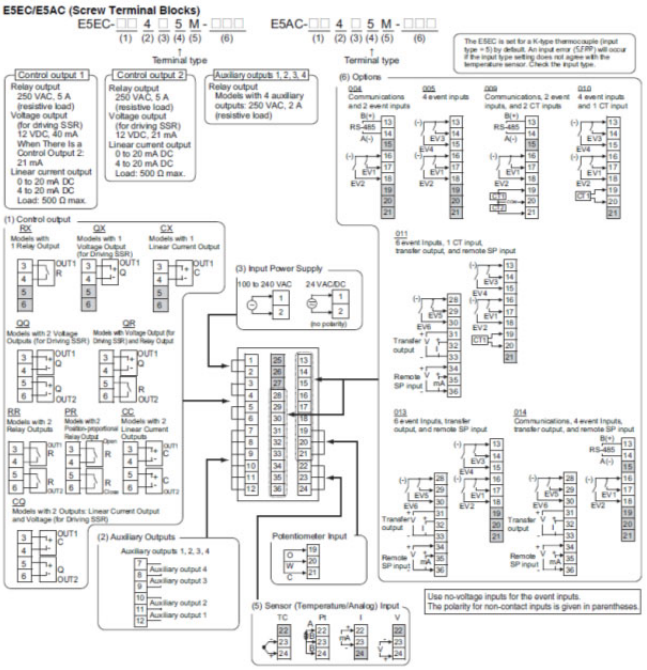
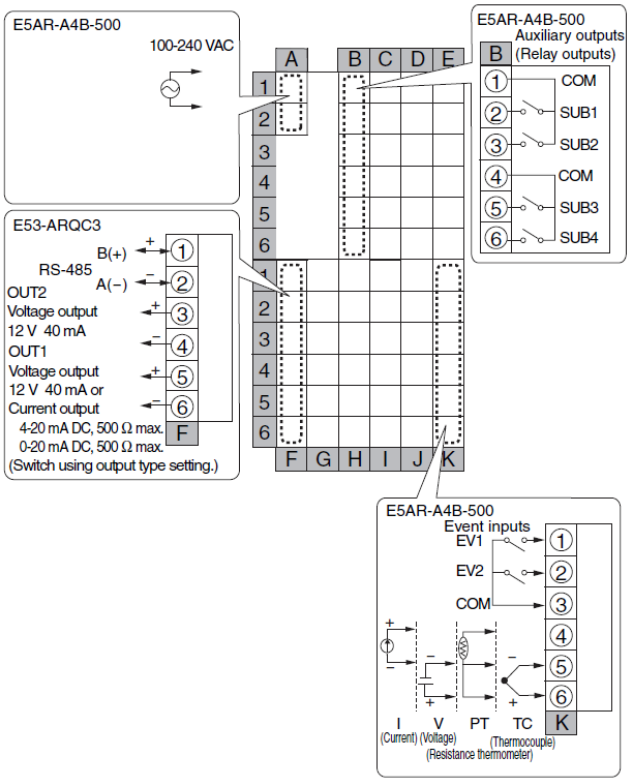
Product Discontinuation Model E5AR series(1 input type) Model E5ER series(1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5AR-QC43DB-FLK 100 to 240 VAC **Model E5AR-QC43DB-FLK 24 VAC/DC**	**Model E5AC-CQ4ASM-012** **or Model E5AC-QQ4ASM-012** **or Model E5AC-CC4ASM-014** **Model E5AC-CQ4DSM-012** **or Model E5AC-QQ4DSM-012** **or Model E5AC-CC4DSM-014**
Model E5AR-Q4B 100 to 240 VAC **Model E5AR-Q4B 24 VAC/DC**	**Model E5AC-QQ4ASM-011** **Model E5AC-QQ4DSM-011**



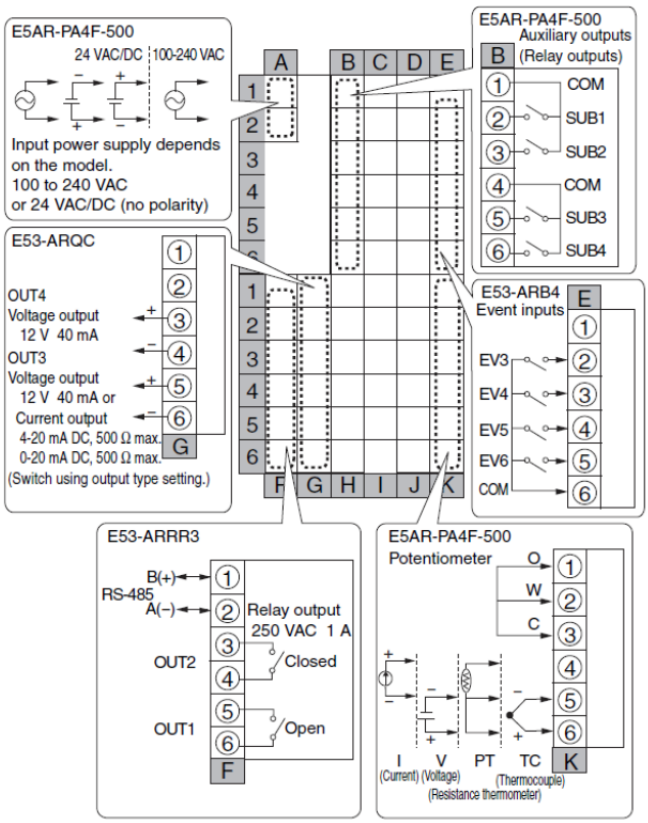
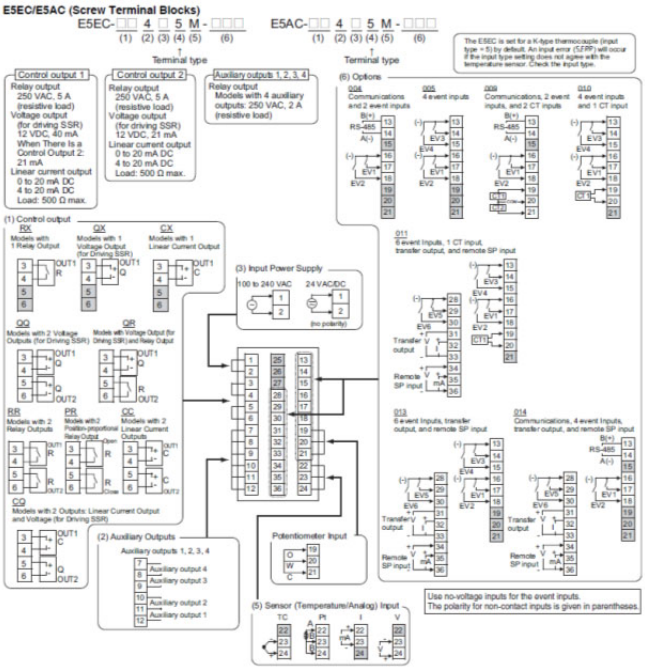
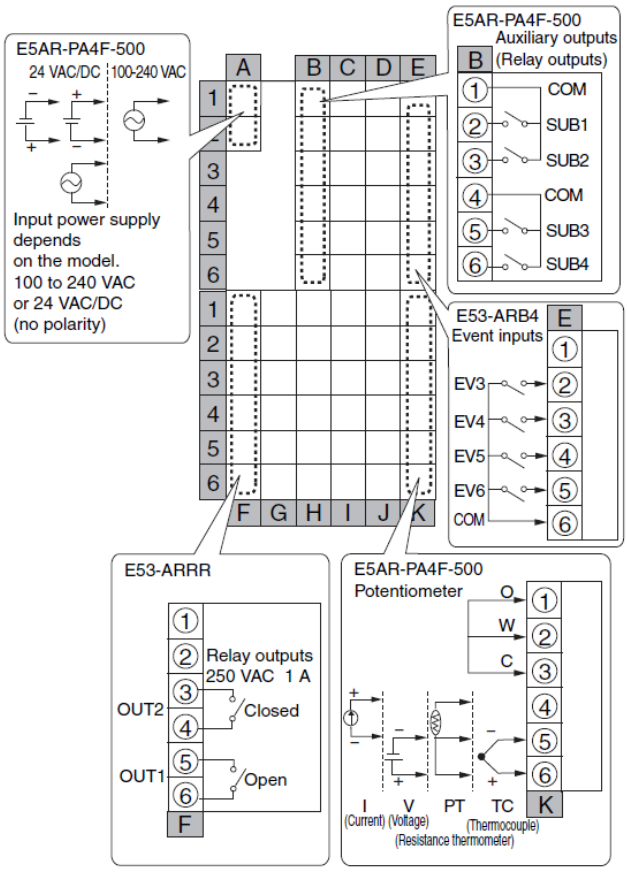




[Terminal arrangement／Wire connection]

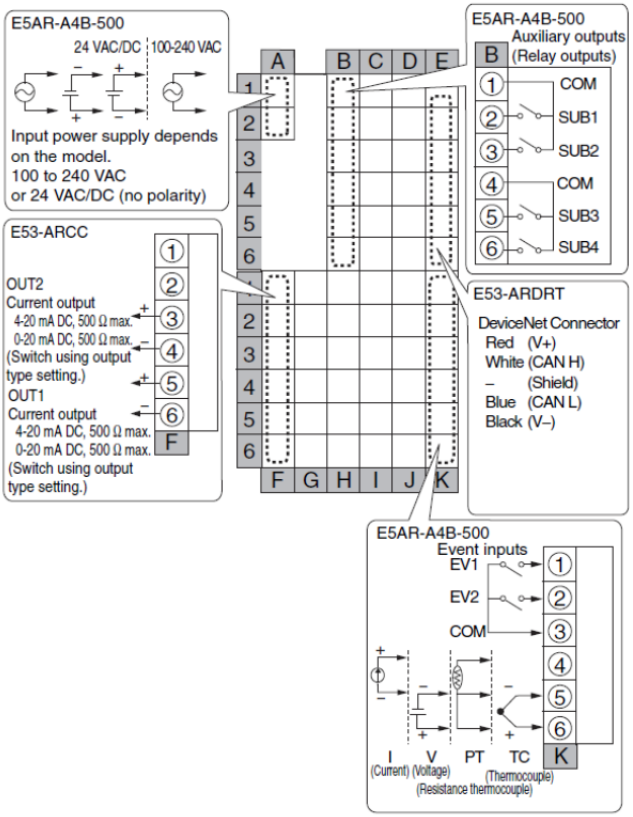
Product Discontinuation Model E5AR series(1 input type) Model E5ER series(1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5AR-Q43DB-FLK 100 to 240 VAC 	**Model E5AC-QQ4ASM-012** 
Model E5AR-Q43B-FLK 100 to 240 VAC 	**Model E5AC-QQ4ASM-012**

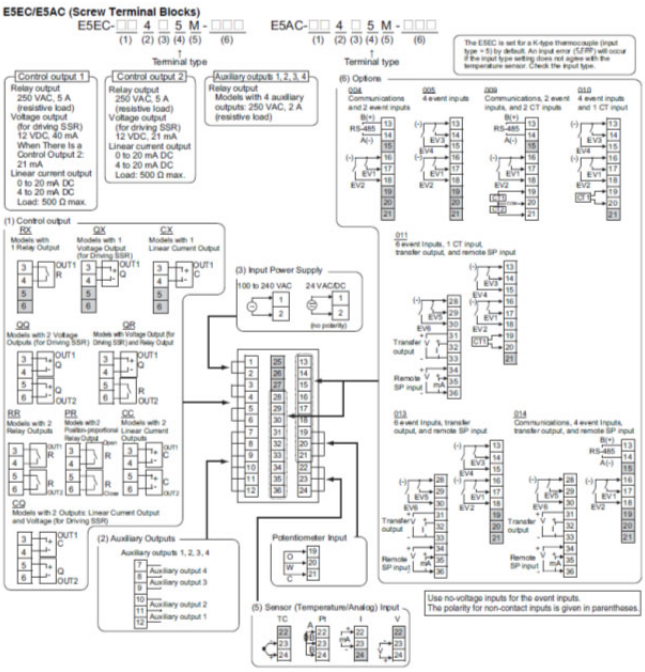
[Terminal arrangement／Wire connection]

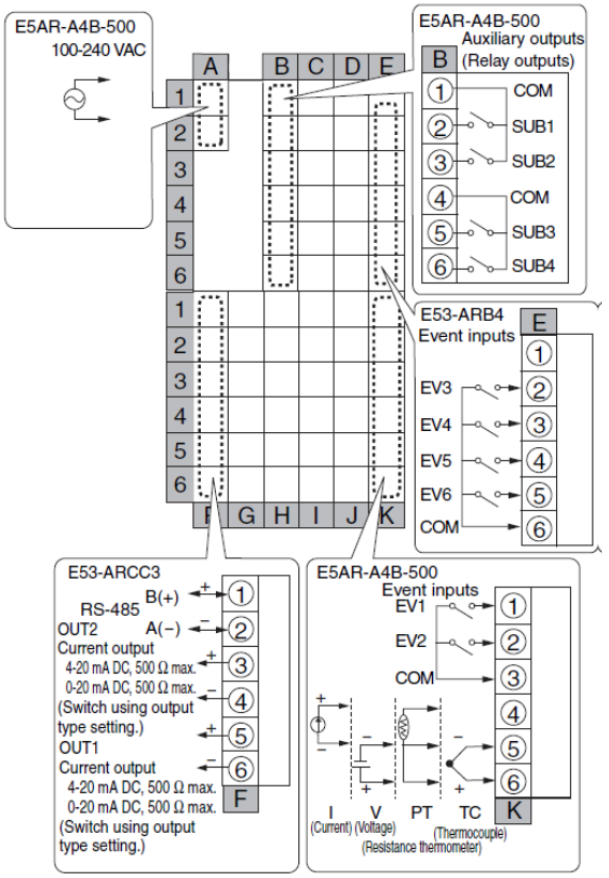
Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5AR-PRQ43DF-FLK 100 to 240 VAC **Model E5AR-PRQ43DF-FLK 24 VAC/DC**	**Model E5AC-PR4ASM-014** **Model E5AC-PR4DSM-014**
	
Model E5AR-PR4DF 100 to 240 VAC **Model E5AR-PR4DF 24 VAC/DC**	**Model E5AC-PR4ASM-014** **Model E5AC-PR4DSM-014**
	

[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5AR-C4B 100 to 240 VAC **Model E5AR-C4B 24 VAC/DC**	**Model E5AC-CC4ASM-013** **Model E5AC-CC4DSM-013**
Model E5AR-C43DB-FLK 100 to 240 VAC	**Model E5AC-CC4ASM-014**

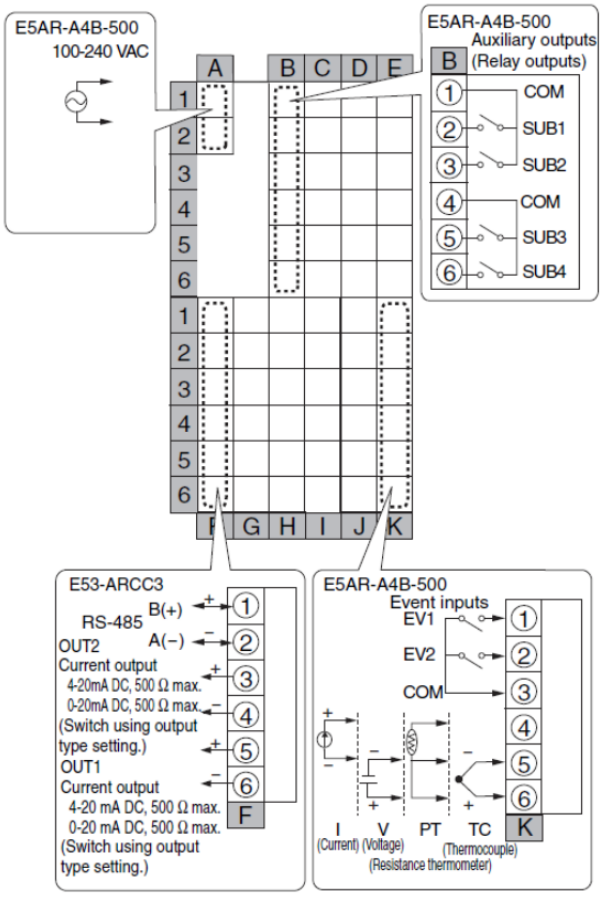


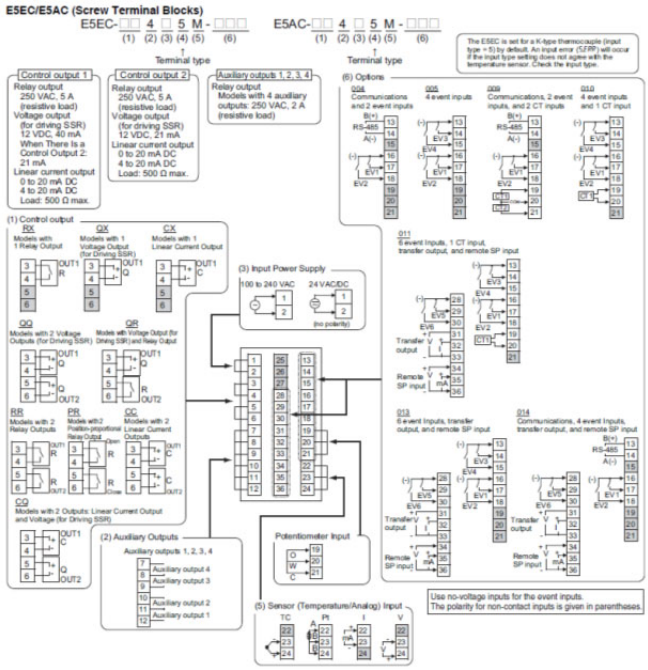


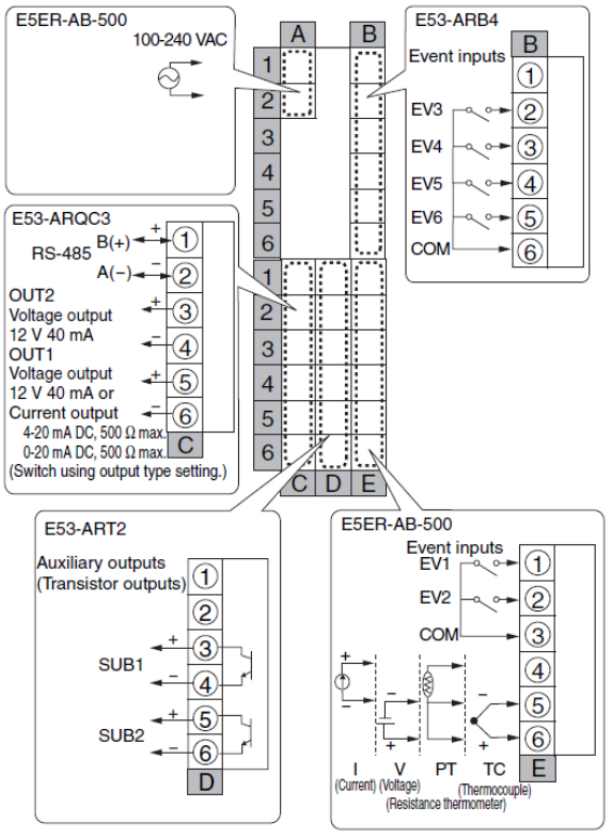


[Terminal arrangement／Wire connection]

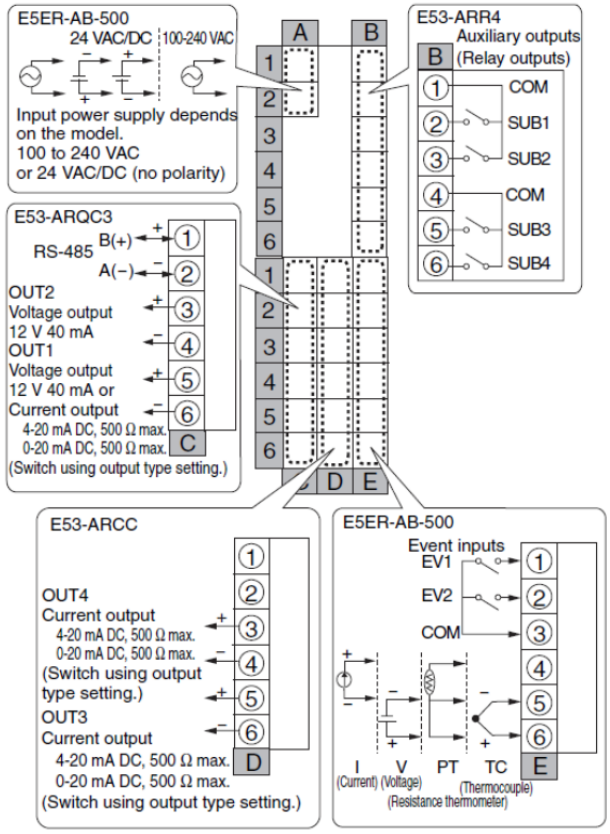
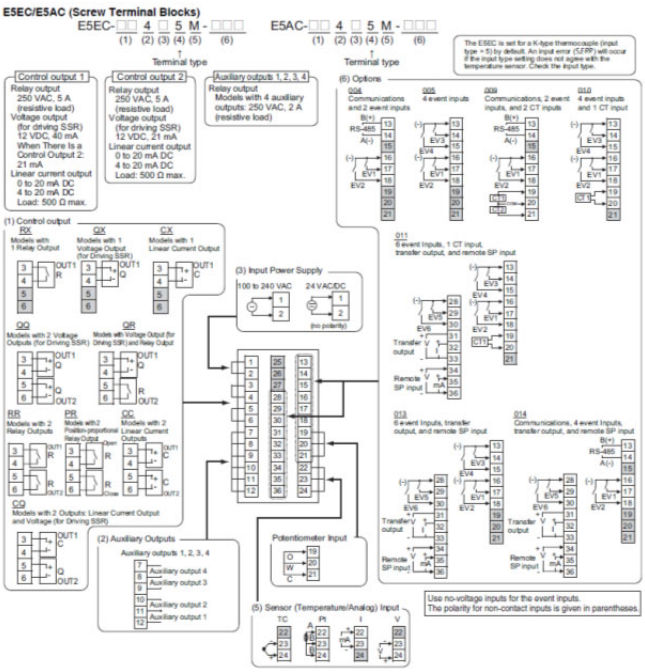
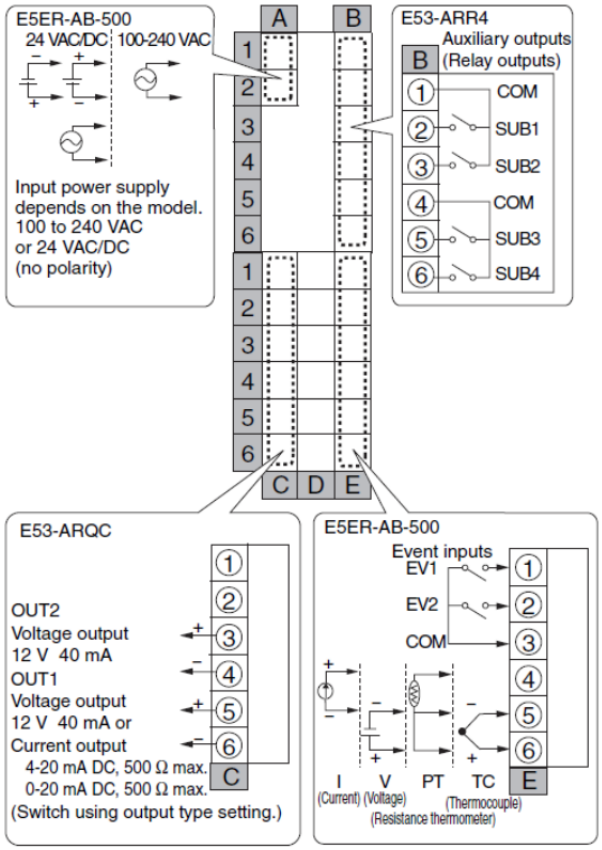
Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5AR-C43B-FLK 100 to 240 VAC	**Model E5AC-CC4ASM-014**
Model E5ER-QT3DB-FLK 100 to 240 VAC	**Model E5EC-QQ4ASM-012**





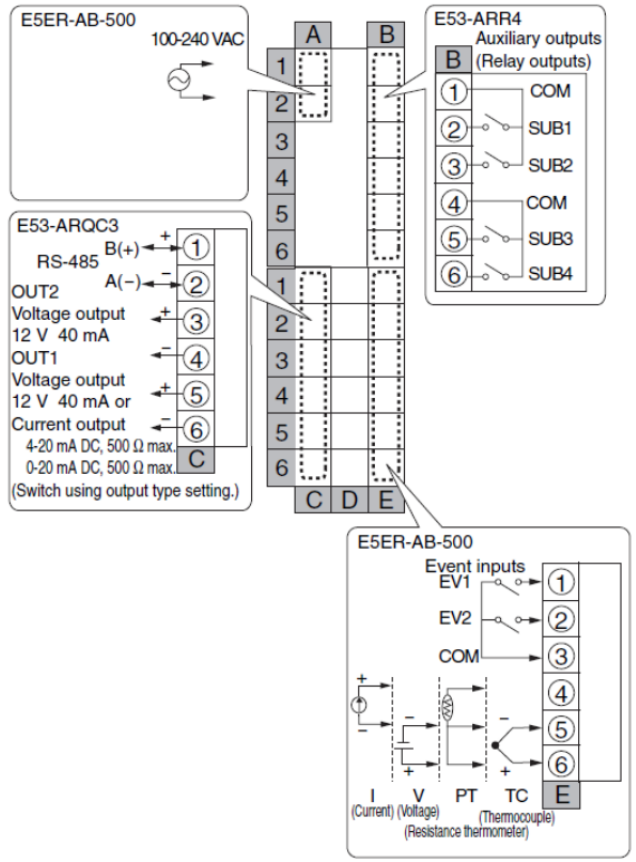


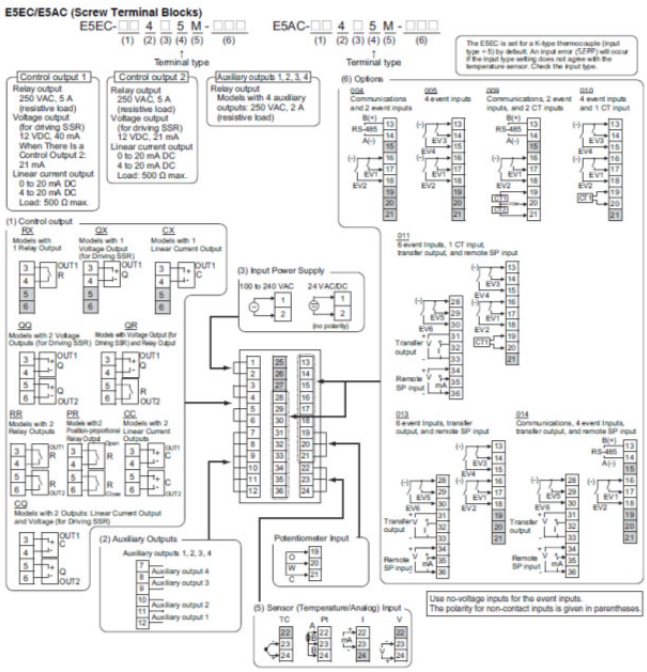
[Terminal arrangement／Wire connection]

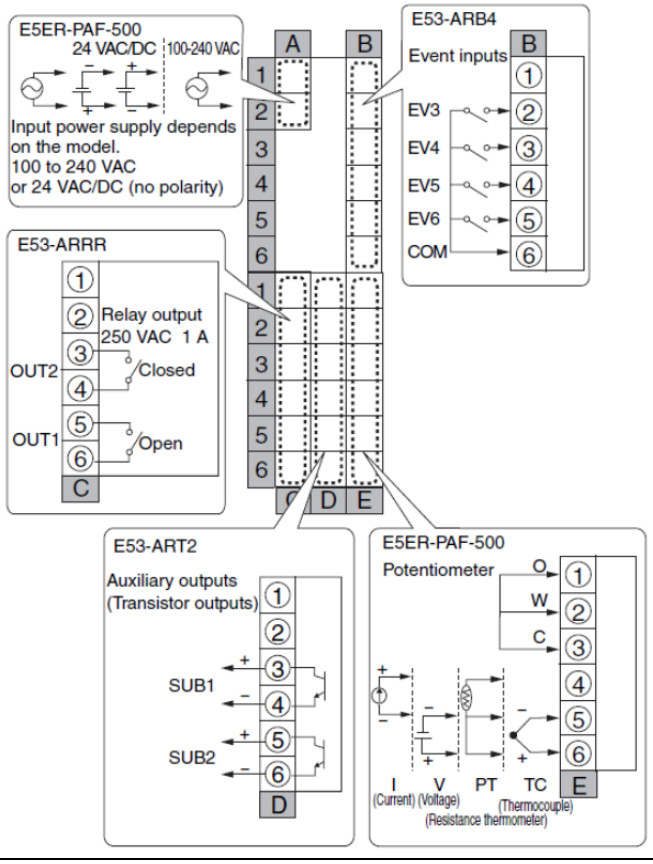
Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5ER-QC43B-FLK 100 to 240 VAC **Model E5ER-QC43B-FLK 24 VAC/DC**	**Model E5EC-CQ4ASM-012** **or Model E5EC-QQ4ASM-012** **or Model E5EC-CC4ASM-014** **Model E5EC-CQ4DSM-012** **or Model E5EC-QQ4DSM-012** **or Model E5EC-CC4DSM-014**
	
Model E5ER-Q4B 100 to 240 VAC **Model E5ER-Q4B 24 VAC/DC**	**Model E5EC-QQ4ASM-011** **Model E5EC-QQ4DSM-011**
	

[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5ER-Q43B-FLK 100 to 240 VAC	**Model E5EC-QQ4ASM-012**
Model E5ER-PRTDF 100 to 240 VAC **Model E5ER-PRTDF 24 VAC/DC**	**Model E5EC-PR4ASM-014** **Model E5EC-PR4DSM-014**

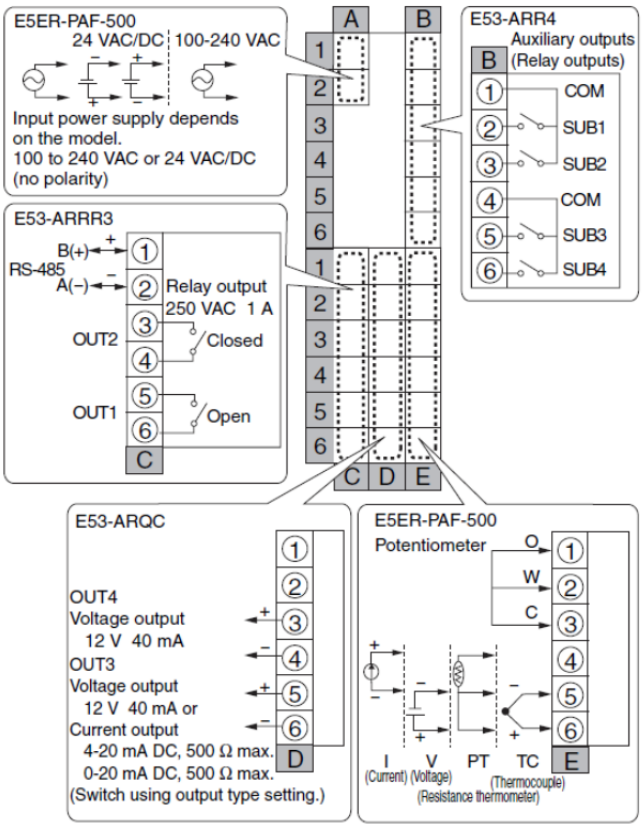


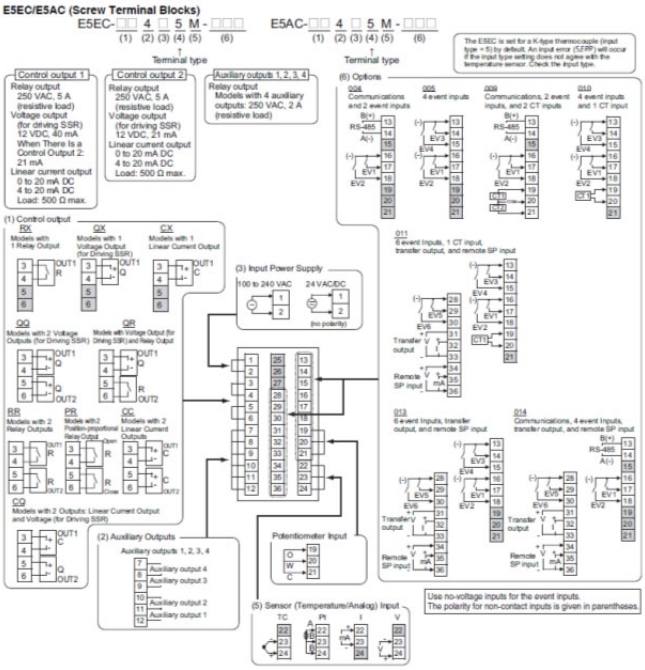


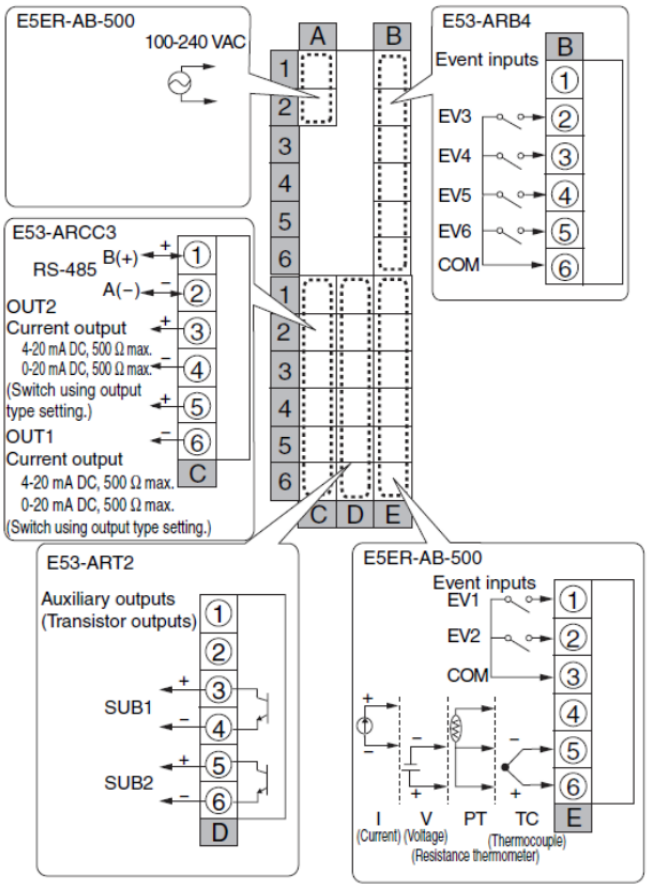


[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5ER-PRQ43F-FLK 100 to 240 VAC **Model E5ER-PRQ43F-FLK 24 VAC/DC**	**Model E5EC-PR4ASM-014** **Model E5EC-PR4DSM-014**
Model E5ER-CT3DB-FLK 100 to 240 VAC	**Model E5EC-CC4ASM-014**

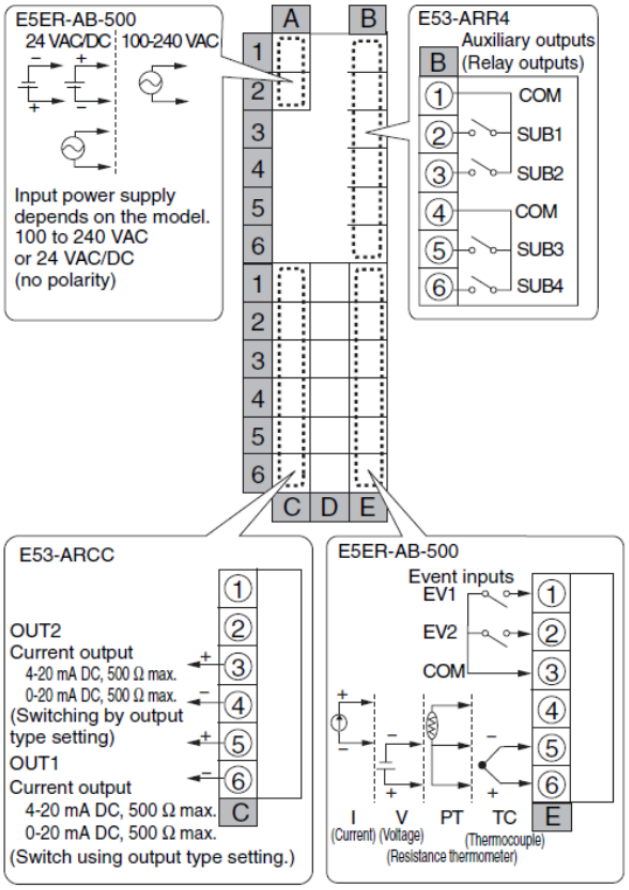


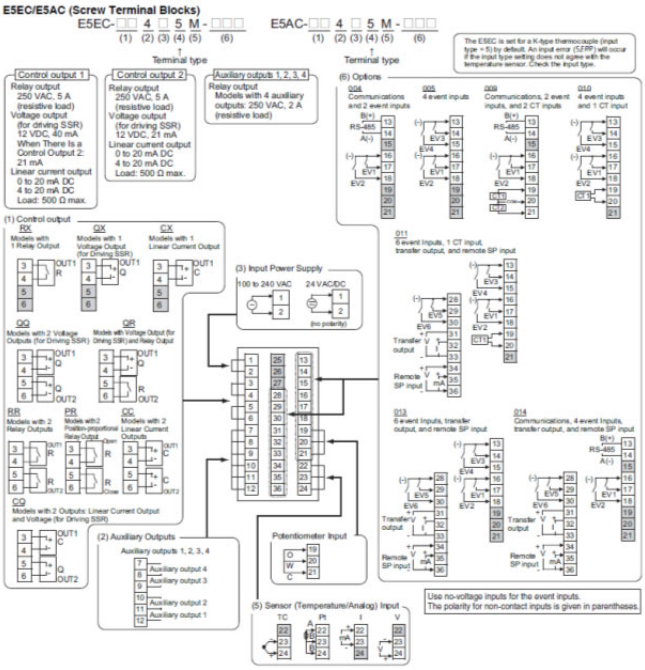


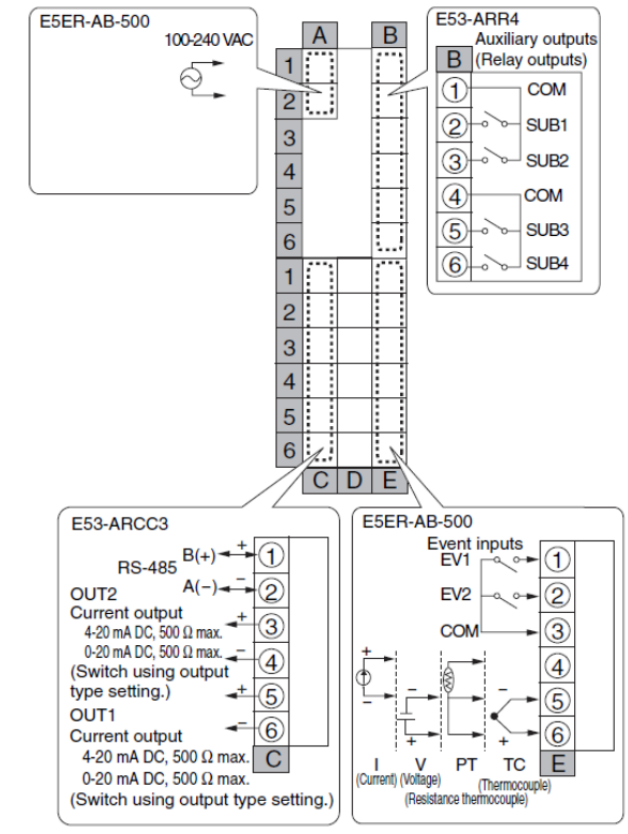


[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5ER-C4B 100 to 240 VAC **Model E5ER-C4B 24 VAC/DC**	**Model E5EC-CC4ASM-013** **Model E5EC-CC4DSM-013**
Model E5ER-C43B-FLK 100 to 240 VAC	**Model E5EC-CC4ASM-014**

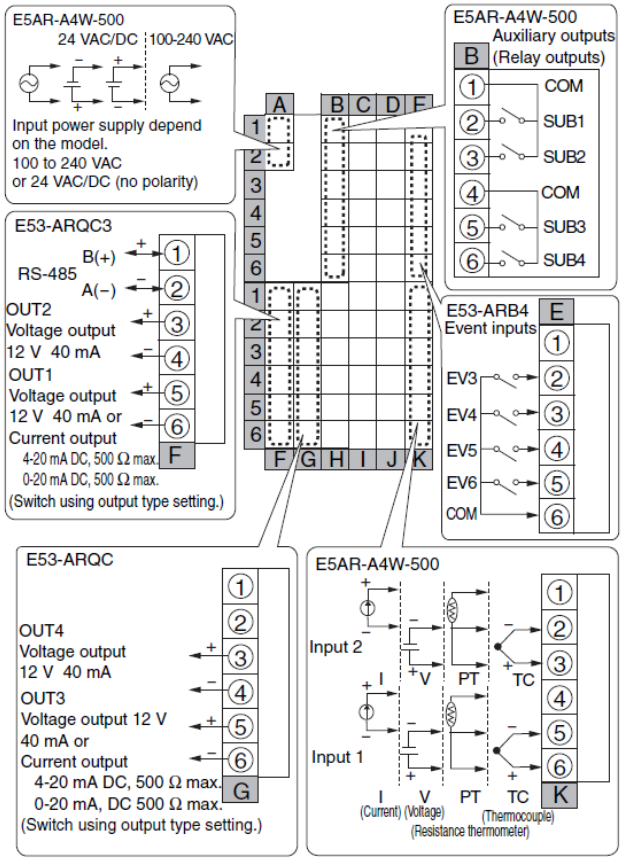


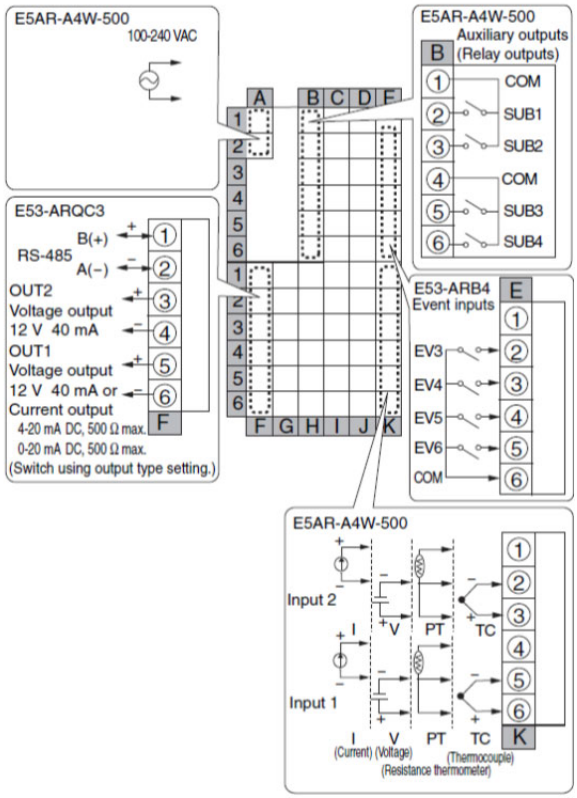


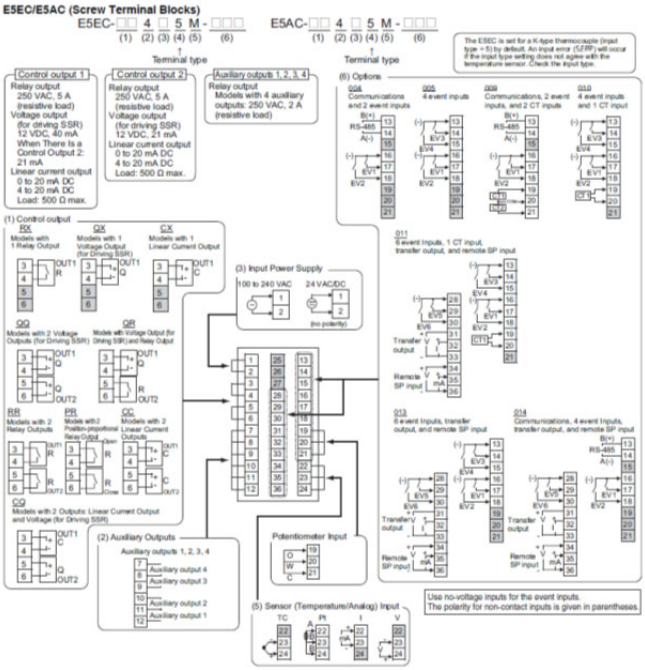


[Terminal arrangement／Wire connection]

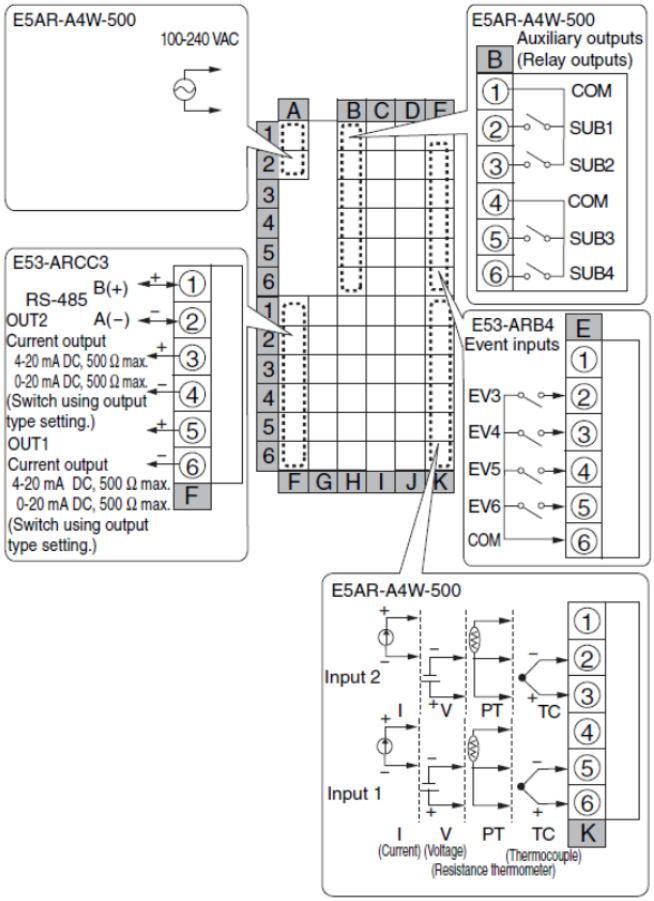
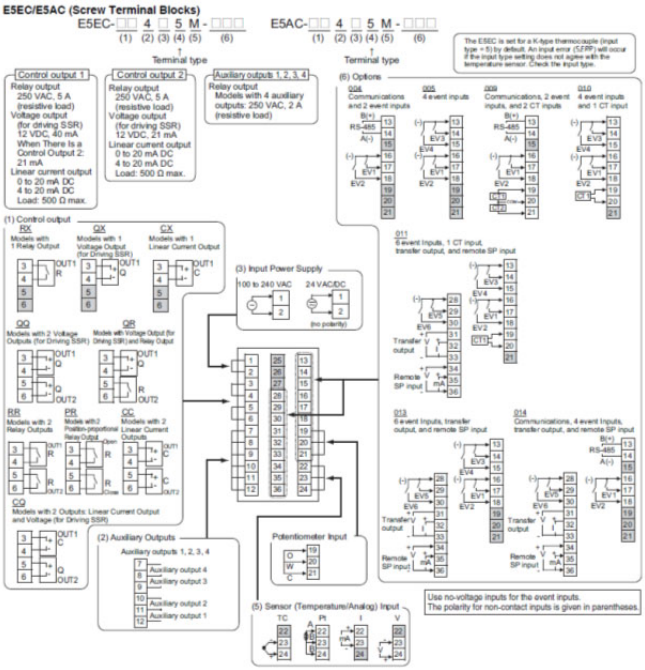
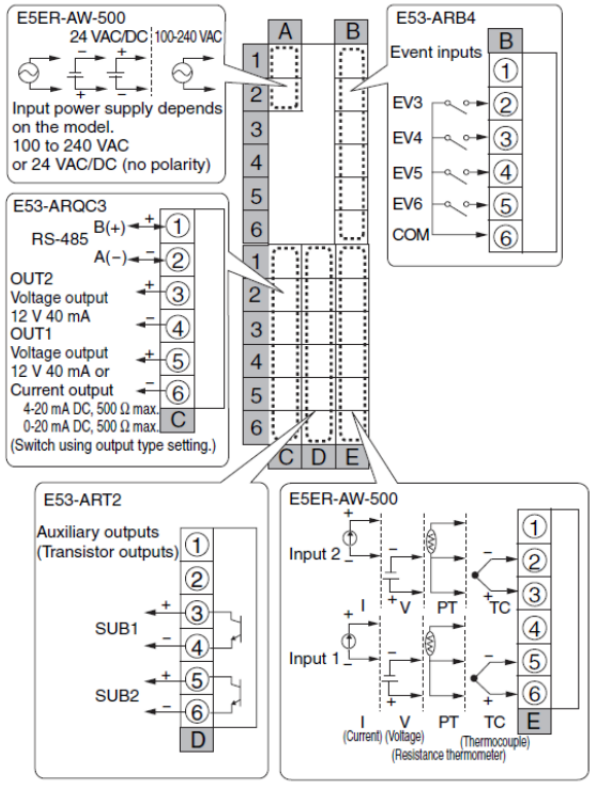
Product Discontinuation Model E5AR series (2 input type) Model E5ER series (2 input type)	Recommended replacement Model E5EC series
Model E5AR-QQ43DW-FLK 100 to 240 VAC **Model E5AR-QQ43DW-FLK 24 VAC/DC**	**Model E5EC-QQ4ASM-012** **Model E5EC-QQ4DSM-012**
Model E5AR-Q43DW-FLK 100 to 240 VAC	**Model E5EC-QQ4ASM-012**





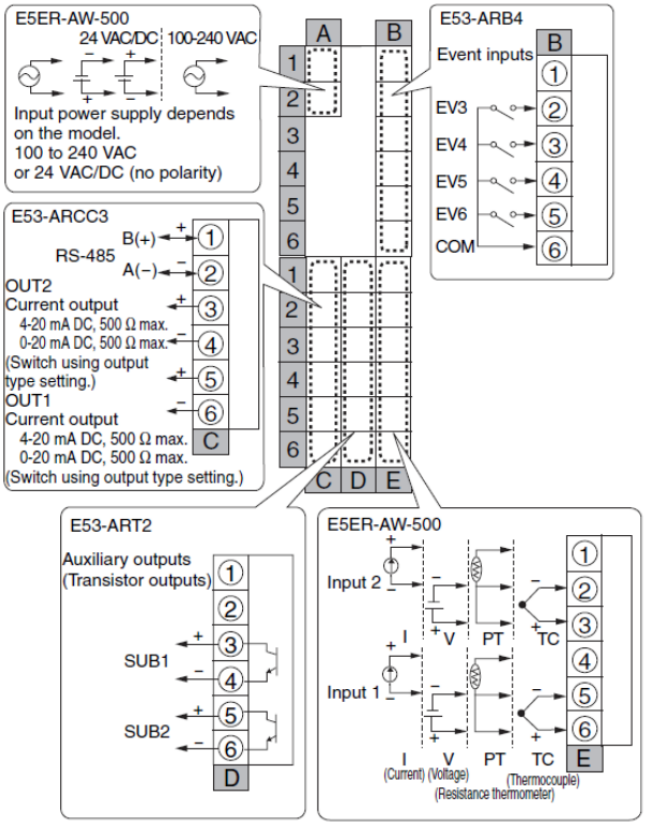


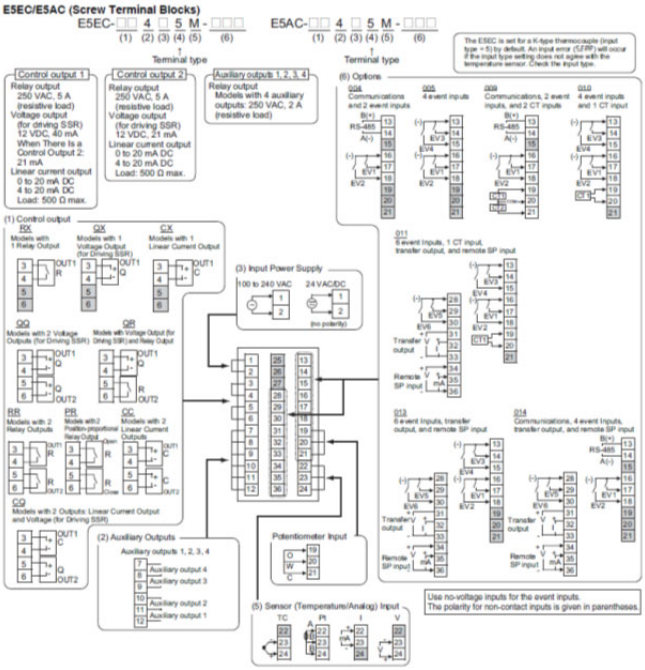
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5AR-C43DW-FLK 100 to 240 VAC 	**Model E5EC-CC4ASM-014** 
Model E5ER-QT3DW-FLK 100 to 240 VAC **Model E5ER-QT3DW-FLK 24 VAC/DC** 	**Model E5EC-QQ4ASM-012** **Model E5EC-QQ4DSM-012**

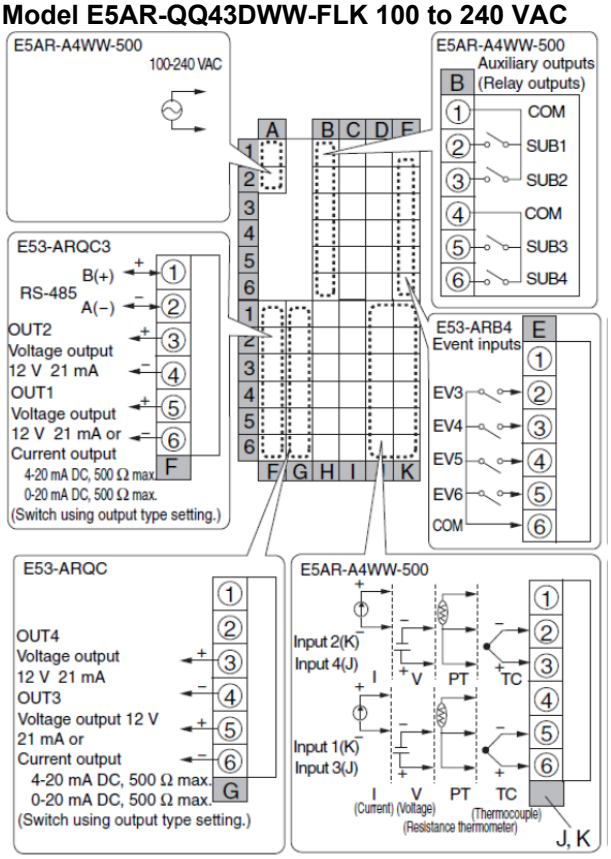
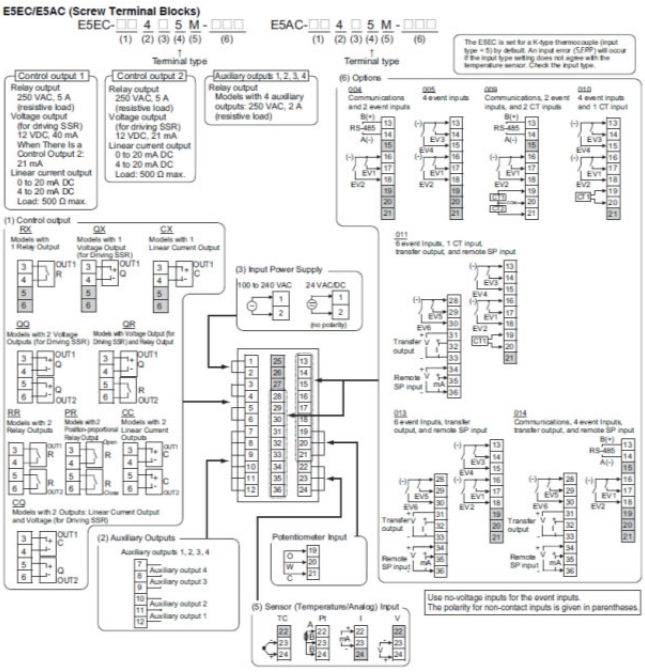
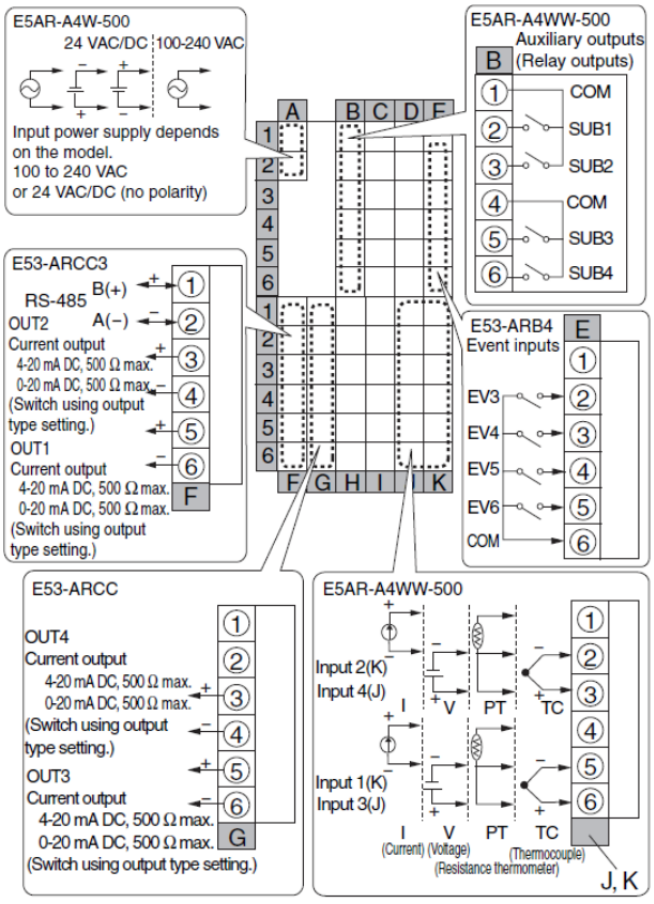
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR series (1 input type) Model E5ER series (1 input type)	Recommended replacement Model E5AC series, Model E5EC series
Model E5ER-CT3DW-FLK 100 to 240 VAC **Model E5ER-CT3DW-FLK 24 VAC/DC**	**Model E5EC-CC4ASM-014** **Model E5EC-CC4DSM-014**





[Terminal arrangement／Wire connection]

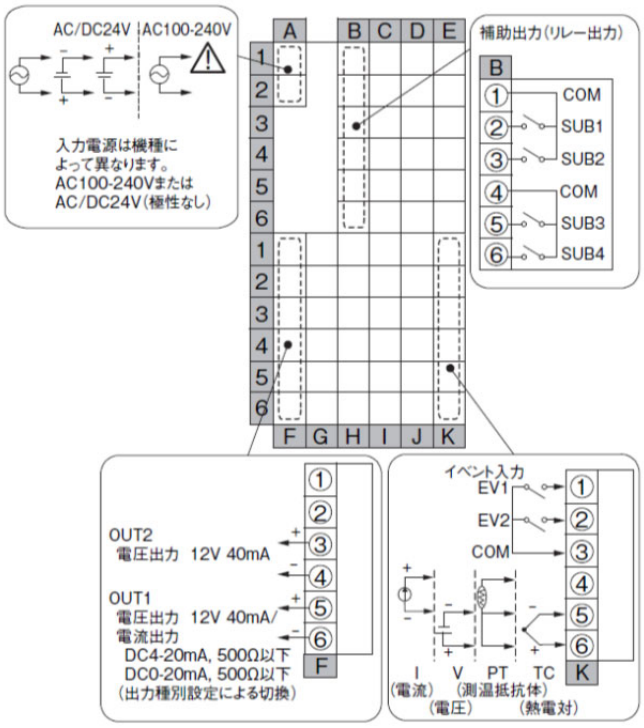
Product Discontinuation Model E5AR series (4 input type)	Recommended replacement Model E5EC series
Model E5AR-QQ43DWW-FLK 100 to 240 VAC	**Model E5EC-QQ4ASM-012**
	
Model E5AR-CC43DWW-FLK 100 to 240 VAC **Model E5AR-CC43DWW-FLK 24 VAC/DC**	**Model E5EC-CC4ASM-014** **Model E5EC-CC4DSM-014**
	

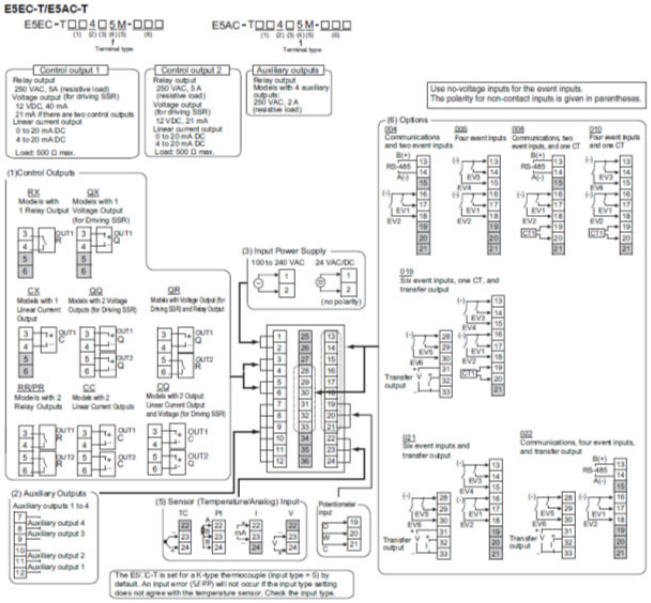
[Terminal arrangement／Wire connection]

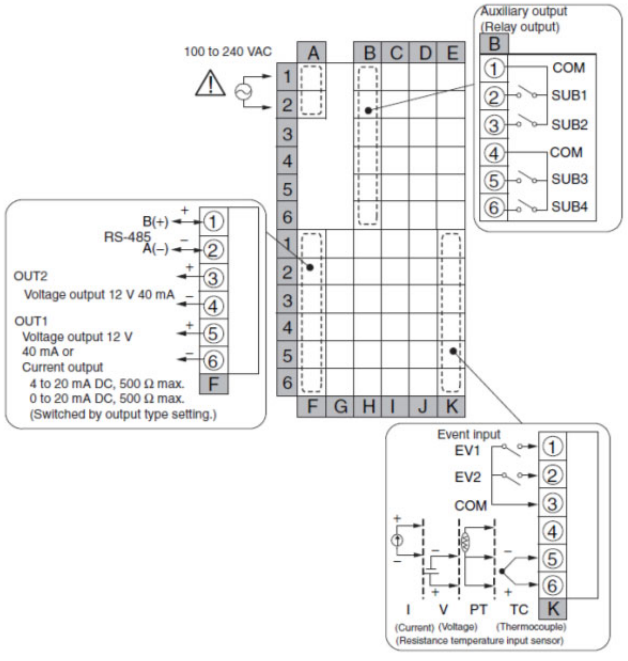
Product Discontinuation Model E5AR-T series (1 input type) Model E5ER-T series (1 input type)	Recommended replacement Model E5AC-T series Model E5EC-T series
Model E5AR-TQE3MB-FLK 100 to 240 VAC	**Model E5AC-TQQ4ASM-020**
Model E5AR-TQCE3MB-FLK 100 to 240 VAC **Model E5AR-TQCE3MB-FLK 24 VAC/DC**	**Model E5AC-TCQ4ASM-020** **or Model E5AC-TQQ4ASM-020** **or Model E5AC-TCC4ASM-022** **Model E5AC-TCQ4DSM-020** **or Model E5AC-TQQ4DSM-020** **or Model E5AC-TCC4DSM-022**

[Terminal arrangement／Wire connection]

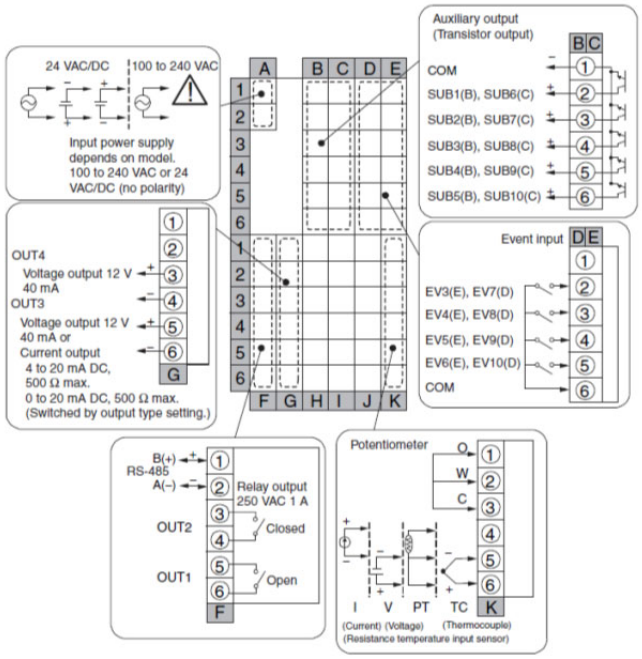
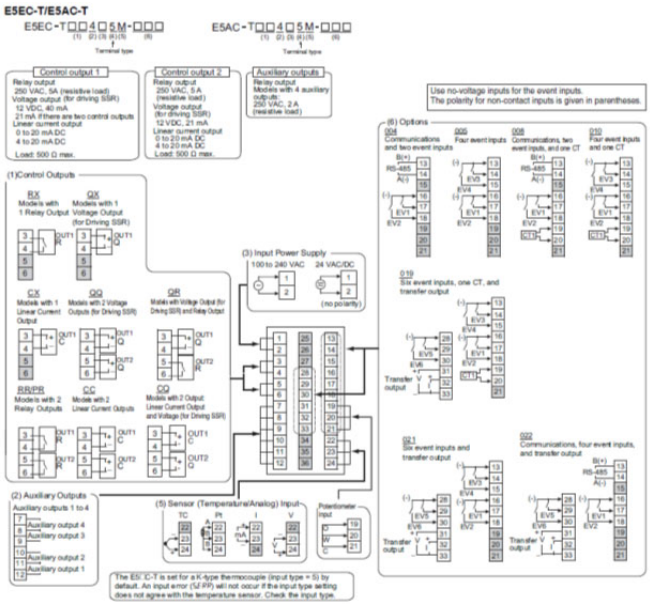
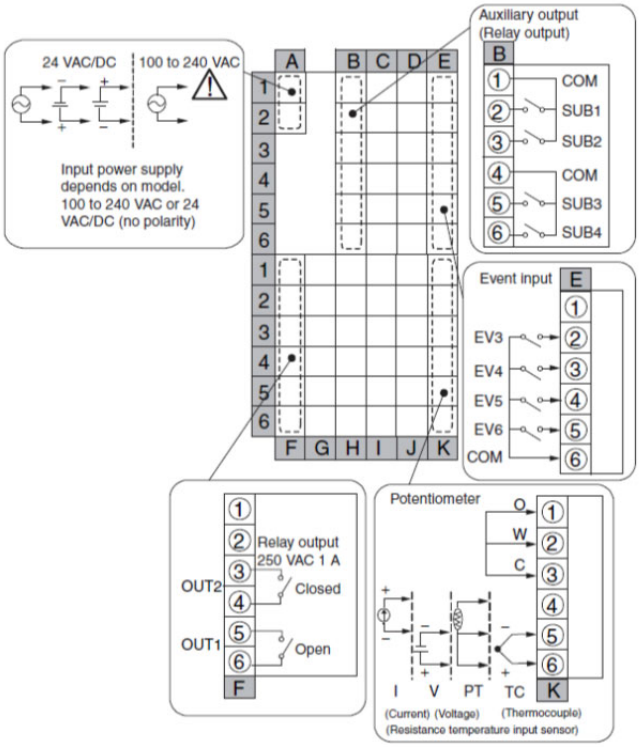
Product Discontinuation Model E5AR-T series (1 input type) Model E5ER-T series (1 input type)	Recommended replacement Model E5AC-T series Model E5EC-T series
Model E5AR-TQ4B 100 to 240 VAC **Model E5AR-TQ4B 24 VAC/DC**	**Model E5AC-TQQ4ASM-019** **Model E5AC-TQQ4DSM-019**
Model E5AR-TQ43B-FLK 100 to 240 VAC	**Model E5AC-TQQ4ASM-020**







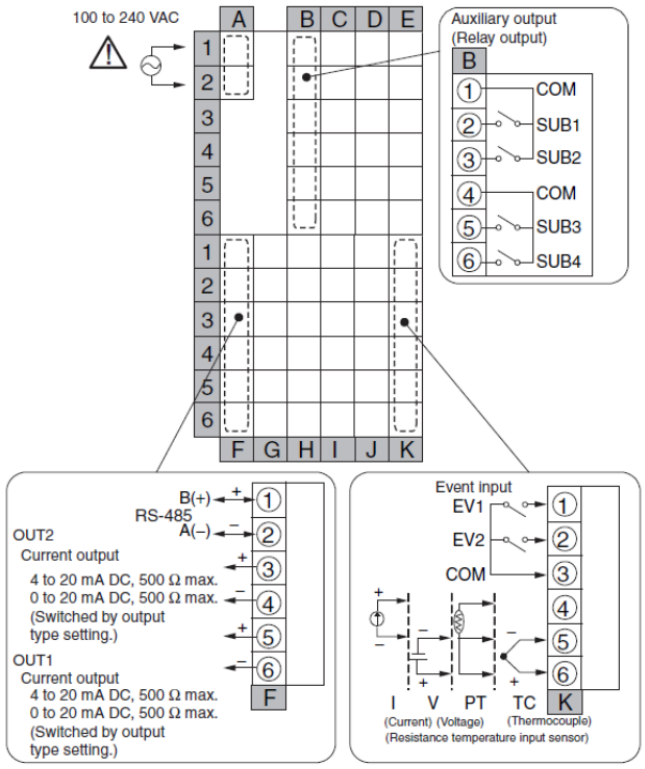
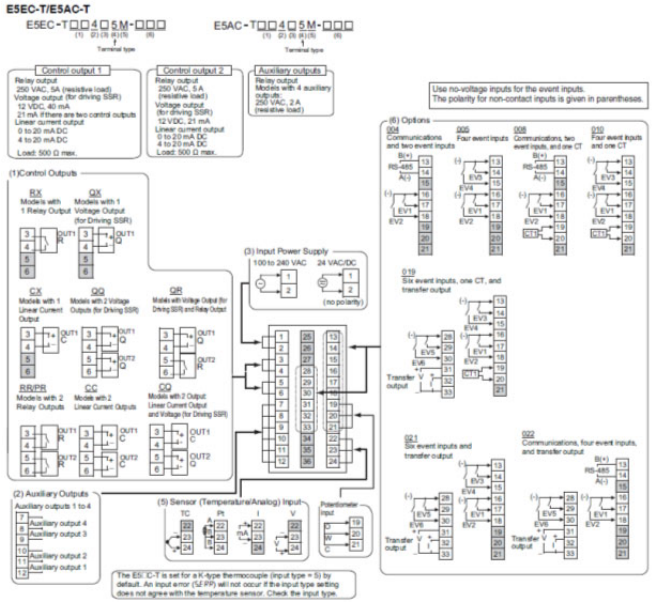
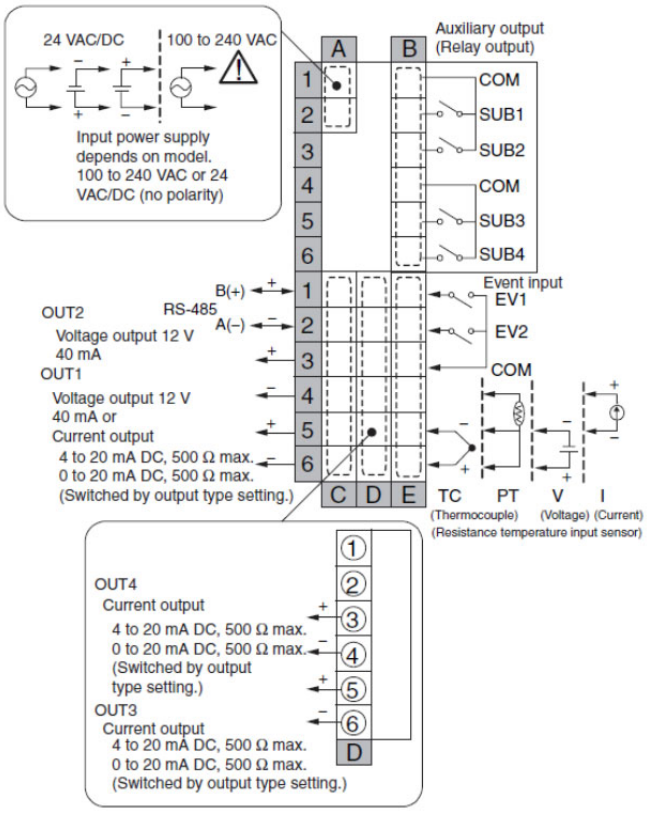
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR-T series (1 input type) Model E5ER-T series (1 input type)	Recommended replacement Model E5AC-T series Model E5EC-T series
Model E5AR-TPRQE3MF-FLK 100 to 240 VAC **Model E5AR-TPRQE3MF-FLK 24 VAC/DC** 	**Model E5AC-TPR4ASM-022** **Model E5AC-TPR4DSM-022** 
Model E5AR-TPR4DF 100 to 240 VAC **Model E5AR-TPR4DF 24 VAC/DC** 	**Model E5AC-TPR4ASM-022** **Model E5AC-TPR4DSM-022**

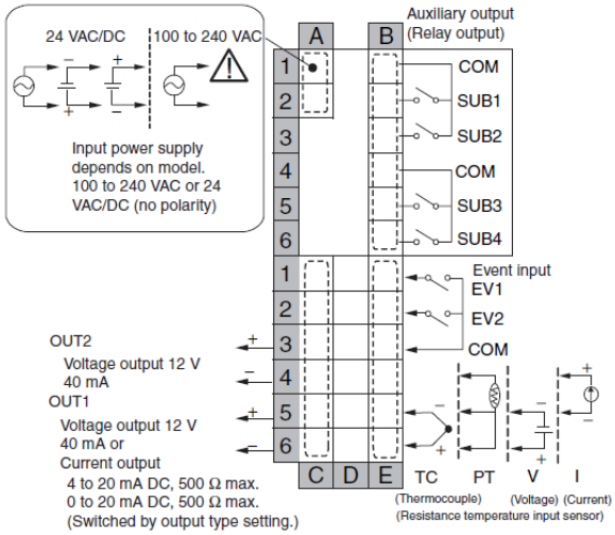
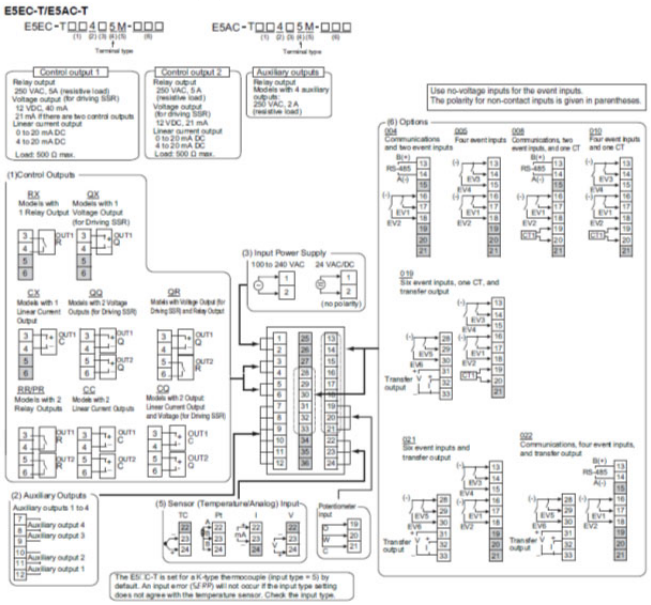
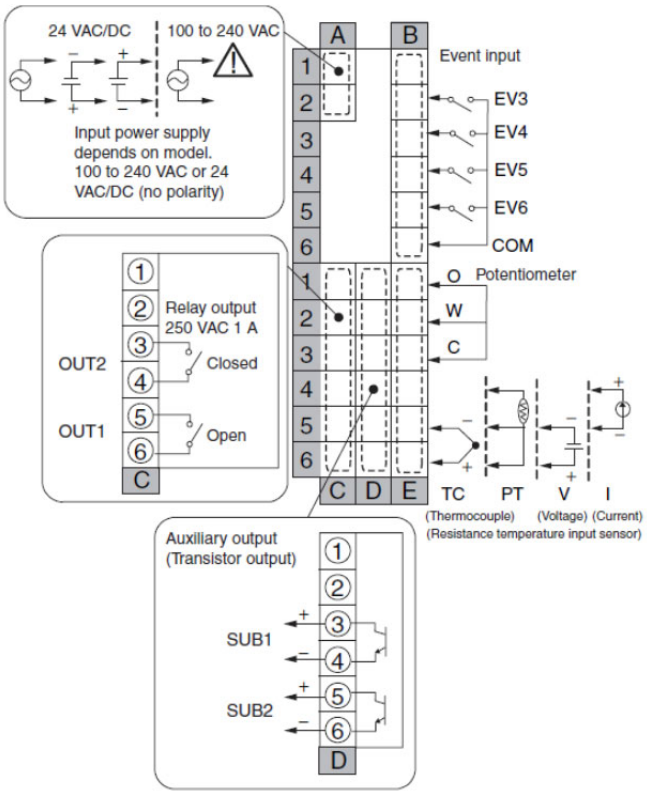
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR-T series (1 input type) Model E5ER-T series (1 input type)	Recommended replacement Model E5AC-T series Model E5EC-T series
Model E5AR-TCE3MB-FLK 100 to 240 VAC	**Model E5AC-TCC4ASM-022**
Model E5AR-TC4B 100 to 240 VAC **Model E5AR-TC4B 24 VAC/DC**	**Model E5AC-TCC4ASM-021** **Model E5AC-TCC4DSM-021**

[Terminal arrangement／Wire connection]

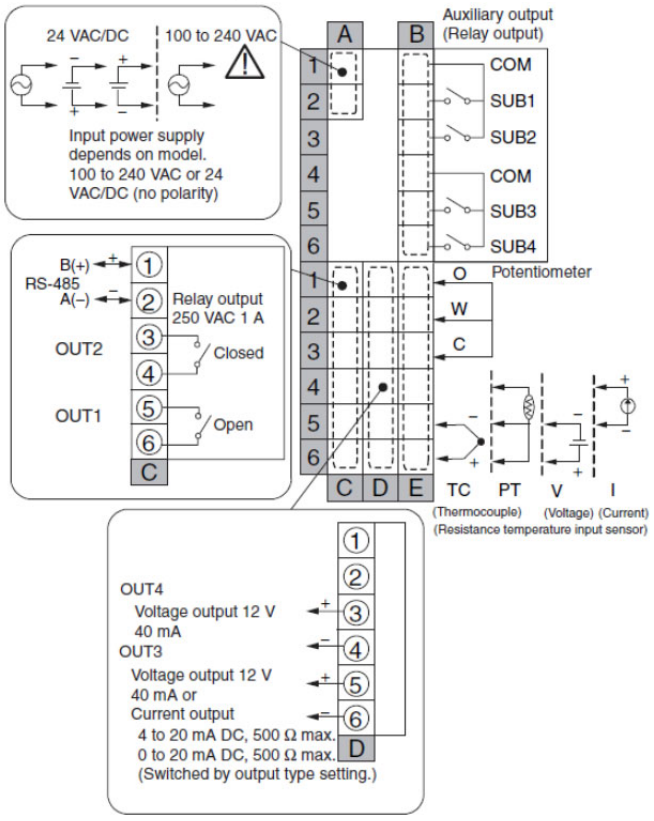
Product Discontinuation Model E5AR-T series (1 input type) Model E5ER-T series (1 input type)	Recommended replacement Model E5AC-T series Model E5EC-T series
Model E5AR-TC43B-FLK 100 to 240 VAC	**Model E5AC-TCC4ASM-022**
	
Model E5ER-TQC43B-FLK 100 to 240 VAC **Model E5ER-TQC43B-FLK 24 VAC/DC**	**Model E5EC-TCQ4ASM-020** **or Model E5EC-TQQ4ASM-020** **or Model E5EC-TCC4ASM-022** **Model E5EC-TCQ4DSM-020** **or Model E5EC-TQQ4DSM-020** **or Model E5EC-TCC4DSM-022**
	

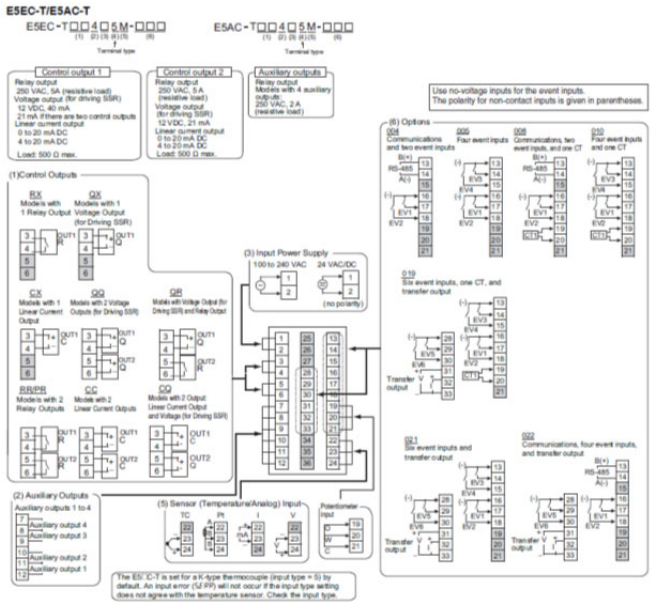
[Terminal arrangement／Wire connection]

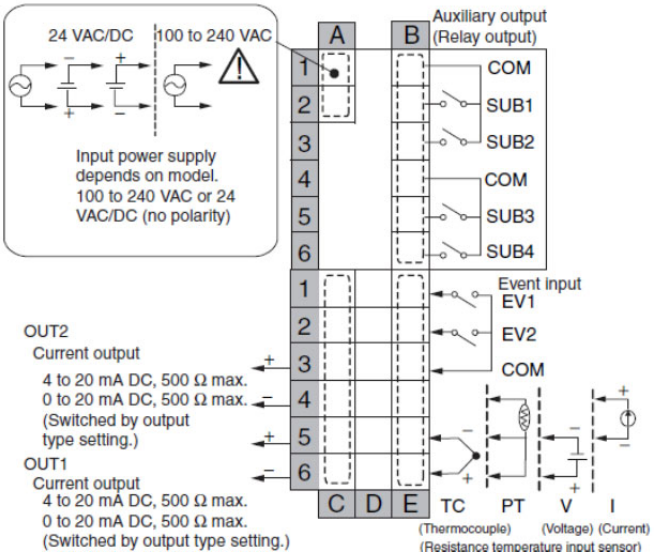
Product Discontinuation Model E5AR-T series (1 input type) Model E5ER-T series (1 input type)	Recommended replacement Model E5AC-T series Model E5EC-T series
Model E5ER-TQ4B 100 to 240 VAC **Model E5ER-TQ4B 24 VAC/DC** 	**Model E5EC-TQQ4ASM-019** **Model E5EC-TQQ4DSM-019** 
Model E5ER-TPRTDF 100 to 240 VAC **Model E5ER-TPRTDF 24 VAC/DC** 	**Model E5EC-TPR4ASM-022** **Model E5EC-TPR4DSM-022**

[Terminal arrangement／Wire connection]

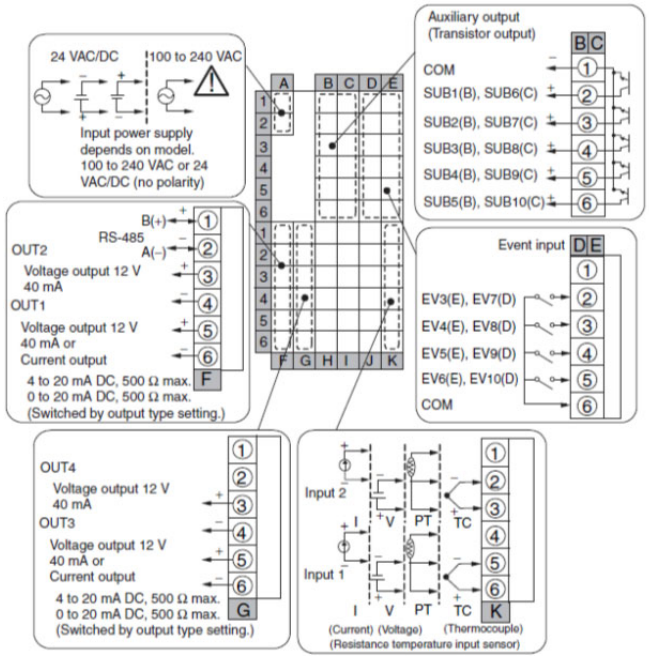
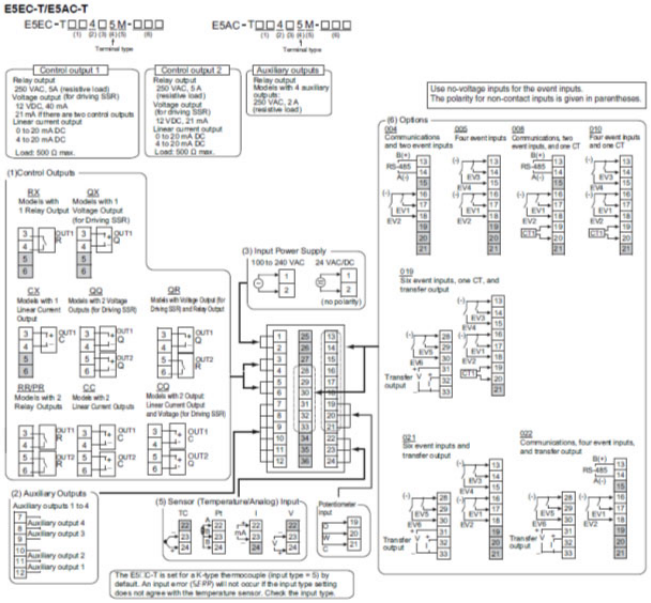
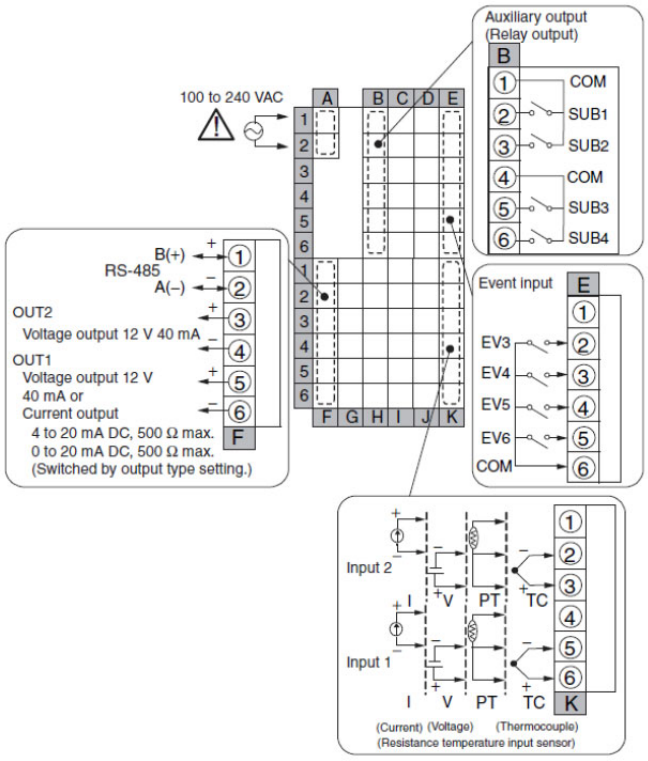
Product Discontinuation Model E5AR-T series (1 input type) Model E5ER-T series (1 input type)	Recommended replacement Model E5AC-T series Model E5EC-T series
Model E5ER-TPRQ43F-FLK 100 to 240 VAC **Model E5ER-TPRQ43F-FLK 24 VAC/DC**	**Model E5EC-TPR4ASM-022** **Model E5EC-TPR4DSM-022**
Model E5ER-TC4B 100 to 240 VAC **Model E5ER-TC4B 24 VAC/DC**	**Model E5EC-TCC4ASM-021** **Model E5EC-TCC4DSM-021**



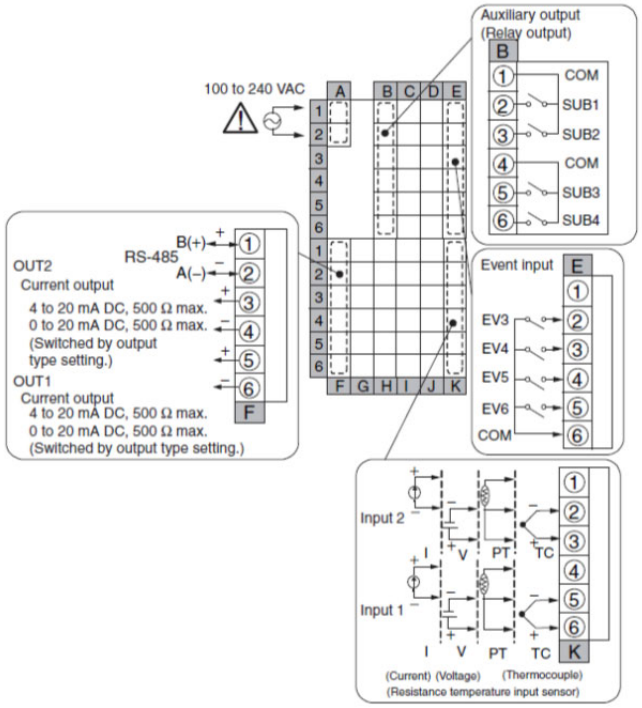
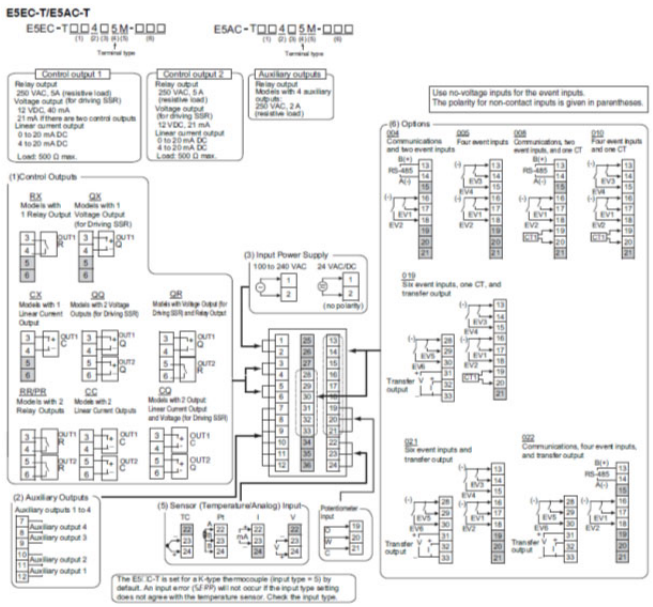
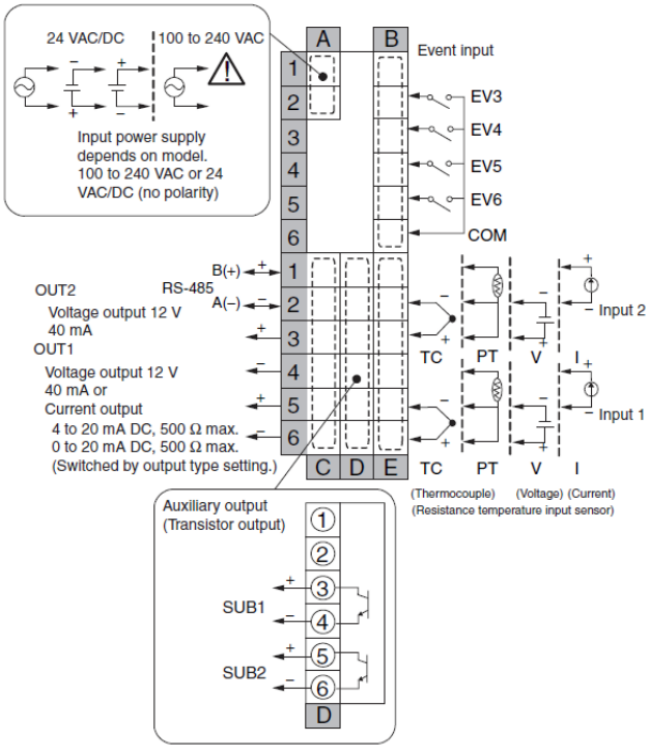




[Terminal arrangement／Wire connection]

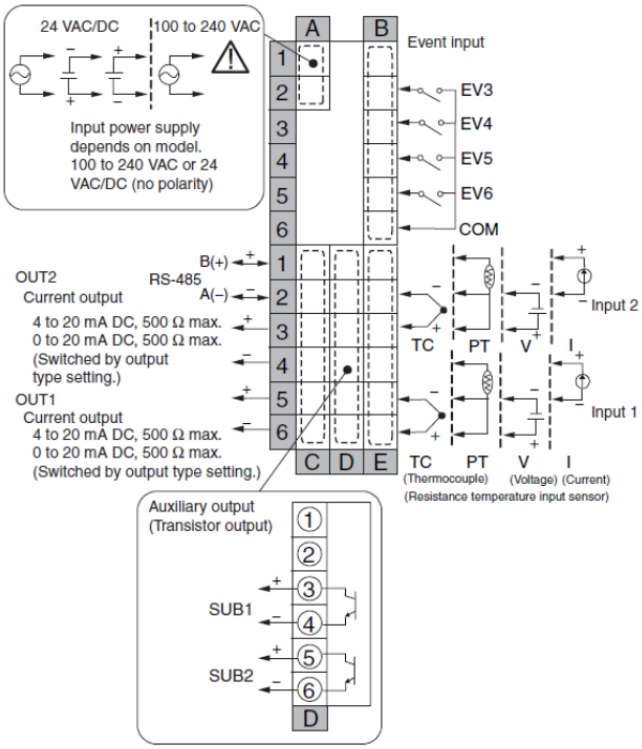
Product Discontinuation Model E5AR-T series (2 input type) Model E5ER-T series (2 input type)	Recommended replacement Model E5EC-T series
Model E5AR-TQQE3MW-FLK 100 to 240 VAC **Model E5AR-TQQE3MW-FLK 24 VAC/DC** 	**Model E5EC-TQQ4ASM-020** **Model E5EC-TQQ4DSM-020** 
Model E5AR-TQ43DW-FLK 100 to 240 VAC 	**Model E5EC-TQQ4ASM-020**

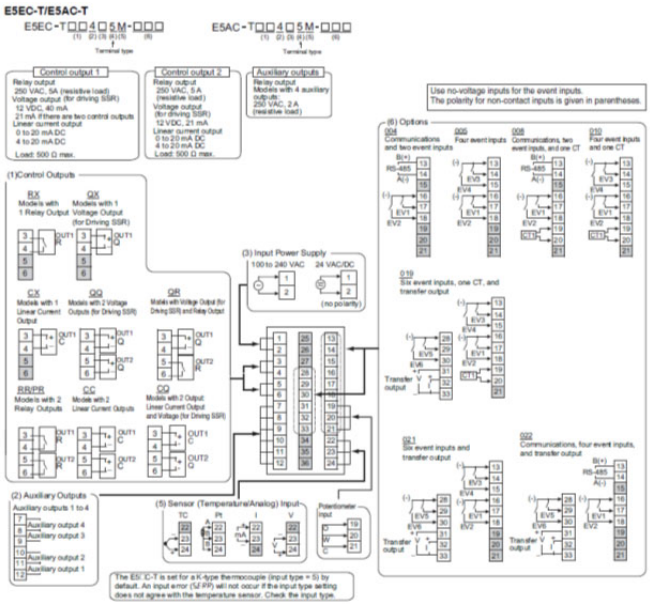
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR-T series (2 input type) Model E5ER-T series (2 input type)	Recommended replacement Model E5EC-T series
Model E5AR-TC43DW-FLK 100 to 240 VAC	**Model E5EC-TCC4ASM-020**
	
Model E5ER-TQT3DW-FLK 100 to 240 VAC **Model E5ER-TQT3DW-FLK 24 VAC/DC**	**Model E5EC-TQQ4ASM-020** **Model E5EC-TQQ4DSM-020**
	

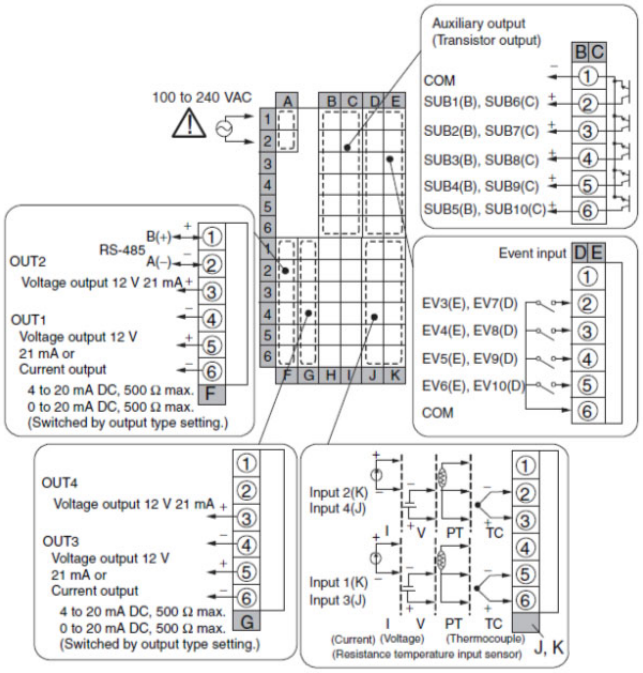
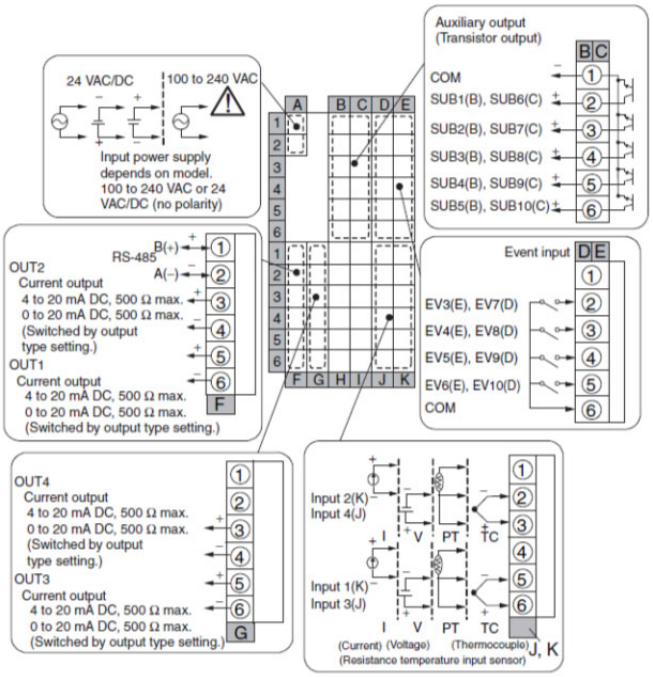
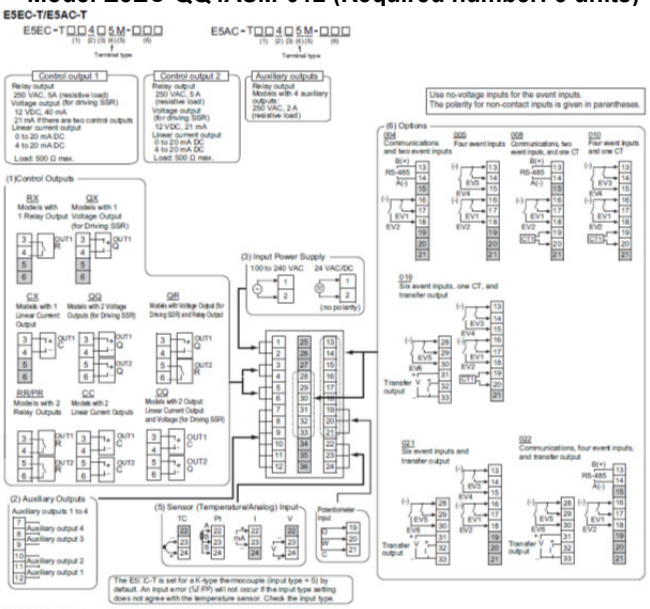
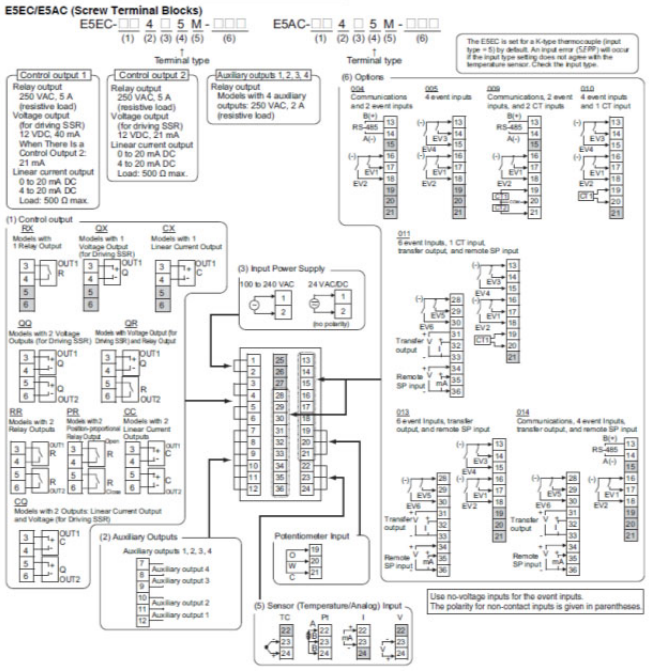
[Terminal arrangement／Wire connection]

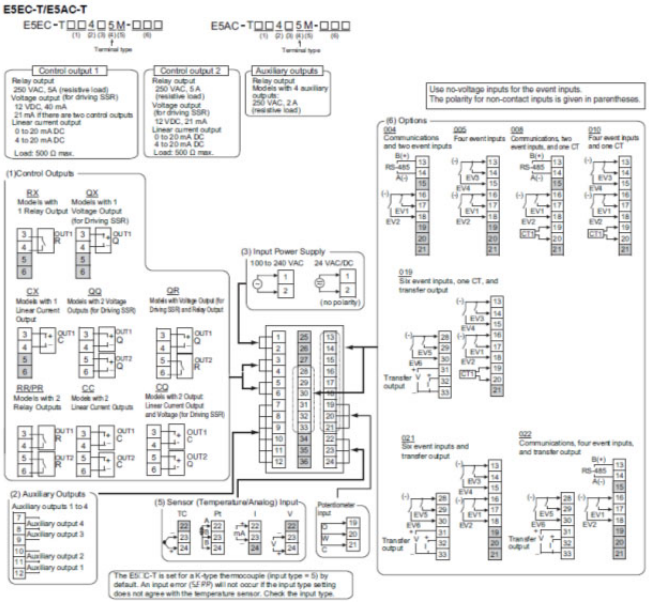
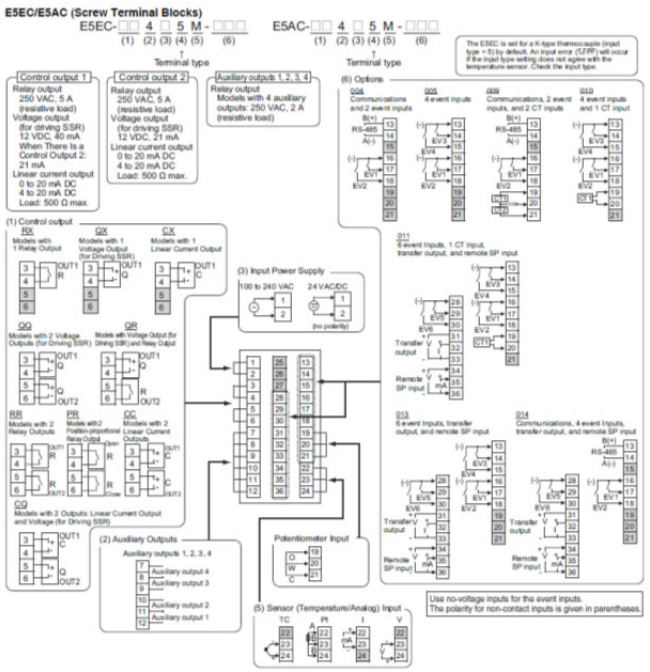
Product Discontinuation Model E5AR-T series (2 input type) Model E5ER-T series (2 input type)	Recommended replacement Model E5EC-T series
Model E5ER-TCT3DW-FLK 100 to 240 VAC **Model E5ER-TCT3DW-FLK 24 VAC/DC**	**Model E5EC-TCC4ASM-022** **Model E5EC-TCC4DSM-022**





[Terminal arrangement／Wire connection]

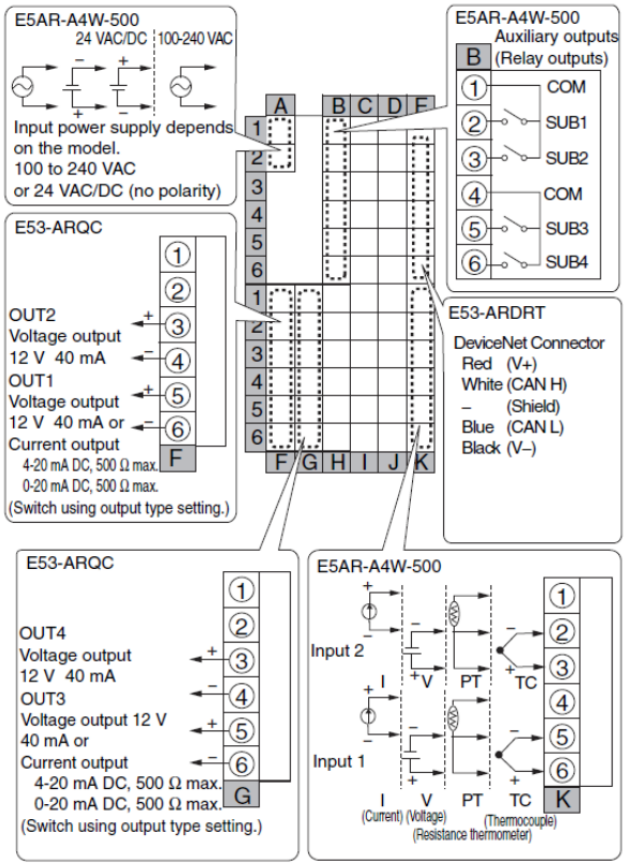
Product Discontinuation Model E5AR-T series (4 input type)	Recommended replacement Model E5EC-T series (1 Unit) + Model E5EC series (3 Units)
Model E5AR-TQQE3MWW-FLK 100 to 240 VAC  **Model E5AR-TCCE3MWW-FLK 100 to 240 VAC** **Model E5AR-TCCE3MWW-FLK 24 VAC/DC** 	**Model E5EC-TQQ4ASM-020 (Required number: 1 unit)** **+ Model E5EC-QQ4ASM-012 (Required number: 3 units)**   **Model E5EC-TCC4ASM-022(Required number: 1 unit)** **+ Model E5EC-CC4ASM-014(Required number: 3 units)** **Model E5EC-TCC4DSM-022(Required number: 1 unit)** **+ Model E5EC-CC4DSM-014(Required number: 3 units)** **Go to next page**

Product Discontinuation Model E5AR-T series (4 input type)	Recommended replacement Model E5EC-T series (1 Unit) + Model E5EC series (3 Units)
From previous page	 

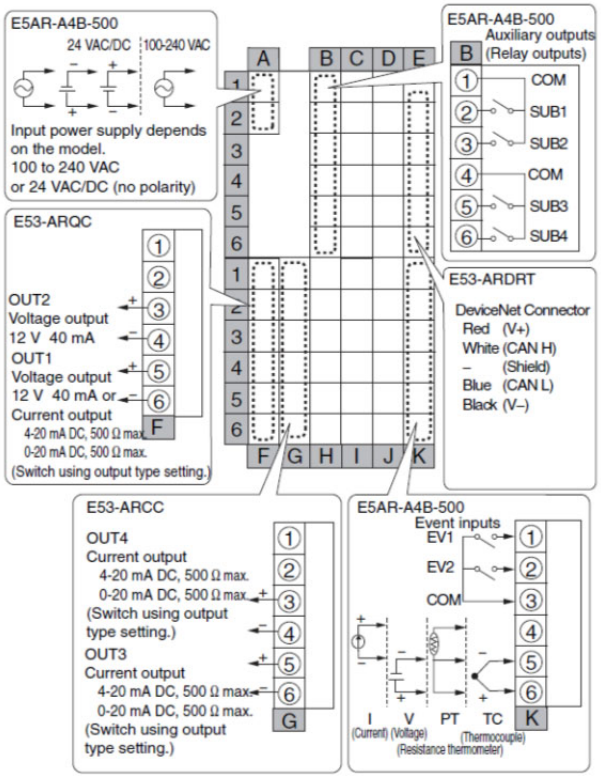
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR-DRT series (DeviceNet™) Model E5ER-DRT series (DeviceNet™)	Recommended replacement Model EJ1N-HFUB-DRT + Model EJ1N series

Model E5AR-QQ4W-DRT 100 to 240 VAC
Model E5AR-QQ4W-DRT 24 VAC/DC

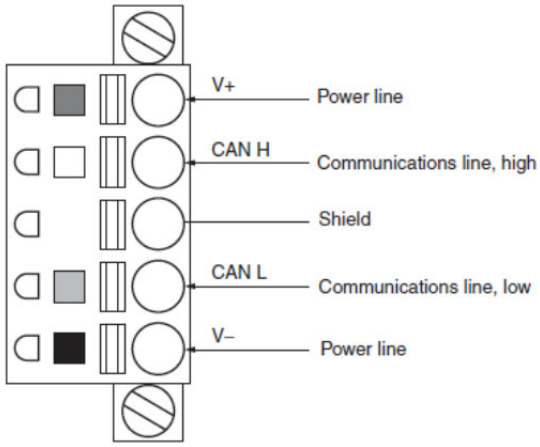


Model E5AR-QC4B-DRT 100 to 240 VAC
Model E5AR-QC4B-DRT 24 VAC/DC

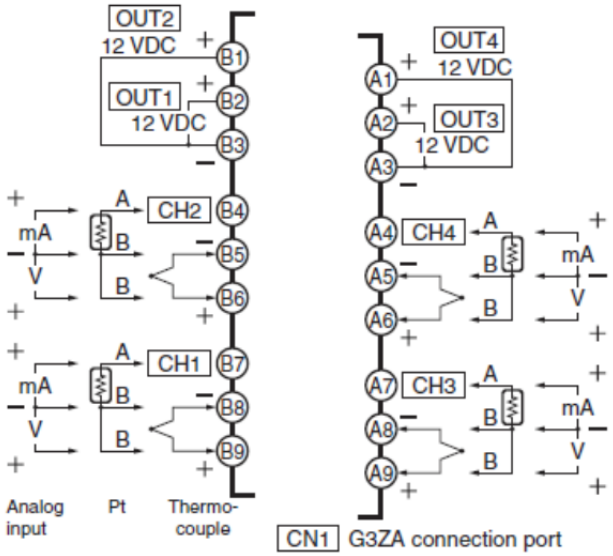


Model EJ1N-HFUB-DRT

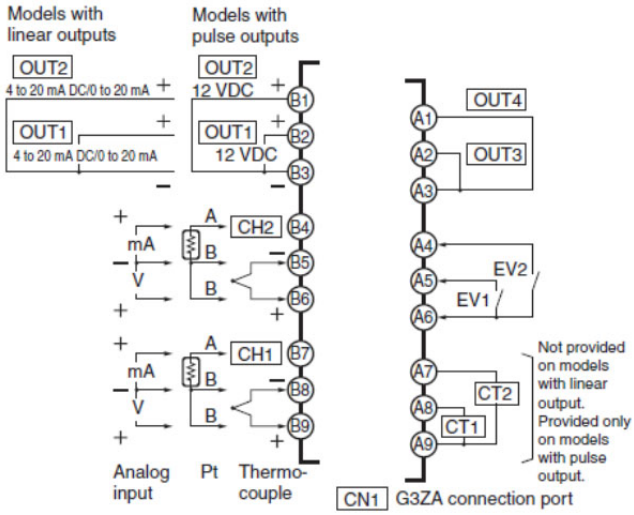
DeviceNet Connector



Model EJ1N-TC4A-QQ



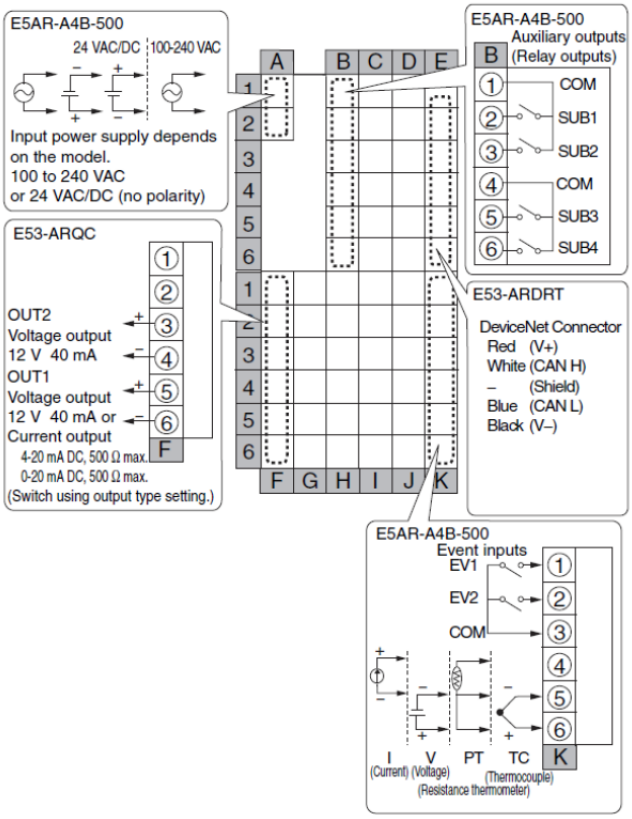
Model EJ1N-TC2A-QNHB
Model EJ1N-TC2A-CNB



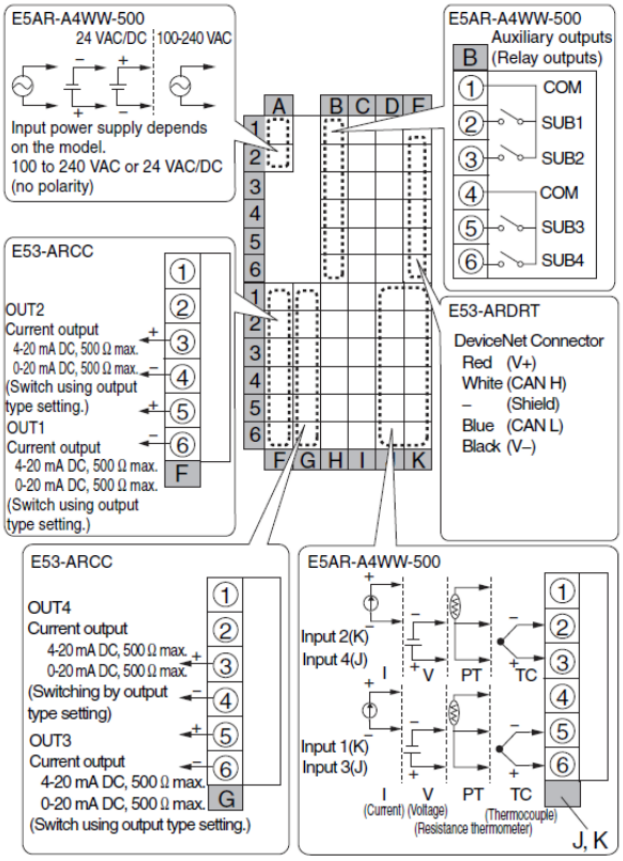
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR-DRT series (DeviceNet™) Model E5ER-DRT series (DeviceNet™)	Recommended replacement Model EJ1N-HFUB-DRT + Model EJ1N series

Model E5AR-Q4B-DRT 100 to 240 VAC
Model E5AR-Q4B-DRT 24 VAC/DC

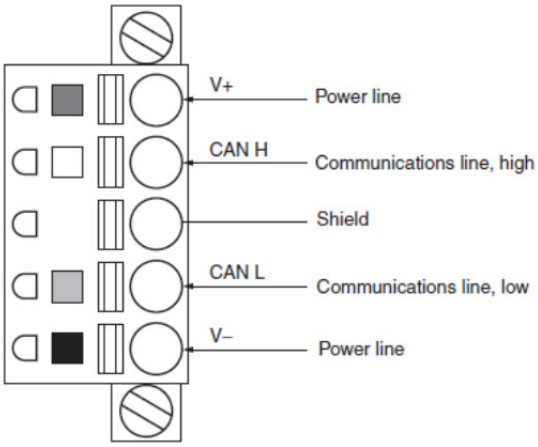


Model E5AR-CC4WW-DRT 100 to 240 VAC
Model E5AR-CC4WW-DRT 24 VAC/DC

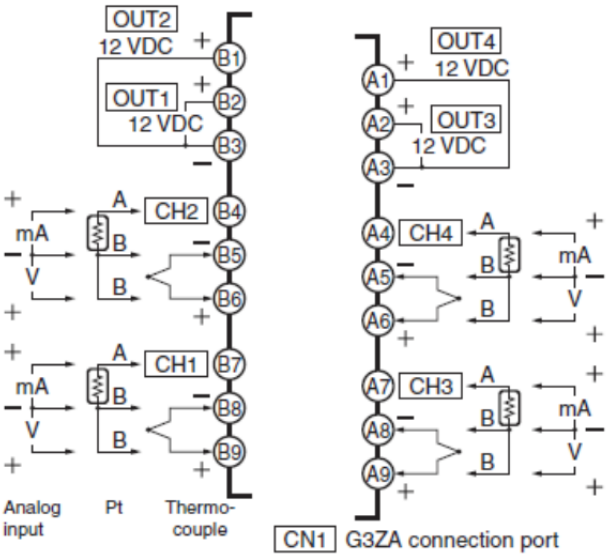


Model EJ1N-HFUB-DRT

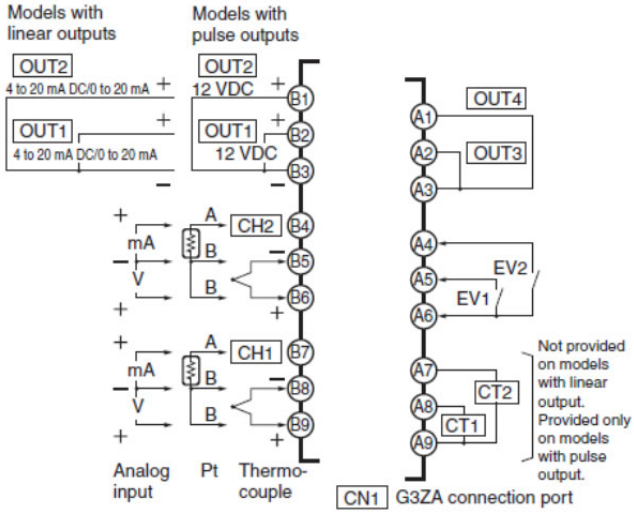
DeviceNet Connector



Model EJ1N-TC4A-QQ



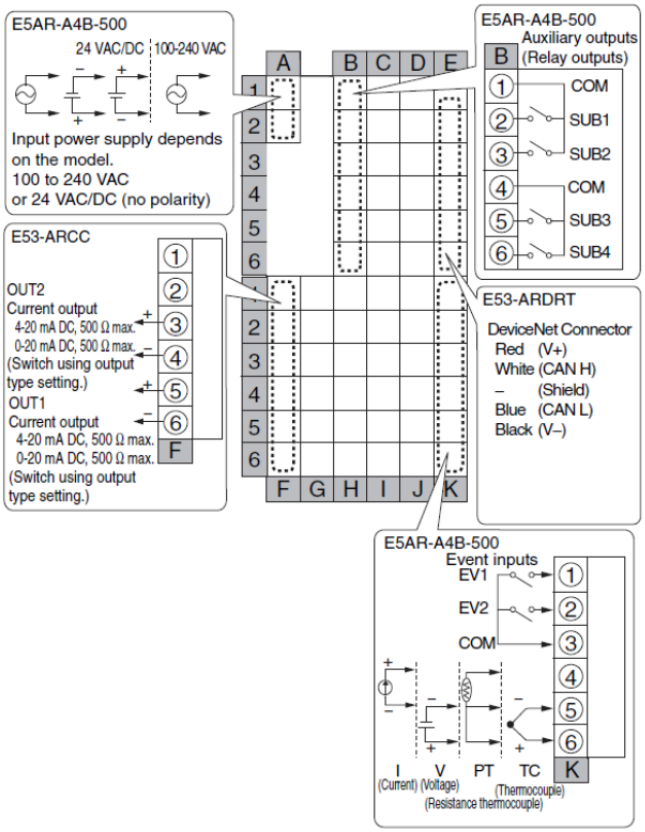
Model EJ1N-TC2A-QNHB
Model EJ1N-TC2A-CNB



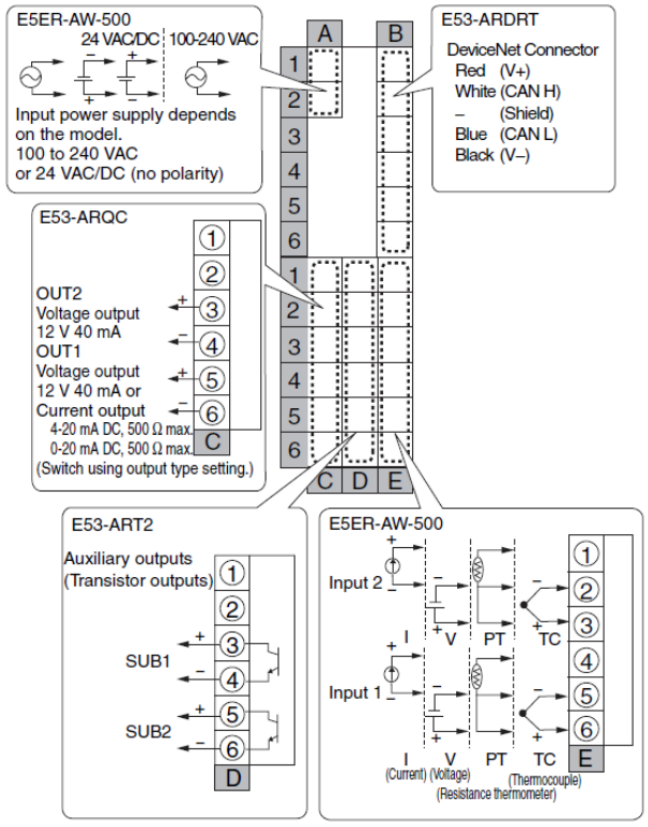
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR-DRT series (DeviceNet™) Model E5ER-DRT series (DeviceNet™)	Recommended replacement Model EJ1N-HFUB-DRT + Model EJ1N series

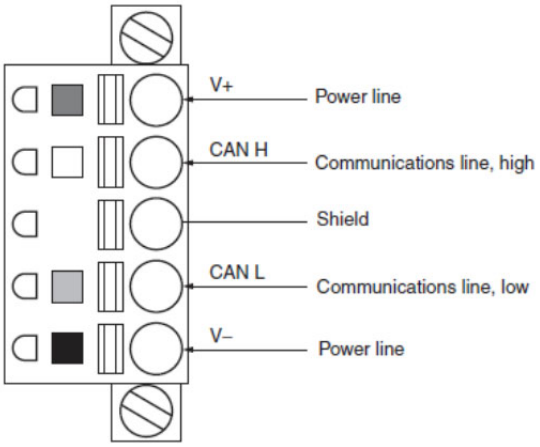
Model E5AR-C4B-DRT 100 to 240 VAC
Model E5AR-C4B-DRT 24 VAC/DC



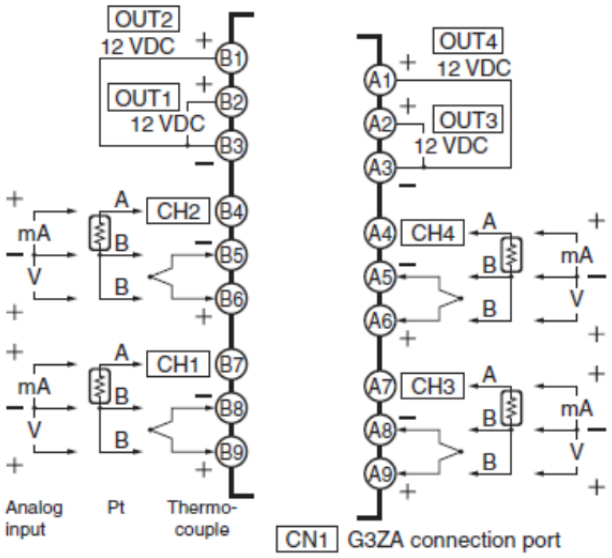
Model E5ER-QTW-DRT 100 to 240 VAC
Model E5ER-QTW-DRT 24 VAC/DCV



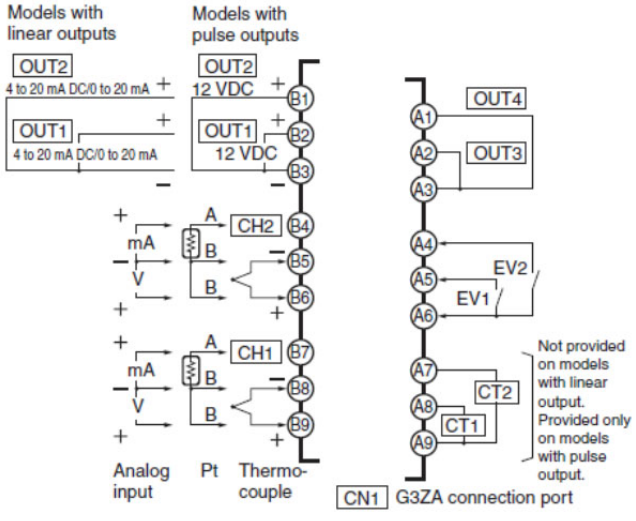
Model EJ1N-HFUB-DRT
DeviceNet Connector



Model EJ1N-TC4A-QQ



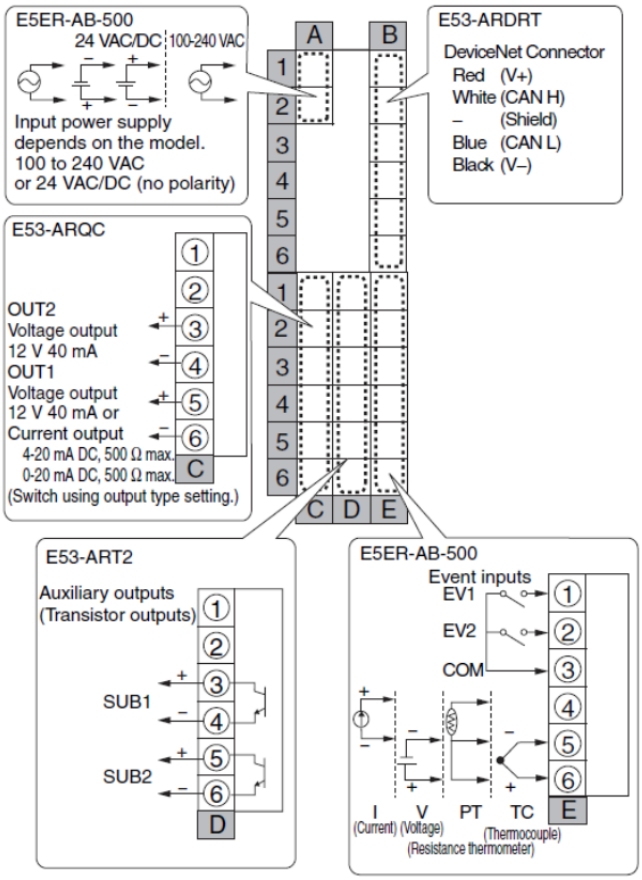
Model EJ1N-TC2A-QNHB
Model EJ1N-TC2A-CNB



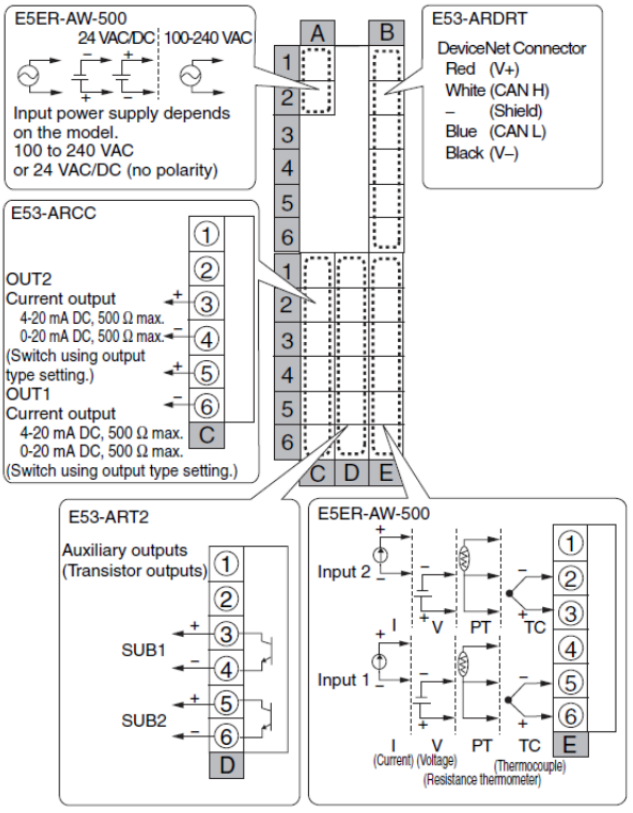
[Terminal arrangement／Wire connection]

Product Discontinuation Model E5AR-DRT series (DeviceNet™) Model E5ER-DRT series (DeviceNet™)	Recommended replacement Model EJ1N-HFUB-DRT + Model EJ1N series

Model E5ER-QTB-DRT 100 to 240 VAC
Model E5ER-QTB-DRT 24 VAC/DCV

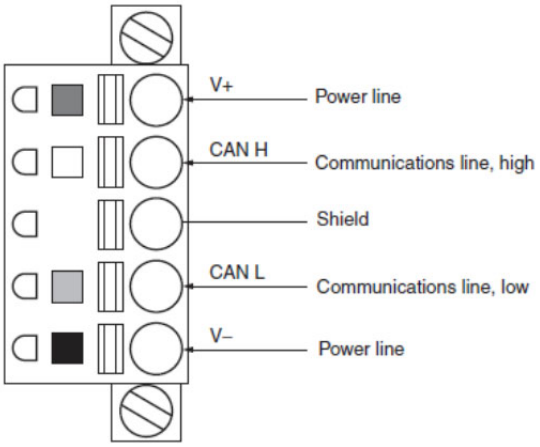


Model E5ER-CTW-DRT 100 to 240 VAC
Model E5ER-CTW-DRT 24 VAC/DCV

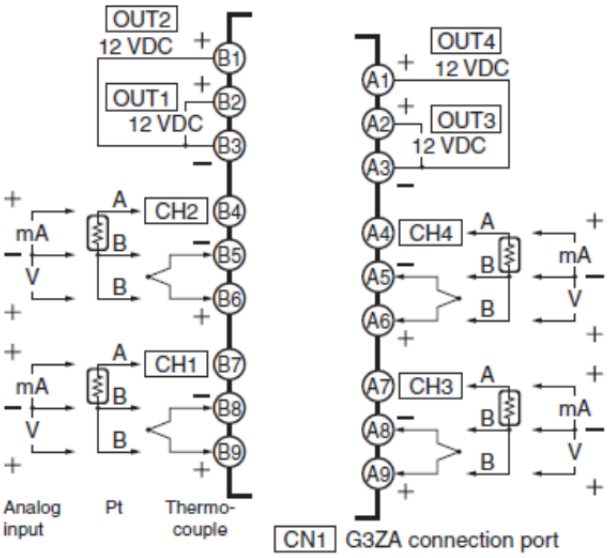


Model EJ1N-HFUB-DRT

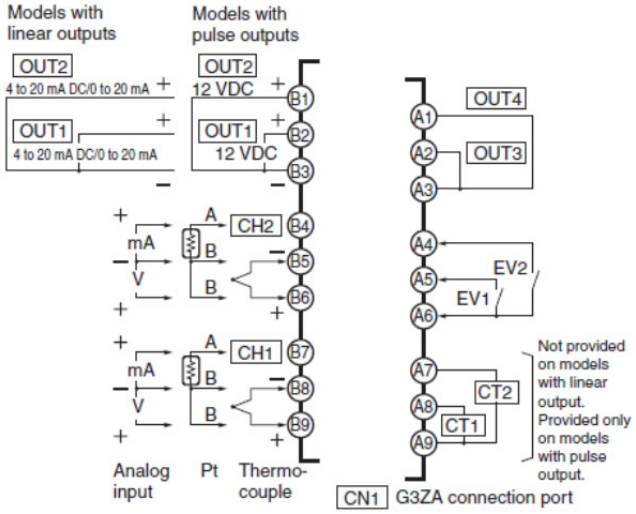
DeviceNet Connector



Model EJ1N-TC4A-QQ



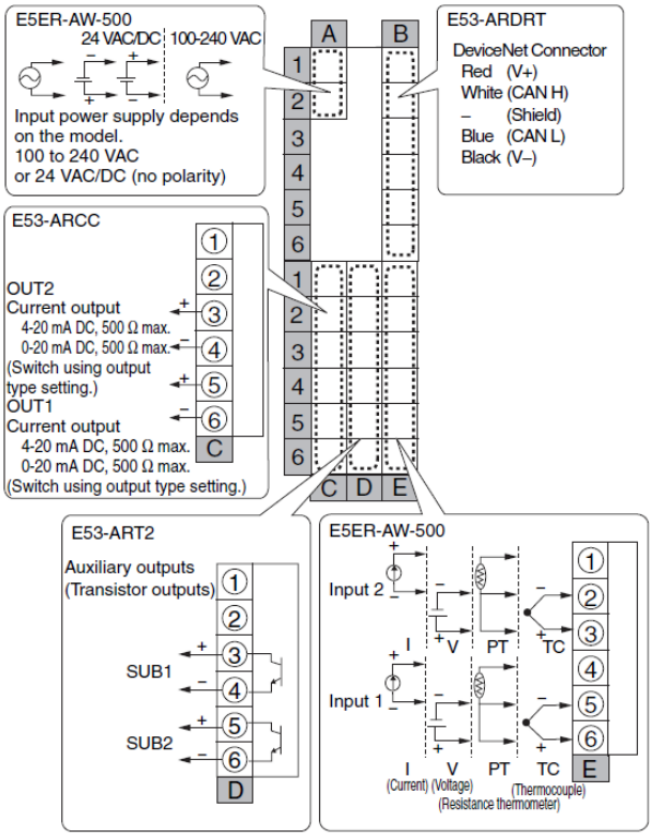
Model EJ1N-TC2A-QNHB
Model EJ1N-TC2A-CNB



[Terminal arrangement／Wire connection]

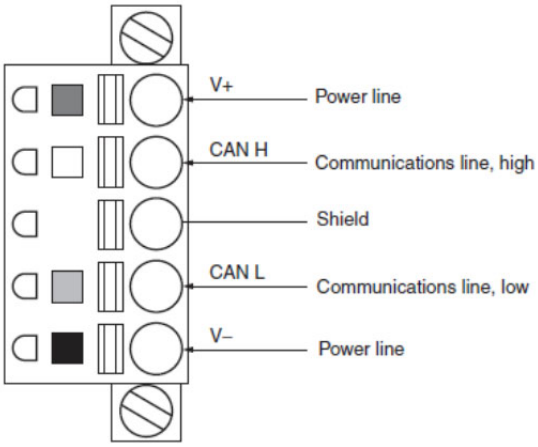
Product Discontinuation Model E5AR-DRT series (DeviceNet™) Model E5ER-DRT series (DeviceNet™)	Recommended replacement Model EJ1N-HFUB-DRT + Model EJ1N series

Model E5ER-CTB-DRT 100 to 240 VAC
Model E5ER-CTB-DRT 24 VAC/DCV

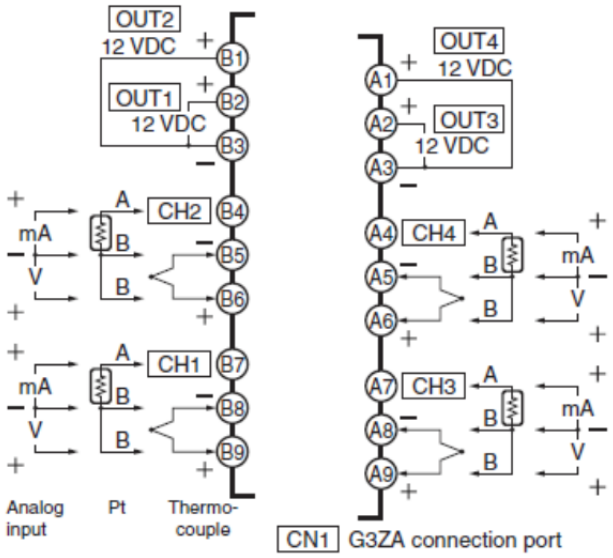


Model EJ1N-HFUB-DRT

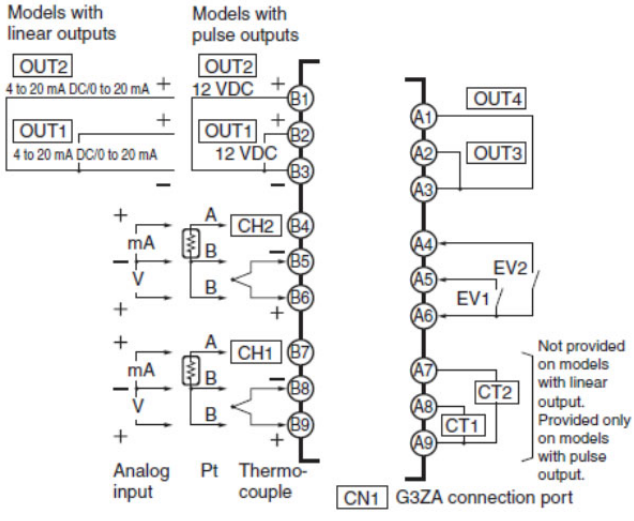
DeviceNet Connector



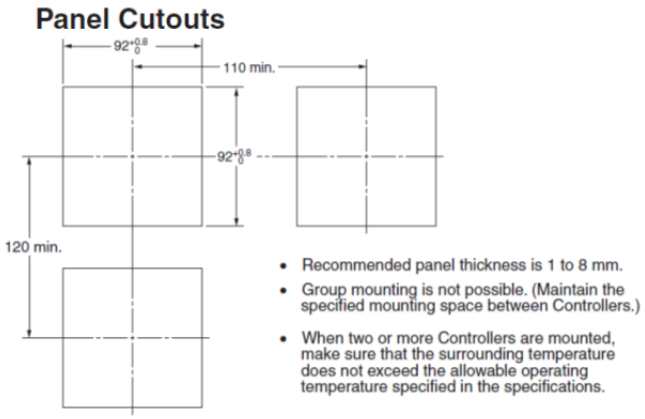
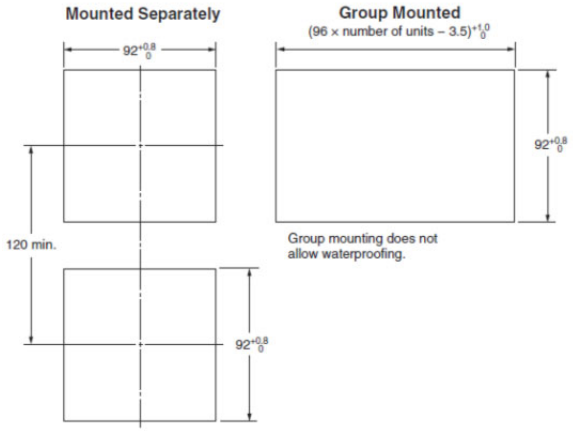
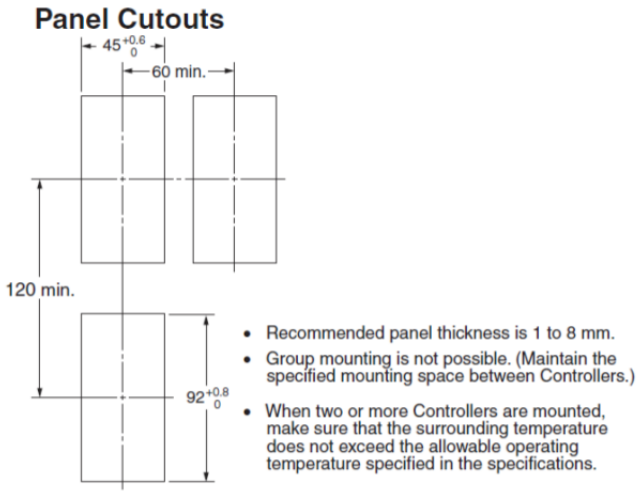
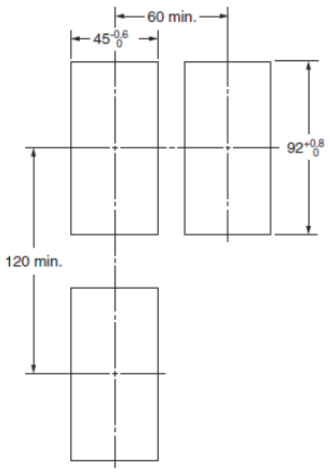
Model EJ1N-TC4A-QQ



Model EJ1N-TC2A-QNHB
Model EJ1N-TC2A-CNB



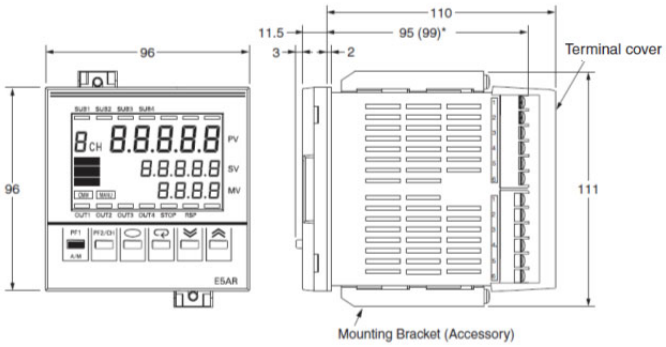
[Dimensions]

Product Discontinuation Model E5AR series, Model E5AR-T series, Model E5AR-DRT series Model E5ER series, Model E5ER-T series, Model E5ER-DRT series	Recommended replacement Model E5AC series, Model E5AC-T series, Model E5EC series, Model E5EC-T series, Model EJ1 series
Model E5AR series, Model E5AR-T series, Model E5AR-DRT series  	**Model E5AC series, Model E5AC-T series** 
Model E5ER series, Model E5ER-T series, Model E5ER-DRT series  	**Model E5EC series, Model E5EC-T series** The following dimensions are for 1 unit. In the case of 2 input or 4 input type, please consider the required number of the units.  **Model EJ1 series** **Mount to DIN rail**

[Dimensions]

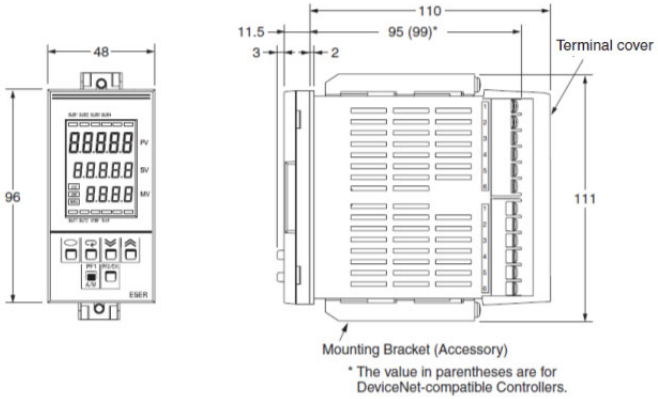
Product Discontinuation Model E5AR series, Model E5AR-T series, Model E5AR-DRT series Model E5ER series, Model E5ER-T series, Model E5ER-DRT series	Recommended replacement Model E5AC series, Model E5AC-T series, Model E5EC series, Model E5EC-T series, Model EJ1 series

Model E5AR series, Model E5AR-T series, Model E5AR-DRT series



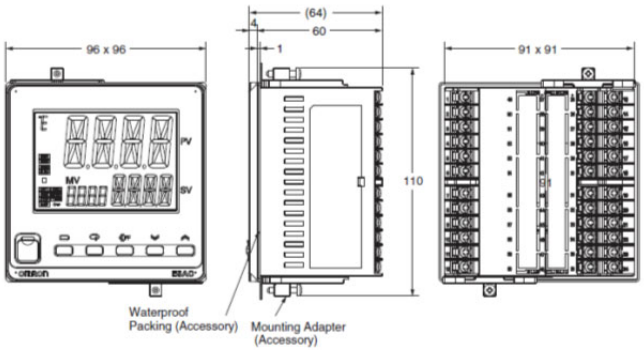
* The value in parentheses is in the case of DeviceNet™ type.

Model E5ER series, Model E5ER-T series, Model E5ER-DRT series

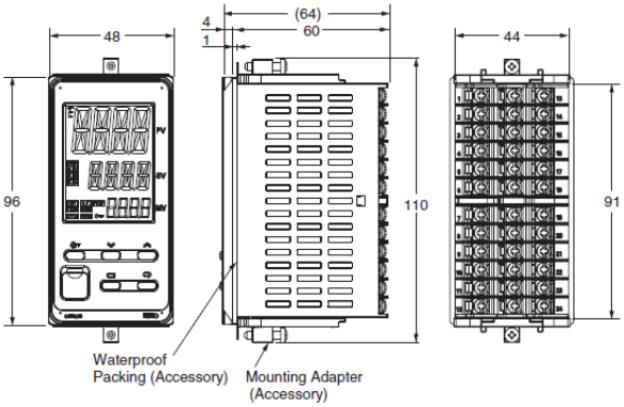


* The value in parentheses is in the case of DeviceNet™ type.

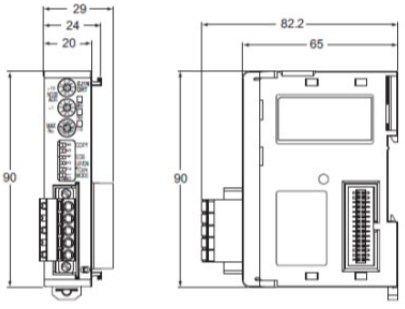
Model E5AC series, Model E5AC-T series



Model E5EC series, Model E5EC-T series



Model EJ1N-HFUB-DRT



Model EJ1N series

[Rating／Characteristics] (Product Discontinuation)

Item		Product Discontinuation Model E5AR series, Model E5AR-T series, Model E5AR-DRT series	
Supply voltage		100 to 240 VAC 50/60 Hz	24 VAC 50/60 Hz
Operating voltage range		85 to 110% of rated supply voltage	
Power consumption		22 VA max. (with maximum load)	15 VA/10 W max. (with maximum load)
Sensor input		Thermocouple: K, J, T, E, L, U, N, R, S, B, W Platinum resistance thermometer: Pt100 Current input: 4 to 20 mA DC, 0 to 20 mA DC (including remote SP input) Voltage input: 1 to 5 VDC, 0 to 5 VDC, 0 to 10 VDC (including remote SP input) (Input impedance: 150Ω for current input, approx. 1 MΩ for voltage input)	
Control output	**Voltage (pulse) output**	12 VDC, 40 mA max. with short-circuit protection circuit (Model E5AR-QQ[]WW-[]: 21 mA max.)	
	Current output	0 to 20 mA DC, 4 to 20 mA DC; load: 500Ωmax. (including transfer output) (Resolution: Approx. 54,000 for 0 to 20 mA DC; Approx. 43,000 for 4 to 20 mA DC)	
	Relay output	Position-proportional control type (open, closed) N.O., 250 VAC, 1 A (including inrush current)	
Auxiliary output		Relay Output, N.O., 250 VAC, 1 A (resistive load)	
Potentiometer input		100Ω to 2.5 kΩ	
Event input	**Contact**	Input ON: 1kΩmax OFF: 100 kΩ min	
	No-contact	Input ON: Residual voltage of 1.5 V max.; OFF: Leakage current of 0.1 mA max	
		Short-circuit: Approx. 4 mA	
Remote SP input		Refer to the information on sensor input.	
Transfer output		Refer to the information on control output.	
Control method		2-PID or ON/OFF control	
Setting method		Digital setting using front panel keys or setting using serial communications.	
Indication method		7-segment digital display and single-lighting indicator Character Height PV display: 9.5 mm; SV display: 7.2 mm; MV display: 7.2 mm	
Ambient operating temperature		−10 to 55°C (with no icing or condensation) For 3 years of assured use: −10 to 50°C (with no icing or condensation)	
Ambient operating humidity		25% to 85%	
Storage temperature		−25 to 65°C (with no icing or condensation)	
Indication accurasy		Thermocouple input with cold junction compensation: (±0.1% of PV or ±1°C, whichever is greater) ±1 digit max. Thermocouple input without cold junction compensation: (±0.1% FS or ±1°C, whichever is smaller) ±1 digit Analog input: ±0.1% FS ±1 digit max. Platinum resistance thermometer input: (±0.1% of PV or ±0.5°C, whichever is greater) ±1 digit max. Position-proportional potentiometer input: ±5% FS ±1 digit max.	
Control mode		Standard control (heating or cooling control), heating/cooling control, standard control with remote SP (2-input models only), heating/cooling control with remote SP (2-input models only), cascade standard control (2-input models only), cascade heating/cooling control(2-input models only), proportional control (2-input models only), position-proportional control (control-valve control models only)	
Influence of temperature		Thermocouple input (R, S, B, W): (±1% of PV or ±10°C, whichever is greater) ±1 digit max. Other thermocouple input: (±1% of PV or ±4°C, whichever is greater) ±1 digit max. * K thermocouple at -100°C max.: ±10°C max. Platinum resistance thermometer: (±1% of PV or ±2°C, whichever is greater) ±1 digit max. Analog input: (±1% FS) ±1 digit max.	
Influence of voltage			
Influence of EMS. (at EN61326-1)			

[Rating／Characteristics] (Product Discontinuation)

Item	Product Discontinuation Model E5AR series, Model E5AR-T series, Model E5AR-DRT series
Control period	0.2 to 99.0 s (in units of 0.1 s) for time-proportioning control output
Proportional band (P)	0.00% to 999.99% FS (in units of 0.01% FS)
Integral time (I)	0.0 to 3,999.9 s (in units of 0.1 s)
Derivative time (D)	0.0 to 3,999.9 s (in units of 0.1 s)
Hysteresis	0.01% to 99.99% FS (in units of 0.01% FS)
Manual reset value	0.0% to 100.0% (in units of 0.1% FS)
Alarm setting range	−19,999 to 99,999 EU (The decimal point position depends on the input type and the decimal point position setting.)
Input sampling period	50 ms
Insulation resistance	20 MΩ min. (at 500 VDC)
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min (between charged terminals of different polarities)
Vibration resistance (malfunction)	10 to 55 Hz, 20 m/s^2 for 10 min each in X, Y, and Z directions
Shock resistance (malfunction)	100 m/s^2, 3 times each in X, Y, and Z directions
Inrush current	100 to 240 VAC models: 50 A max. 24 VAC/VDC models: 30 A max.
Weight	Controller only: Approx. 450 g; Mounting bracket: Approx. 60 g; Terminal cover: Approx. 30 g
Degree of protection	Front panel: NEMA4X for indoor use (equivalent to IP66); Rear case: IP20; Terminals: IP00
Memory protection	Non-volatile memory (number of writes: 100,000)
Applicable standards	UL61010-1, CSA C22.2 No.61010-1 EN61010-1(IEC61010-1): Pollution degree 2/Overvoltage category 2

[Input range] (Product Discontinuation)

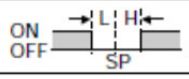
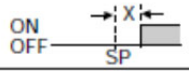
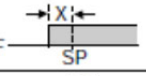
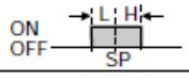
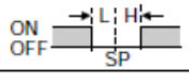
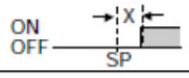
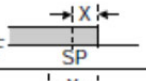
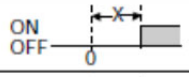
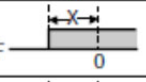
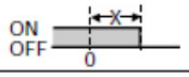
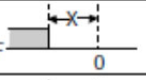
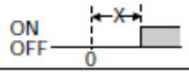
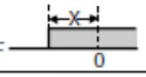
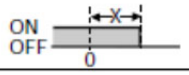
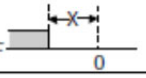
Product Discontinuation
Model E5AR series, Model E5AR-T series, Model E5AR-DRT series

Input type	Platinum Resistance Thermometer		Thermocouple												Current		Voltage		
Name	Pt100		K		J		T	E	L	U	N	R	S	B	W (W/Re 5-26)	[mA]		[V]		
Temperature Range (°C)	850.0	150.00	1300.0	500.0	850.0	400.0	400.0	600.0	850.0	400.0	1300.0	1700.0	1700.0	1800.0	2300.0	20 to 4	20 to 0	5 to 1	5 to 0	10 to 0
	−200.0	−150.00	−200.0	−20.0	−100.0	−20.0	−200.0	0.0	−100.0	−200.0	−200.0	0.0	0.0	100.0	0.0					
Setting	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Minimum setting unit (SP and alarm)	0.1°C	0.01°C	0.1°C													(Depends on scaling and number of decimal places.)				
Input type setting switch	Set to TC.PT.															Set to ANALOG.				

[Alarm Types] (Product Discontinuation)

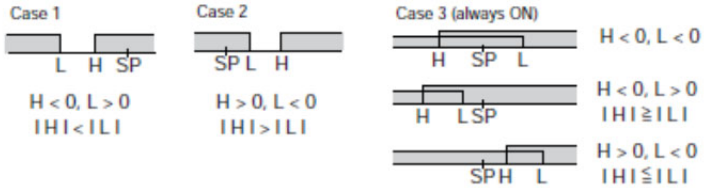
Product Discontinuation
Model E5AR series, Model E5AR-T series, Model E5AR-DRT series

SP = Set point

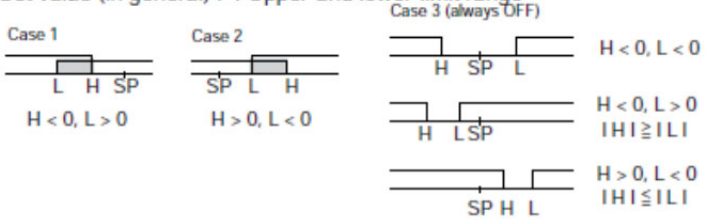
	Set value (in general)	Alarm type	Alarm output function	
			Alarm value (X) is positive	Alarm value (X) is negative
	0	Alarm function OFF	Output OFF	
*1	1	Upper-and lower-limit (deviation)		*2
	2	Upper-limit (deviation)		
	3	Lower-limit (deviation)		
*1	4	Upper-and lower-limit range (deviation)		*3
*1, *6	5	Upper-and lower-limit alarm with standby sequence (deviation)	*5 	*4
*6	6	Upper-limit alarm with standby sequence (deviation)		
	7	Lower-limit alarm with standby sequence (deviation)		
	8	Absolute-value upper-limit		
	9	Absolute-value lower-limit		
*6	10	Absolute-value upper-limit with standby sequence		
*6	11	Absolute-value lower-limit with standby sequence		

*1: Set values (in general) 1, 4 and 5 allow upper and lower-limits of alarm value to be separately set, and are indicated by L and H.

*2: Set value (in general) : 1 Upper-and lower-limit alarm



*3: Set value (in general) : 4 Upper-and lower-limit range



*4: Set value (in general) : 5 Alarm with upper-and lower-limit standby sequence
*With the above upper-and lower-limit alarms
•In cases 1 and 2 •In case 3, always OFF
If hysteresis overlaps at upper-and lower-limit, always OFF

*5: Set value (in general) : 5 Alarm with upper-and lower-limit standby sequence
If hysteresis overlaps at upper-and lower-limit, always OFF

*6: For information on standby sequences, see "5.6 Alarm adjustment functions".

[Communications Specifications] (Product Discontinuation)

Item		Product Discontinuation Model E5AR series, Model E5AR-T series, Model E5AR-DRT series			
CompoWay/F					
Transmission path connection		Multiple points			
Communications method		RS-485 (two-wire, half duplex)			
Synchronization method		Start-stop synchronization			
Baud rate		9,600, 19,200, or 38,400 bps			
Transmission code		ASCII			
Data bit length		7 or 8 bits			
Stop bit length		1 or 2 bits			
Error detection		Vertical parity (none, even, or odd) BCC (Block check character): CompoWay/F CRC-16: Modbus			
Flow control		None			
Interface		RS-485			
Retry function		None			
Communication buffer		217 bytes			
Communication response send wait time		0 to 99 ms Default: 20 ms			
DeviceNet™ * Model E5AR-DRT only					
Communications protocol		Conforms to DeviceNet™.			
Communication functions	**Remote I/O communications**	・Master/Slave connections (Poll/Bit-Strobe/COS/Cyclic) ・Conforms to DeviceNet™ specifications.			
	I/O allocation	Input and output data can be allocated freely by user with the Configurator. Allocations can be made to DeviceNet™ parameters or Temperature Controller parameters. Two blocks for IN Area, up to 100 words One block for OUT Area, up to 100 words (The first word is always allocated to the OUT Enable Bit.)			
	Message communications	・Explicit message communications ・CompoWay/F communications commands can be sent (commands are sent in explicit message format).			
Connection format		Combination of multidrop and T-branch connections (for trunk and drop lines)			
Band rate		DeviceNet™: 500, 250, or 125 kbps, or automatic detection of master baud rate			
Communication media		Special 5-wire cable (2 signal lines, 2 power lines, and 1 shield line)			
Communication distance		**Band rate**	**Network length**	**Drop line length**	**Total drop line length**
		500 kbps	100 m max. (100 m max.)	6 m max.	39 m max.
		250 kbps	250 m max. (100 m max.)	6 m max.	78 m max.
		125 kbps	500 m max. (100 m max.)	6 m max.	156 m max.
Supply voltage		DeviceNet™ power supply: 24 VDC			
Operating voltage range		DeviceNet™ power supply: 11 to 25 VDC			
Current consumption		50 mA max (24 VDC)			
Maximum number of nodes that can be connected		64 (includes Configurator when used.)			
Maximum number of slaves that can be connected		63			
Error control		CRC error detection			
DeviceNet™ power supply		Power supplied from DeviceNet™ communications connector			

[Rating／Characteristics] (Product Discontinuation)

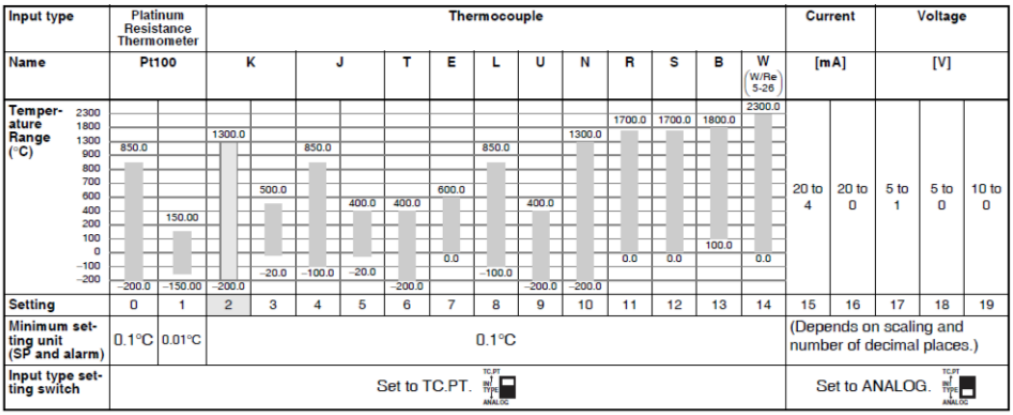
Item		Product Discontinuation Model E5ER series, Model E5ER-T series, Model E5ER-DRT series	
Supply voltage		100 to 240 VAC 50/60 Hz	24 VAC 50/60 Hz
Operating voltage range		85 to 110% of rated supply voltage	
Power consumption		17 VA max. (with maximul load)	11 VA/7 W max. (with maximul load)
Sensor input		Thermocouple: K, J, T, E, L, U, N, R, S, B, W Platinum resistance thermometer: Pt100 Current input: 4 to 20 mA DC, 0 to 20 mA DC (including remote SP input) Voltage input: 1 to 5 VDC, 0 to 5 VDC, 0 to 10 VDC (including remote SP input) (Input impedance: 150Ω for current input, approx. 1 MΩfor voltage input)	
Control output	**Voltage (pulse) output**	12 VDC 40 mA max. with short-circuit protection circuit	
	Current output	0 to 20 mA DC, 4 to 20 mA DC; load: 500Ω max. (including transfer output) (Resolution: Approx. 54,000 for 0 to 20 mA DC; Approx. 43,000 for 4 to 20 mA DC)	
	Relay output	Position-proportional control type N.O., 250 VAC, 1 A (including inrush current)	
Auxiliary output		Relay output N.O., 250 VAC, 1 A (resistive load) Transistor Output Maximum load voltage: DC 30 V; Maximum load current: 50 mA; Residual voltage: 1.5 V max; Leakage current: 0.4 mA max.	
Potentiometer input		100Ω to 2.5 kΩ	
Event input	**Contact**	Input ON: 1 kΩ max.; OFF: 100 kΩ min.	
	No-contact	Input ON: Residual voltage of 1.5 V max.; OFF: Leakage current of 0.1 mA max	
		Short-circuit: Approx. 4 mA	
Remote SP input		Refer to the information on sensor input.	
Transfer output		Refer to the information on control output.	
Control method		2-PID or ON/OFF control	
Setting method		Digital setting using front panel keys or setting using serial communications.	
Indication method		7-segment digital display and single-lighting indicator Character Height PV display: 9.5 mm; SV display: 7.2 mm; MV display: 7.2 mm	
Ambient operating temperature		−10 to 55°C (with no icing or condensation) For 3 years of assured use: −10 to 50°C (with no icing or condensation)	
Ambient operating humidity		25% to 85%.	
Storage temperature		−25 to 65°C (with no icing or condensation)	
Indication accurasy		Thermocouple input with cold junction compensation: (±0.1% of PV or ±1°C, whichever is greater) ±1 digit max. Thermocouple input without cold junction compensation: (±0.1% FS or ±1°C, whichever is smaller) ±1 digit Analog input: ±0.1% FS ±1 digit max. Platinum resistance thermometer input: (±0.1% of PV or ±0.5°C, whichever is greater) ±1 digit max. Position-proportional potentiometer input: ±5% FS ±1 digit max.	
Control mode		Standard control (heating or cooling control), heating/cooling control, standard control with remote SP (2-input models only), heating/cooling control with remote SP (2-input models only), cascade standard control (2-input models only), cascade heating/cooling control(2-input models only), proportional control (2-input models only), position-proportional control (control-valve control models only)	

[Rating／Characteristics] (Product Discontinuation)

Item	Product Discontinuation Model E5ER series, Model E5ER-T series, Model E5ER-DRT series
Influence of temperature	Thermocouple input (R, S, B, W): (±1% of PV or ±10°C, whichever is greater) ±1 digit max. Other thermocouple input: (±1% of PV or ±4°C, whichever is greater) ±1 digit max. * K thermocouple at -100°C max.: ±10°C max. Platinum resistance thermometer: (±1% of PV or ±2°C, whichever is greater) ±1 digit max. Analog input: (±1% FS) ±1 digit max.
Influence of voltage	
Influence of EMS. (at EN61326-1)	
Control period	0.2 to 99.0 s (in units of 0.1 s) for time-proportioning control output
Proportional band (P)	0.00% to 999.99% FS (in units of 0.01% FS)
Integral time (I)	0.0 to 3,999.9 s (in units of 0.1 s)
Derivative time (D)	0.0 to 3,999.9 s (in units of 0.1 s)
Hysteresis	0.01% to 99.99% FS (in units of 0.01% FS)
Manual reset value	0.0% to 100.0% (in units of 0.1% FS)
Alarm setting range	−19,999 to 99,999 EU (The decimal point position depends on the input type and the decimal point position setting.)
Input sampling period	50 ms
Insulation resistance	20 MΩ min. (at 500 VDC)
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min (between charged terminals of different polarities)
Vibration resistance (malfunction)	10 to 55 Hz, 20 m/s^2 for 10 min each in X, Y, and Z directions
Shock resistance (malfunction)	100 m/s^2, 3 times each in X, Y, and Z directions
Inrush current	100 to 240-VAC models: 50 A max. 24 VAC/VDC models: 30 A max.
Weight	Controller only: Approx. 330 g; Mounting bracket: Approx. 60 g; Terminal cover: Approx. 16 g
Degree of protection	Front panel: NEMA4X for indoor use (equivalent to IP66), Rear case: IP20; Terminals: IP00
Memory protection	Non-volatile memory (number of writes: 100,000)
Applicable standards	UL61010-1, CSA C22.2 No.61010-1 EN61010-1 (IEC61010-1): Pollution degree 2/Overvoltage category 2

[Input range] (Product Discontinuation)

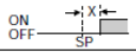
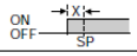
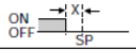
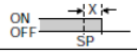
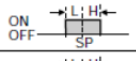
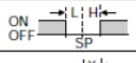
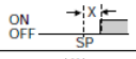
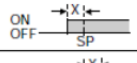
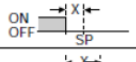
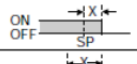
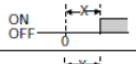
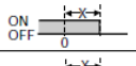
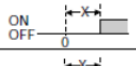
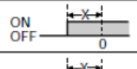
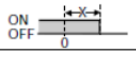
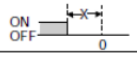
Product Discontinuation
Model E5ER series, Model E5ER-T series, Model E5ER-DRT series



[Alarm Types] (Product Discontinuation)

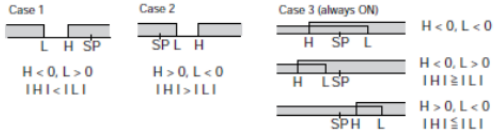
Product Discontinuation
Model E5ER series, Model E5ER-T series, Model E5ER-DRT series

SP = Set point

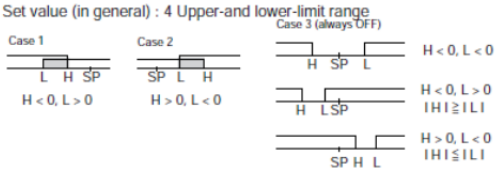
	Set value (in general)	Alarm type	Alarm output function	
			Alarm value (X) is positive	Alarm value (X) is negative
	0	Alarm function OFF	Output OFF	
*1	1	Upper-and lower-limit (deviation)		*2
	2	Upper-limit (deviation)		
	3	Lower-limit (deviation)		
*1	4	Upper-and lower-limit range (deviation)		*3
*1,*6	5	Upper-and lower-limit alarm with standby sequence (deviation)	*5 	*4
*6	6	Upper-limit alarm with standby sequence (deviation)		
	7	Lower-limit alarm with standby sequence (deviation)		
	8	Absolute-value upper-limit		
	9	Absolute-value lower-limit		
*6	10	Absolute-value upper-limit with standby sequence		
*6	11	Absolute-value lower-limit with standby sequence		

*1: Set values (in general) 1, 4 and 5 allow upper and lower-limits of alarm value to be separately set, and are indicated by L and H.

*2: Set value (in general) : 1 Upper-and lower-limit alarm



*3: Set value (in general) : 4 Upper-and lower-limit range



*4: Set value (in general) : 5 Alarm with upper-and lower-limit standby sequence
*With the above upper-and lower-limit alarms
•In cases 1 and 2 •In case 3, always OFF
If hysteresis overlaps at upper-and lower-limit, always OFF

*5: Set value (in general) : 5 Alarm with upper-and lower-limit standby sequence
If hysteresis overlaps at upper-and lower-limit, always OFF

*6: For information on standby sequences, see "5.6 Alarm adjustment functions".

[Communications Specifications] (Product Discontinuation)

Item	Product Discontinuation Model E5ER series, Model E5ER-T series, Model E5ER-DRT series
CompoWay/F	
Transmission path connection	Multiple points
Communications method	RS-485 (two-wire, half duplex)
Synchronization method	Start-stop synchronization
Baud rate	9,600, 19,200, or 38,400 bps
Transmission code	ASCII
Data bit length	7 or 8 bits
Stop bit length	1 or 2 bits

<table>
<tr><th colspan="2">Item</th><th colspan="4">Product Discontinuation
Model E5ER series, Model E5ER-T series, Model E5ER-DRT series</th></tr>
<tr><td colspan="2">Error detection</td><td colspan="4">Vertical parity (None, even, or odd)
BCC (Block check character): CompoWay/F
CRC-16:Modbus</td></tr>
<tr><td colspan="2">Flow control</td><td colspan="4">None</td></tr>
<tr><td colspan="2">Interface</td><td colspan="4">RS-485</td></tr>
<tr><td colspan="2">Retry function</td><td colspan="4">None</td></tr>
<tr><td colspan="2">Communication buffer</td><td colspan="4">217 bytes</td></tr>
<tr><td colspan="2">Communication response send wait time</td><td colspan="4">0 to 99 ms Default: 20 ms</td></tr>
<tr><td colspan="6">DeviceNet™ * Model E5ER-DRT only</td></tr>
<tr><td colspan="2">Communications protocol</td><td colspan="4">Conforms to DeviceNet™.</td></tr>
<tr><td rowspan="3">Communications functions</td><td>Remote I/O communications</td><td colspan="4">・Master/Slave connections (Poll/Bit-Strobe/COS/Cyclic)
・Conforms to DeviceNet™ specifications.</td></tr>
<tr><td>I/Oallocation</td><td colspan="4">・Input and output data can be allocated freely by user with the Configurator.
・Allocations can be made to DeviceNet™ parameters or Temperature Controller parameters.
・Two blocks for IN Area, up to 100 words
・One block for OUT Area, up to 100 words (The first word is always allocated to the OUT Enable Bit.)</td></tr>
<tr><td>Massage communications</td><td colspan="4">・Explicit massage communications
・CompoWay/F communications commands can be sent (commands are sent in explicit message format).</td></tr>
<tr><td colspan="2">Connection format</td><td colspan="4">Combination of multidrop and T-branch connections(for trunk and drop lines)</td></tr>
<tr><td colspan="2">Band rate</td><td colspan="4">DeviceNet™: 500, 250, or 125 kbps, or automatic detection of master baud rate</td></tr>
<tr><td colspan="2">Communication media</td><td colspan="4">Special 5-wire cable (2 signal lines, 2 power lines, and 1 shield line)</td></tr>
<tr><td colspan="2" rowspan="4">Communication distance</td><td>Band rate</td><td>Network length</td><td>Drop line length</td><td>Total drop line length</td></tr>
<tr><td>500 kbps</td><td>100 m max. (100 m max.)</td><td>6 m max.</td><td>39 m max.</td></tr>
<tr><td>250 kbps</td><td>250 m max. (100 m max.)</td><td>6 m max.</td><td>78 m max.</td></tr>
<tr><td>125 kbps</td><td>500 m max. (100 m max.)</td><td>6 m max.</td><td>156 m max.</td></tr>
<tr><td colspan="2">Supply voltage</td><td colspan="4">DeviceNet™ power supply: 24 VDC</td></tr>
<tr><td colspan="2">Operating voltage range</td><td colspan="4">DeviceNet™ power supply: 11 to 25 VDC</td></tr>
<tr><td colspan="2">Current concumption</td><td colspan="4">50mA max (24 VDC)</td></tr>
<tr><td colspan="2">Maximum number of nodes that can be connected</td><td colspan="4">64 (includes Configurator when used.)</td></tr>
<tr><td colspan="2">Maximum number of slaves that can be connected</td><td colspan="4">63</td></tr>
<tr><td colspan="2">Error control</td><td colspan="4">CRC error detection</td></tr>
<tr><td colspan="2">DeviceNet™ power supply</td><td colspan="4">Power supplied from DeviceNet™ communications connector</td></tr>
</table>

[Rating／Characteristics] (Recommended replacement)

Item		Recommended replacement Model E5AC series, Model E5EC series	
Supply voltage		100 to 240 VAC 50/60 Hz	24 VAC 50/60 Hz/24 VDC
Operating voltage range		85 to 110% of rated supply voltage	
Power consumption	**Model E5EC**	Models with option selection of 000:6.6 VA max. at 100 to 240 VAC, and 4.1 VA max. at 24 VAC or 2.3 W max. at 24 VDC All other models: 8.3 VA max. at 100 to 240 VAC, and 5.5 VA max. at 24 VAC or 3.2 W max. at 24 VDC	
	Model E5AC	Models with option selection of 000:7.0 VA max. at 100 to 240 VAC, and 4.2 VA max. at 24 VAC or 2.4 W max. at 24 VDC All other models: 9.0 VA max. at 100 to 240 VAC, and 5.6 VA max. at 24 VAC or 3.4 W max. at 24 VDC	
Sensor input		Temperature input Thermocouple: K, J, T, E, L, U, N, R, S, B, C/W, or PL II Platinum resistance thermometer: Pt100 or JPt100 Infrared temperature sensor (ES1B): 10 to 70°C, 60 to 120°C, 115 to 165°C, or 140 to 260°C Analog input Current input: 4 to 20 mA or 0 to 20 mA Voltage input: 1 to 5 V, 0 to 5 V, or 0 to 10 V	
Input impedance		Current input: 150Ω max., Voltage input: 1 MΩ min. (Use a 1:1 connection when connecting the ES2-HB-N/THB-N.)	
Control output	**Voltage output (for driving SSR)**	Output voltage: 12 VDC ±20% (PNP), max. load current: 40 mA, with short-circuit protection circuit (The maximum load current is 21 mA for models with two control outputs.)	
	Linear current output	4 to 20 mA DC/0 to 20 mA DC, load: 500Ω max., resolution: approx. 10,000	
	Relay output	N.O., 250 VAC, 1 A (resistive load), electrical life: 100,000 operations, minimum applicable load: 5 V, 10 mA (reference value)	
Auxiliary output	**Numbers of outputs**	2 or 4 (depends on model)	
	Output specifications	Relay outputs, N.O., 250 VAC, 1 A., Models with 2 outputs: 3 A (resistive load), Models with 4 outputs: 2 A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 10 mA at 5 V (reference value)	
Potentiometer input		100Ω to 10 kΩ	
Event Input	**Numbers of outputs**	2, 4 or 6 (depends on model)	
	External contact input specifications	Contact input: ON: 1 kΩ max., OFF: 100 kΩ min.	
		Non-contact input: ON: Residual Voltage: 1.5V max., OFF: Leakage current: 0.1mA max	
		Current flow: Approx. 7 mA per contact	
Remote SP input		Current input: 4 to 20 mA DC, 0 to 20 mA DC(Input impedance:150Ω max) Voltage input: 1 to 5 VDC, 0 to 5 VDC, 0 to10 VDC(Input impedance: 1 MΩmin)	
Transfer output	**Numbers of outputs**	1 (only on models with a transfer output)	
	Output specifications	Current output: 4 to 20 mA DC, Load: 500Ω max., Resolution: Approx. 10,000 Linear voltage output: 1 to 5 VDC, load: 1 kΩ min., Resolution: Approx. 10,000	
Control method		ON/OFF or 2-PID control (with auto-tuning)	
Setting method		Digital setting using front panel keys	

[Rating／Characteristics] (Recommended replacement)

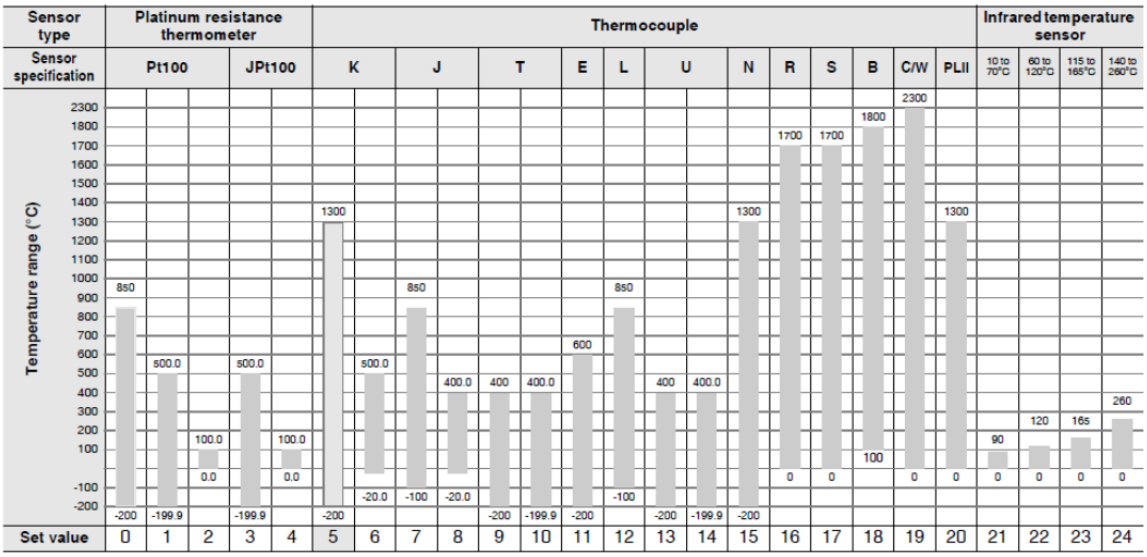
Item	Recommended replacement Model E5AC series, Model E5EC series
Indication method	11-segment digital display and individual indicators Character height: Model E5EC/E5EC-B: PV: 18.0 mm, SV: 11.0 mm, MV: 7.8 mm Model E5AC: PV: 25.0 mm, SV: 15.0 mm, MV: 9.5 mm Three displays Contents: PV/SV/MV, PV/SV/Multi-SP, or PV/SV/Remaining soak time, etc Numbers of digits: 4 digits each for PM, SV, and MV displays
Multi SP	Up to eight set points (SP0 to SP7) can be saved and selected using the event inputs, key operations, or serial communications.
Other functions	Manual output, heating/cooling control, loop burnout alarm, SP ramp, other alarm functions, heater burnout (HB) alarm (including SSR failure (HS) alarm), 40% AT, 100% AT, MV limiter, input digital filter, self tuning, robust tuning, PV input shift, run/stop, protection functions, extraction of square root, MV change rate limit, logic operations, temperature status display, simple programming, moving average of input value, and display brightness setting
Ambient operating temperature	−10 to 55°C (with no condensation or icing), For 3-year warranty: −10 to 50°C with standard mounting (with no condensation or icing)
Ambient operating humidity	25% to 85%.
Storage temperature	−25 to 65°C (with no icing or condensation)
Indication accurasy (at the ambient temperature of 23°C)	Thermocouple: (±0.3% of indication value or ±1°C, whichever is greater) ±1 digit max. Platinum resistance thermometer: (±0.2% of indication value or ±0.8°C, whichever is greater) ±1 digit max. Analog input: ±0.2% FS ±1 digit max. CT input: ±5% FS ±1 digit max. Potentiometer input: ±5% FS ±1 digit max.
Transfer output accuracy	±0.3% FS max.
Remote SP input accuracy	±0.2% FS ±1 digit max.
Influence of temperature	Thermocouple input (R, S, B, C/W, PL II): (±1% of indication value or ±10°C, whichever is greater) ±1 digit max. Other thermocouple input: (±1% of indication value or ±4°C, whichever is greater) ±1 digit max. Platinum resistance thermometer: (±1% of indication value or ±2°C, whichever is greater) ±1 digit max. Analog input: ±1% FS ±1 digit max. CT input: ±5% FS ±1 digit max. Remote SP input: ±1% FS ±1 digit max.
Influence of voltage	
Influence of EMS. (at EN61326-1)	
Control period	0.1, 0.2, 0.5, 1 to 99 s (in units of 1 s)
Proportional band (P)	Temperature input: 0.1 to 999.9°C or °F (in units of 0.1°C or°F) Analog input: 0.01% to 99.99% FS (in units of 0.01% FS)
Integral time (I)	Standard, heating/cooling, or Position-proportional (Close): 0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s) Position-proportional (Floating): 1 to 9999 s (in units of 1 s), 0.1 to 999.9 s (in units of 0.1 s)
Derivative time (D)	0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Hysteresis	Temperature input: 0.1 to 999.9°C or °F (in units of 0.1°C or °F) Analog input: 0.1 to 999.9% FS (in units of 0.1% FS)
Proportional band (P) for cooling	Temperature input: 0.1 to 999.9°C or °F (in units of 0.1°C or °F) Analog input: 0.1 to 999.9% FS (in units of 0.1% FS)
Integral time (I) for cooling	0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Derivative time (D) for cooling	0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Input sampling period	50 ms
Manual reset value	0.0 to 100.0% (in units of 0.1%)

[Rating／Characteristics] (Recommended replacement)

Item		Recommended replacement Model E5AC series, Model E5EC series
Alarm setting range		-1999 to 9999 (decimal point position depends on input type)
Influence of signal source		Thermocouple: 0.1°C/Ω max. (100Ω max.) Platinum resistance thermometer: 0.1°C/Ω max. (10Ω max.)
Insulation resistance		20 MΩ min. (at 500 VDC)
Dielectric strength		3,000 VAC, 50/60 Hz for 1 min between terminals of different charge
Vibration	**Malfuntioin**	10 to 55 Hz, 20 m/s^2 for 10 min each in X, Y, and Z directions
	Resistance	10 to 55 Hz, 20 m/s^2 for 2 hours each in X, Y, and Z directions
Shock	**Malfuntioin**	100 m/s^2, 3 times each in X, Y, and Z directions
	Resistance	300 m/s^2, 3 times each in X, Y, and Z directions
Weight	**Model E5EC**	Controller: Approx. 210 g, Adapter: Approx. 4 g × 2
	Model E5AC	Controller: Approx. 250 g, Adapter: Approx. 4 g × 2
Degree of protection		Front panel: IP66, Rear case: IP20, Terminals: IP00
Memory protection		Non-volatile memory (number of writes: 1,000,000 times)
Setup Tool		CX-Thermo Ver.4.5 or later
Setup Tool port		Top panel: Model E58-CIFQ2 USB-Serial Conversion Cable is used to connect to a USB port on the computer. Front panel: Model E58-CIFQ2 USB-Serial Conversion Cable and Model E58-CIFQ2-E Conversion Cable are used together to connect a USB port on the computer.
Standards	**Approved standards**	cULus: UL 61010-1/CSA C22.2 No.61010-1, Korean wireless regulations (Radio law: KC Mark) (Some models only.), Lloyd's standards
	Conformed standards	EN 61010-1 (IEC 61010-1)

[Input range]

Recommended replacement
Model E5AC series, Model E5EC series



Sensor type	Platinum resistance thermometer					Thermocouple														Infrared temperature sensor			
Sensor specification	Pt100			JPt100		K		J		T		E	L		U		N	R	S	B	C/W	PLII	10 to 70°C	60 to 120°C	115 to 165°C	140 to 260°C
Set value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Shaded settings are the default settings.

The applicable standards for the input types are as follows:

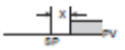
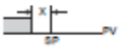
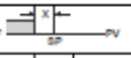
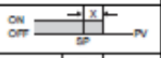
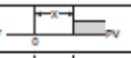
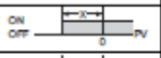
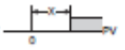
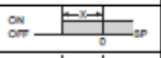
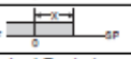
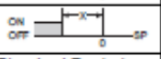
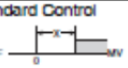
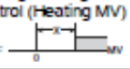
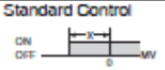
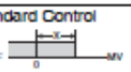
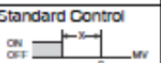
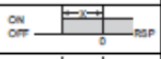
K, J, T, E, N, R, S, B: JIS C 1602-2015, IEC 60584-1
L: Fe-CuNi, DIN 43710-1985
U: Cu-CuNi, DIN 43710-1985
C/W: W5Re/W26Re, JIS C 1602-2015, ASTM E988-1990
JPt100: JIS C 1604-1989, JIS C 1606-1989
Pt100: JIS C 1604-1997, IEC 60751
PL II: According to Platinel II electromotive force charts from BASF (previously Engelhard)

Analog input

Input type	Current		Voltage		
Input specification	4 to 20 mA	0 to 20 mA	1 to 5 V	0 to 5 V	0 to 10 V
Setting range	Usable in the following ranges by scaling: -1999 to 9999, -199.9 to 999.9, -19.99 to 99.99 or -1.999 to 9.999				
Set value	25	26	27	28	29

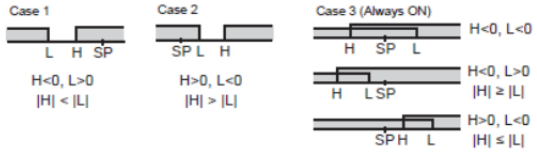
[Alarm Types] (Recommended replacement)

Recommended replacement
Model E5AC series, Model E5EC series

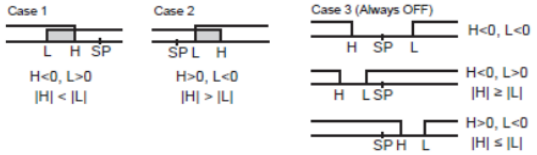
Set value	Alarm type	Alarm output operation: When alarm value X is positive	Alarm output operation: When alarm value X is negative	Description of function
0	Alarm function OFF	Output OFF		No alarm
1	Upper- and lower-limit ✻1		✻2	Set the upward deviation in the set point for the alarm upper limit (H) and the lower deviation in the set point for the alarm lower limit (L). The alarm is ON when the PV is outside this deviation range.
2 (default)	Upper-limit			Set the upward deviation in the set point by setting the alarm value (X). The alarm is ON when the PV is higher than the SP by the deviation or more.
3	Lower-limit			Set the downward deviation in the set point by setting the alarm value (X). The alarm is ON when the PV is lower than the SP by the deviation or more.
4	Upper- and lower-limit range ✻1		✻3	Set the upward deviation in the set point for the alarm upper limit (H) and the lower deviation in the set point for the alarm lower limit (L). The alarm is ON when the PV is inside this deviation range.
5	Upper- and lower-limit with standby sequence ✻1		✻4	A standby sequence is added to the upper- and lower-limit alarm (1). ✻6
6	Upper-limit with standby sequence			A standby sequence is added to the upper-limit alarm (2). ✻6
7	Lower-limit with standby sequence			A standby sequence is added to the lower-limit alarm (3). ✻6
8	Absolute-value upper-limit			The alarm will turn ON if the process value is larger than the alarm value (X) regardless of the set point.
9	Absolute-value lower-limit			The alarm will turn ON if the process value is smaller than the alarm value (X) regardless of the set point.
10	Absolute-value upper-limit with standby sequence			A standby sequence is added to the absolute-value upper-limit alarm (8). ✻6
11	Absolute-value lower-limit with standby sequence			A standby sequence is added to the absolute-value lower-limit alarm (9). ✻6
12	LBA (alarm 1 type only)	-		✻7
13	PV change rate alarm	-		✻8
14	SP absolute-value upper-limit alarm			This alarm type turns ON the alarm when the set point (SP) is higher than the alarm value (X).
15	SP absolute-value lower-limit alarm			This alarm type turns ON the alarm when the set point (SP) is lower than the alarm value (X).
16	MV absolute-value upper-limit alarm ✻9	Standard Control  Heating/Cooling Control (Heating MV) 	Standard Control  Heating/Cooling Control (Heating MV) Always ON	This alarm type turns ON the alarm when the manipulated variable (MV) is higher than the alarm value (X).
17	MV absolute-value lower-limit alarm ✻9	Standard Control  Heating/Cooling Control (Cooling MV)	Standard Control  Heating/Cooling Control (Cooling MV) Always ON	This alarm type turns ON the alarm when the manipulated variable (MV) is lower than the alarm value (X).
18	RSP absolute-value upper-limit alarm ✻10			This alarm type turns ON the alarm when the remote SP (RSP) is higher than the alarm value (X).
19	RSP absolute-value lower-limit alarm ✻10			This alarm type turns ON the alarm when the remote SP (RSP) is lower than the alarm value (X).

✻1. With set values 1, 4 and 5, the upper and lower limit values can be set independently for each alarm type, and are expressed as "L" and "H."

✻2. Set value: 1, Upper- and lower-limit alarm



✻3. Set value: 4, Upper- and lower-limit range



✻4. Set value: 5, Upper- and lower-limit with standby sequence
For Upper- and Lower-Limit Alarm Described Above *2
- Case 1 and 2
  Always OFF when the upper-limit and lower-limit hysteresis overlaps.
- Case 3: Always OFF

✻5. Set value: 5, Upper- and lower-limit with standby sequence
Always OFF when the upper-limit and lower-limit hysteresis overlaps.

✻6. Refer to the *E5□C Digital Temperature Controllers User's Manual* (Cat. No. H174) for information on the operation of the standby sequence.

✻7. Refer to the *E5□C Digital Temperature Controllers User's Manual* (Cat. No. H174) for information on the loop burnout alarm (LBA). This setting cannot be used with a position-proportional model.

✻8. Refer to the *E5□C Digital Temperature Controllers User's Manual* (Cat. No. H174) for information on the PV change rate alarm.

✻9. When heating/cooling control is performed, the MV absolute upper limit alarm functions only for the heating operation and the MV absolute lower limit alarm functions only for the cooling operation.

✻10. This value is displayed only when a remote SP input is used. It functions in both Local SP Mode and Remote SP Mode.

[Communications Specifications] (Recommended replacement)

Item	Recommended replacement Model E5AC series, Model E5EC series
CompoWay/F	
Transmission path connection	RS-485: Mutidrop
Communications method	RS-485 (two-wire, half duplex)
Synchronization method	Start-stop synchronization
Baud rate	9600, 19200, 38400, 57600 bps
Transmission code	ASCII
Data bit length	7 or 8 bits
Stop bit length	1 or 2 bits
Error detection	Vertical parity (None, even, or odd) BCC (Block check character): CompoWay/F CRC-16: Modbus
Flow control	None
Interface	RS-485
Retry function	None
Communication buffer	217 bytes
Communication response send wait time	0 to 99 ms Default: 20 ms
Programless communications	You can use the memory in the PLC to read and write E5[]C parameters, start and stop operation, etc. The E5[]C automatically performs communications with PLCs. No communications programming is required. Number of connected Digital Temperature Controllers: 32 max. (Up to 16 for the FX Series) Applicable PLCs OMRON PLCs CS/CJ/CP/NJ series or NX1P Mitsubishi Electric PLCs MELSEC-Q/L/FX3/iQ-R series KEYENCE PLCs KEYENCE KV Series
Component Communications	When Digital Temperature Controllers are connected, set points and RUN/STOP commands can be sent from the Digital Temperature Controller that is set as the master to the Digital Temperature Controllers that are set as slaves. Slope and offsets can be set for the set point. Number of connected Digital Temperature Controllers: 32 max. (including master)
Copying	When Digital Temperature Controllers are connected, the parameters can be copied from the Digital Temperature Controller that is set as the master to the Digital Temperature Controllers that are set as slaves.

[Rating／Characteristics] (Recommended replacement)

Item		Recommended replacement Model E5AC-T series, Model E5EC-T series	
Supply voltage		100 to 240 VAC 50/60 Hz	24 VAC 50/60 Hz/24 VDC
Operating voltage range		85 to 110% of rated supply voltage	
Power consumption	**Model E5EC-T**	8.7 VA max (100 to 240 VAC), 5.5 VA max (24 VAC)/3.2 W max (24 VDC)	
	Model E5AC-T	9.0 VA max (100 to 240 VAC), 5.6 VA max (24 VAC)/3.4 W max (24 VDC)	
Sensor input		Temperature input Thermocouple: K, J, T, E, L, U, N, R, S, B, C/W, or PL II Platinum resistance thermometer: Pt100 or JPt100 Infrared temperature sensor (ES1B): 10 to 70°C, 60 to 120°C, 115 to 165°C, or 140 to 260°C Analog input Current input: 4 to 20 mA or 0 to 20 mA Voltage input: 1 to 5 V, 0 to 5 V, or 0 to 10 V	
Input impedance		Current input: 150Ω max., Voltage input: 1 MΩ min. (Use a 1:1 connection when connecting Model ES2-HB-N/THB-N.)	
Control output	**Voltage output (for driving SSR)**	Output voltage: 12 VDC ±20% (PNP), max. load current: 40 mA, with short-circuit protection circuit (The maximum load current is 21 mA for models with two control outputs.)	
	Linear current output	4 to 20 mA DC/0 to 20 mA DC, load: 500Ω max., resolution: approx. 10,000	
	Relay output	N.O., 250 VAC, 5 A (resistive load), electrical life: 100,000 operations, minimum applicable load: 5 V, 10 mA (reference value)	
Auxiliary output	**Numbers of outputs**	4	
	Output specifications	Relay output, N.O., 250 VAC, 1 A., Models with 4 outputs: 2A (resistive load), Electrical life: 100,000 operations, Minimum applicable load: 10 mA at 5 V (reference value)	
Potentiometer input		100Ω to 10 kΩ	
Event Input	**Numbers of outputs**	2, 4 or 6 (depends on model)	
	External contact input specifications	Contact input: ON: 1 kΩ max OFF: 100 kΩ min	
		Non-contact input: ON: Residual Voltage: 1.5 V max., OFF: Leakage current 0.1 mA max	
		Current flow: Approx. 7 mA per contact	
Transfer output	**Numbers of outputs**	1 (only on models with a transfer output)	
	Output specifications	Current output: 4 to 20 mA DC, Load: 500Ω max., Resolution: Approx. 10,000 Linear voltage output: 1 to 5 VDC, load: 1 kΩ min., Resolution: Approx. 10,000	
Control method		ON/OFF or 2-PID control (with auto-tuning)	
Setting method		Digital setting using front panel keys	
Indication method		11-segment digital display and individual indicator Character height: Model E5EC-T: PV: 18.0 mm, SV: 11.0 mm, MV: 7.8 mm, Model E5AC-T: PV: 25.0 mm, SV: 15.0 mm, MV: 9.5 mm Three displays. Contents: PV, SP, program No. and segment No., remaining segment time, or MV (valve opening) Numbers of digits: 4 digits	

[Rating／Characteristics] (Recommended replacement)

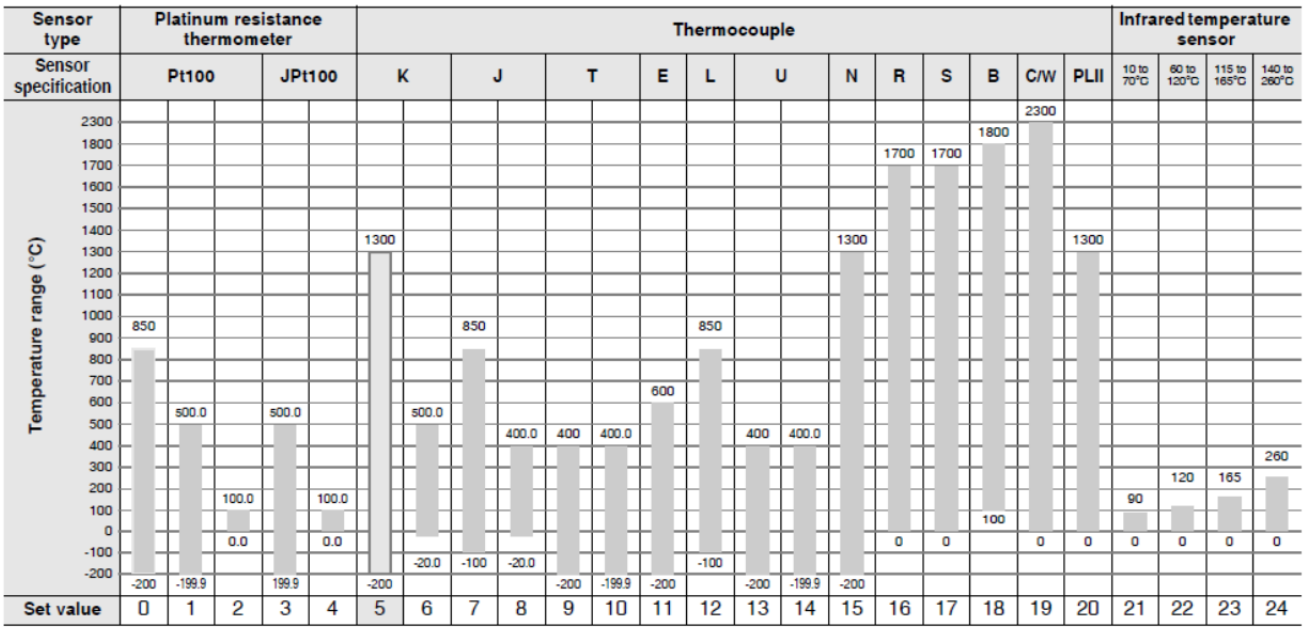
Item		Recommended replacement Model E5AC-T series, Model E5EC-T series
Other functions		Manual output, heating/cooling control, loop burnout alarm, other alarm functions, heater burnout (HB) alarm (including SSR failure (HS) alarm), 40% AT, 100% AT, MV limiter, input digital filter, robust tuning, PV input shift, protection functions, extraction of square root, MV change rate limit, logic operations, temperature status display, moving average of input value, and display brightness setting
Ambient operating temperature		−10 to 55°C (with no condensation or icing), For 3-year warranty: −10 to 50°C with standard mounting (with no condensation or icing)
Ambient operating humidity		25% to 85%.
Storage temperature		−25 to 65°C (with no icing or condensation)
Indication accurasy (at the ambient temperature of 23°C)		Thermocouple: (±0.3% of indication value or ±1°C, whichever is greater) ±1 digit max. Platinum resistance thermometer: (±0.2% of indication value or ±0.8°C, whichever is greater) ±1 digit max. Analog input: ±0.2% FS ±1 digit max. CT input: ±5% FS ±1 digit max. Potentiometer input: ±5% FS ±1 digit max.
Transfer output accuracy		±0.3% FS max.
Influence of temperature		Thermocouple input (R, S, B, C/W, PL II): (±1% of indication value or ±10°C, whichever is greater) ±1 digit max. Other thermocouple input: (±1% of indication value or ±4°C, whichever is greater) ±1 digit max. Platinum resistance thermometer: (±1% of indication value or ±2°C, whichever is greater) ±1 digit max. Analog input: ±1% FS ±1 digit max. CT input: ±5% FS ±1 digit max.
Influence of voltage		
Influence of EMS. (at EN61326-1)		
Control period		0.1, 0.2, 0.5, 1 to 99 s (in units of 1 s)
Proportional band (P)		Temperature input: 0.1 to 999.9°C or °F (in units of 0.1°C or °F) Analog input: 0.1 to 999.9% FS (in units of 0.1% FS)
Integral time (I)		Standard, heating/cooling, or Position-proportional (Close): 0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s) Position-proportional (Floating): 1 to 9999 s (in units of 1 s), 0.1 to 999.9 s (in units of 0.1 s)
Derivative time (D)		0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Hysteresis		Temperature input: 0.1 to 999.9°C or °F (in units of 0.1°C or °F) Analog input: 0.1 to 999.9% FS (in units of 0.1% FS)
Proportional band (P) for cooling		Temperature input: 0.1 to 999.9°C or °F (in units of 0.1°C or °F) Analog input: 0.1 to 999.9% FS (in units of 0.1% FS)
Integral time (I) for cooling		0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Derivative time (D) for cooling		0 to 9999 s (in units of 1 s), 0.0 to 999.9 s (in units of 0.1 s)
Input sampling period		50 ms
Manual reset value		0.0 to 100.0% (in units of 0.1%)
Alarm setting range		-1999 to 9999 (decimal point position depends on input type)
Influence of signal source		Thermocouple: 0.1°C/Ω max. (100Ω max.) Platinum resistance thermometer: 0.1°C/Ω max. (10Ω max.)
Insulation resistance		20 MΩ min. (at 500 VDC)
Dielectric strength		3,000 VAC, 50/60 Hz for 1 min between terminals of different charge
Vibration	**Malfuntioin**	10 to 55 Hz, 20 m/s^2 for 10 min each in X, Y, and Z directions
	Resistance	10 to 55 Hz, 20 m/s^2 for 2 hours each in X, Y, and Z directions

[Rating／Characteristics] (Recommended replacement)

Item		Recommended replacement Model E5AC-T series, Model E5EC-T series
Shock	**Malfuntioin**	100 m/s^2, 3 times each in X, Y, and Z directions
	Resistance	300 m/s^2, 3 times each in X, Y, and Z directions
Weight	**Model E5EC-T**	Controller: Approx. 210 g, Adapter: Approx. 4 g × 2
	Model E5AC-T	Controller: Approx. 250 g, Adapter: Approx. 4 g × 2
Degree of protection		Front panel: IP66, Rear case: IP20, Terminals: IP00
Memory protection		Non-volatile memory (number of writes: 1,000,000 times)
Setup Tool		CX-Thermo Ver.4.5 or later
Setup Tool port		Top panel: Model E58-CIFQ2 USB-Serial Conversion Cable is used to connect to a USB port on the computer. Front panel: Model E58-CIFQ2 USB-Serial Conversion Cable and Model E58-CIFQ2-E Conversion Cable are used together to connect a USB port on the computer.
Standards	**Approved standards**	cULus: UL 61010-1/CSA C22.2 No.61010-1, Korean wireless regulations (Radio law: KC Mark) (Some models only.), Lloyd's standards
	Conformed standards	EN 61010-1 (IEC 61010-1)

[Input range] (Recommended replacement)

Recommended replacement
Model E5AC-T series, Model E5EC-T series



Shaded settings are the default settings.

The applicable standards for the input types are as follows:

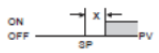
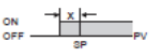
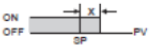
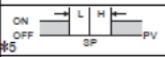
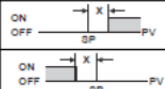
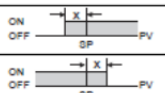
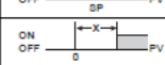
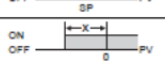
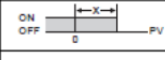
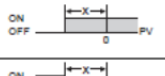
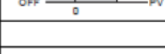
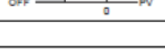
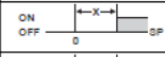
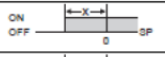
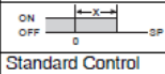
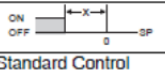
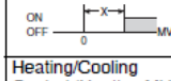
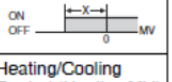
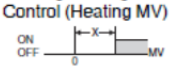
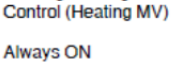
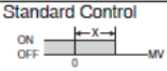
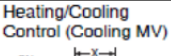
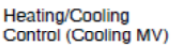
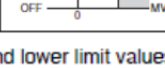
K, J, T, E, N, R, S, B: JIS C 1602-2015, IEC 60584-1
L: Fe-CuNi, DIN 43710-1985
U: Cu-CuNi, DIN 43710-1985
C/W: W5Re/W26Re, JIS C 1602-2015, ASTM E988-1990
JPt100: JIS C 1604-1989, JIS C 1606-1989
Pt100: JIS C 1604-1997, IEC 60751
PL II: According to Platinel II electromotive force charts from BASF (previously Engelhard)

Analog input

Input type	Current		Voltage		
Input specification	4 to 20 mA	0 to 20 mA	1 to 5 V	0 to 5 V	0 to 10 V
Setting range	Usable in the following ranges by scaling: -1999 to 9999, -199.9 to 999.9, -19.99 to 99.99 or -1.999 to 9.999				
Set value	25	26	27	28	29

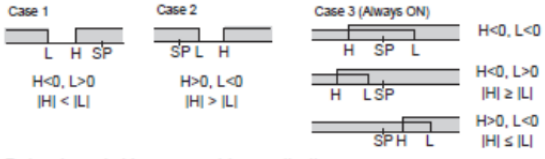
[Alarm Types] (Recommended replacement)

Recommended replacement
Model E5AC-T series, Model E5EC-T series

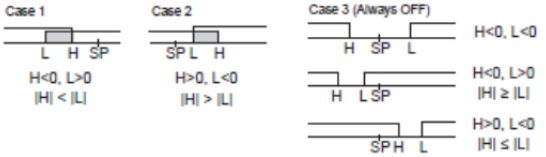
Set value	Alarm type	Alarm output operation		Description of function
		When alarm value X is positive	When alarm value X is negative	
0	Alarm function OFF	Output OFF		No alarm
1	Upper- and lower-limit ✻1		✻2	Set the upward deviation in the set point for the alarm upper limit (H) and the lower deviation in the set point for the alarm lower limit (L). The alarm is ON when the PV is outside this deviation range.
2 (default)	Upper-limit			Set the upward deviation in the set point by setting the alarm value (X). The alarm is ON when the PV is higher than the SP by the deviation or more.
3	Lower-limit			Set the downward deviation in the set point by setting the alarm value (X). The alarm is ON when the PV is lower than the SP by the deviation or more.
4	Upper- and lower-limit range ✻1		✻3	Set the upward deviation in the set point for the alarm upper limit (H) and the lower deviation in the set point for the alarm lower limit (L). The alarm is ON when the PV is inside this deviation range.
5	Upper- and lower-limit with standby sequence ✻1	 ✻5	✻4	A standby sequence is added to the upper- and lower-limit alarm (1). ✻6
6	Upper-limit with standby sequence			A standby sequence is added to the upper-limit alarm (2). ✻6
7	Lower-limit with standby sequence			A standby sequence is added to the lower-limit alarm (3). ✻6
8	Absolute-value upper-limit			The alarm will turn ON if the process value is larger than the alarm value (X) regardless of the set point.
9	Absolute-value lower-limit			The alarm will turn ON if the process value is smaller than the alarm value (X) regardless of the set point.
10	Absolute-value upper-limit with standby sequence			A standby sequence is added to the absolute-value upper-limit alarm (8). ✻6
11	Absolute-value lower-limit with standby sequence			A standby sequence is added to the absolute-value lower-limit alarm (9). ✻6
12	LBA (alarm 1 type only)	-		✻7
13	PV change rate alarm	-		✻8
14	SP absolute-value upper-limit alarm			This alarm type turns ON the alarm when the set point (SP) is higher than the alarm value (X).
15	SP absolute-value lower-limit alarm			This alarm type turns ON the alarm when the set point (SP) is lower than the alarm value (X).
16	MV absolute-value upper-limit alarm ✻9	Standard Control 	Standard Control 	This alarm type turns ON the alarm when the manipulated variable (MV) is higher than the alarm value (X).
		Heating/Cooling Control (Heating MV) 	Heating/Cooling Control (Heating MV) Always ON	
17	MV absolute-value lower-limit alarm ✻9	Standard Control 	Standard Control 	This alarm type turns ON the alarm when the manipulated variable (MV) is lower than the alarm value (X).
		Heating/Cooling Control (Cooling MV) 	Heating/Cooling Control (Cooling MV) Always ON	

✻1. With set values 1, 4 and 5, the upper and lower limit values can be set independently for each alarm type, and are expressed as "L" and "H."

✻2. Set value: 1, Upper- and lower-limit alarm



✻3. Set value: 4, Upper- and lower-limit range



✻4. Set value: 5, Upper- and lower-limit with standby sequence

For Upper- and Lower-Limit Alarm Described Above *2

- Case 1 and 2

Always OFF when the upper-limit and lower-limit hysteresis overlaps.

- Case 3: Always OFF

✻5. Set value: 5, Upper- and lower-limit with standby sequence Always OFF when the upper-limit and lower-limit hysteresis overlaps.

✻6. Refer to the *E5□C-T Digital Temperature Controllers Programmable Type User's Manual* (Cat. No. H185) for information on the operation of the standby sequence.

✻7. Refer to the *E5□C-T Digital Temperature Controllers Programmable Type User's Manual* (Cat. No. H185) for information on the loop burnout alarm (LBA). This setting cannot be used with a position-proportional model.

✻8. Refer to the *E5□C-T Digital Temperature Controllers Programmable Type User's Manual* (Cat. No. H185) for information on the PV change rate alarm.

✻9. When heating/cooling control is performed, the MV absolute upper limit alarm functions only for the heating operation and the MV absolute lower limit alarm functions only for the cooling operation.

[Program Control] (Recommended replacement)

Item		Recommended replacement Model E5AC-T series, Model E5EC-T series
Number of programs (patterns)		8
Number of segments (steps)		32
SegmentSetting method		Time setting (Segment set with set point and time.)
		Slope setting (Segment set with segment type, set point, slope, and time.)
Segment times		0 h 0 min to 99 h 59 min
		0 min 0 s to 99 min 59 s
Alarm setting		Set separately for each program.
Reset operation		Select either stopping control or fixed SP operation.
Startup operation		Select continuing, resetting, manual operation, or run mode.
PID sets	**Number of sets**	8
	Setting method	Set separately for each program (automatic PID group selection also supported).
Alarm SP function		Select from ramp SP and target SP.
Program status control	**Segment operation**	Advance, segment jump, hold, and wait
	Program operation	Program repetitions and program links
Wait operation	**Wait method**	Waiting at segment ends
	Wait width settig	Same wait width setting for all programs
Time signals	**Number of outputs**	2
	Number of ON/OFF Operations	1 each per output
	Setting method	Set separately for each program.
Program status output		Program end output (pulse width can be set), run output, stage output
Program startup operation	**PV start**	Select from segment 1 set point, slope-priority PV start
	Standby	0 h 0 min to 99 h 59 min
		0 day 0 h to 99 day 23 h
Operation end operation		Select from resetting, continuing control at final set point, and fixed SP control
Program SP shift		Same program SP shift for all programs

[Communications Specifications] (Recommended replacement)

Item	Recommended replacement Model E5AC-T series, Model E5EC-T series
CompoWay/F	
Transmission path connection	RS-485: Mutidrop
Communications method	RS-485 (two-wire, half duplex)
Synchronization method	Start-stop synchronization
Baud rate	9600, 19200, 38400, 57600 bps
Transmission code	ASCII
Data bit length	7 or 8 bits
Stop bit length	1 or 2 bits
Error detection	Vertical parity(None, even, or odd) Block check character): CompoWay/F CRC-16 Modbus
Flow control	None
Interface	RS-485
Retry function	None
Communication buffer	217 bytes
Communication response send wait time	0 to 99 ms Default: 20 ms
Programless communications	You can use the memory in the PLC to read and write E5[]C-T parameters, start and stop operation, etc. The E5[]C-T automatically performs communications with PLCs. No communications programming is required. Number of connected Digital Temperature Controllers: 32 max. Applicable PLCs OMRON PLCs CS/CJ/CP/NJ series or NX1P Mitsubishi Electric PLCs MELSEC-Q/L/iQ-R series
Component Communications	When Digital Temperature Controllers are connected, set points and RUN/STOP commands can be sent from the Digital Temperature Controller that is set as the master to the Digital Temperature Controllers that are set as slaves. Slope and offsets can be set for the set point. Number of connected Digital Temperature Controllers: 32 max. (including master)
Copying	When Digital Temperature Controllers are connected, the parameters can be copied from the Digital Temperature Controller that is set as the master to the Digital Temperature Controllers that are set as slaves.

[Rating／Characteristics] (Recommended replacement)

Item		Recommended replacement Model EJ1N-HFUB-DRT
Supply voltage	**DeviceNet™ power supply**	24 VDC (for internal circuits)
	EDU power supply	24 VDC (for RS-485 communications circuits and Temperature Controllers)
Operating voltage range	**DeviceNet™ power supply**	11 to 25 VDC
	EDU power supply	20.4 to 26.4 VDC
Power consumption (with maximul load)		1W max.
Main functions		Remote I/O communications, explicit message communications, CompoWay/F command feed-through function, parameter backup function, and configuration registration, etc.
Ambient temperature range		Operating: −10°C to 55°C Storage: −25°C to 65°C (with no icing or condensation) For 3 years of assured use: −10 to 50°C (with no icing or condensation)
Ambient humidity range		Operating: 25% to 85% (with no condensation)
Insulation resistance		20 MΩ min. (at 500 VDC)
Dielectric strength		600 VAC 50/60Hz 1min
Vibration		10 to 55 Hz, 10 m/s^2 for 2 hours each in X, Y, and Z directions
Shock		150m/s^2 max. 3 times each in 3 axes, 6 directions
Weight		70g max
Degree of protection		IP20
Memory protection		EEPROM, 100,000 write operations (backup data)
Applicable standards	**Approved standards**	UL61010-1, CSA C22.2 No.1010-1

[Communications Specifications] (Recommended replacement)

<table>
<tr><th colspan="2">Item</th><th colspan="4">Recommended replacement
Model EJ1N-HFUB-DRT</th></tr>
<tr><td colspan="2">Communications protocol</td><td colspan="4">Conforms to DeviceNet™.</td></tr>
<tr><td rowspan="3">Communication functions</td><td>Remote I/O communications</td><td colspan="4">・Master/Slave connections (poll/COS/Cyclic)
・Conforms to DeviceNet™ specifications.</td></tr>
<tr><td>I/O allocation</td><td colspan="4">Input and output data can be allocated freely by user with the Configurator.
Allocations can be made to DeviceNet™ parameters or Temperature Controller parameters.
Two blocks for IN Area, up to 100 words
One block for OUT Area, up to 100 words
(The first word is always allocated to the OUT Enable Bit.)</td></tr>
<tr><td>Message communications</td><td colspan="4">・Explicit message communications
・CompoWay/F communications commands can be sent (commands are sent in explicit message format).</td></tr>
<tr><td colspan="2">Connection format</td><td colspan="4">Combination of multidrop and T-branch connections
(for trunk and drop lines)</td></tr>
<tr><td colspan="2">Band rate</td><td colspan="4">DeviceNet™: 500, 250, or 125 kbps, or automatic detection of master baud rate</td></tr>
<tr><td colspan="2">Communication media</td><td colspan="4">Special 5-wire cable (2 signal lines, 2 power lines, and 1 shield line)</td></tr>
<tr><td colspan="2" rowspan="5">Communication distance</td><td>Band rate</td><td>Network length</td><td>Drop line length</td><td>Total drop line length</td></tr>
<tr><td>500 kbps</td><td>100 m max. (100 m max.)</td><td>6 m max.</td><td>39 m max.</td></tr>
<tr><td>250 kbps</td><td>250 m max. (100 m max.)</td><td>6 m max.</td><td>78 m max.</td></tr>
<tr><td>125 kbps</td><td>500 m max. (100 m max.)</td><td>6 m max.</td><td>156 m max.</td></tr>
<tr><td colspan="4">The values in parentheses apply when Thin Cables are used.</td></tr>
<tr><td colspan="2">Communications power supply</td><td colspan="4">11 to 25 VDC</td></tr>
<tr><td colspan="2">Maximum number of nodes that can be connected</td><td colspan="4">64 (includes Configurator when used.)</td></tr>
<tr><td colspan="2">Maximum number of slaves that can be connected</td><td colspan="4">63</td></tr>
<tr><td colspan="2">Error control</td><td colspan="4">CRC error detection</td></tr>
<tr><td colspan="2">DeviceNet™ power supply</td><td colspan="4">Power supplied from DeviceNet™ communications connector</td></tr>
<tr><td colspan="2">Applicable Temperature Controllers</td><td colspan="4">Model EJ1 series
【TC4】Model EJ1N-TC4A-QQ, Model EJ1N-TC4B-QQ
【TC2】Model EJ1N-TC2A-QNHB, Model EJ1N-TC2B-QNHB, Model EJ1N-TC2A-CNB, Model EJ1N-TC2B-CNB</td></tr>
<tr><td colspan="2">Maximum number of Temperature Controllers that can be connected</td><td colspan="4">16 Units (model numbers with TC4: 64 channels max., model numbers with TC2: 32 channels max.)</td></tr>
</table>

[Rating／Characteristics] (Recommended replacement)

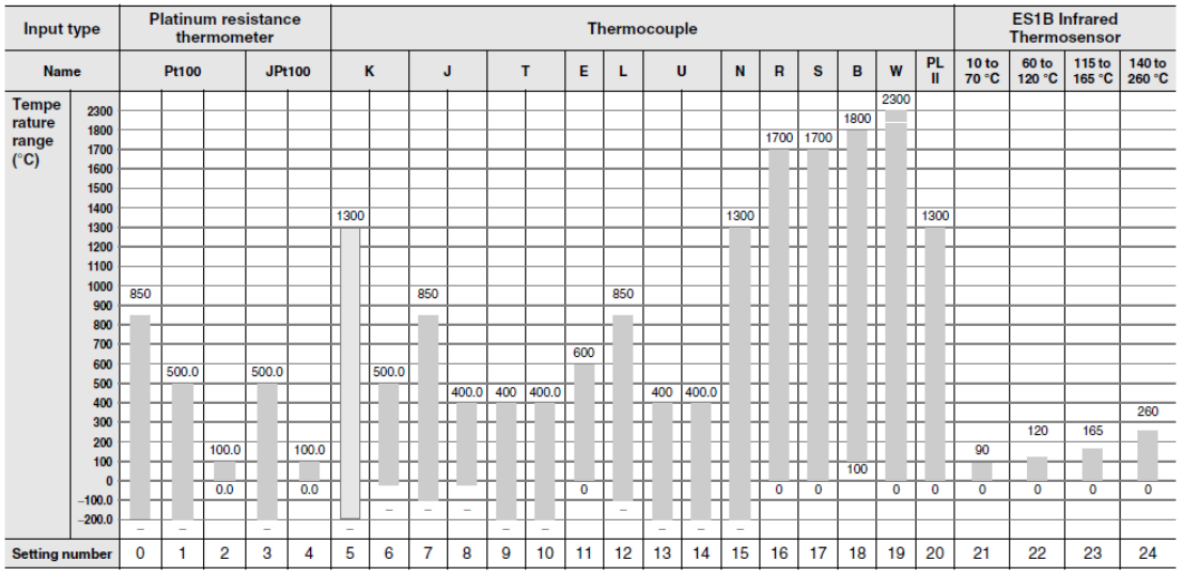
Item		Recommended replacement Model EJ1N series	
		Model EJ1N-TC4 type	Model EJ1N-TC2 type
Supply voltage		24 VDC	
Operating voltage range		85 to 110% of rated supply voltage	
Power consumption		5 W max (with maximul load)	4 W max (with maximul load)
Input		Thermocouple: K, J, T, E, L, U, N, R, S, B, W, PLII ES1B Infrared Thermosensor: 10 to 70°C, 60 to 120°C, 115 to 165°C, 140 to 260°C Analog input: 4 to 20 mA, 0 to 20 mA, 1 to 5 V, 0 to 5 V, 0 to 10 V Platinum resistance thermometer: Pt100, JPt100	
Input impedance		Current input: 150Ω max., voltage input: 1 MΩ min.	
Control output	Voltage output	Output voltage: 12 VDC ±15%, max. load current: 21 mA (PNP models with short-circuit protection circuit)	
	Transistor Output	—	Max. operating voltage: 30 V, max., load current: 100 mA
	Current output	—	Current output range: 4 to 20 mA or 0 to 20 mA DC Load: 500Ω max. (including transfer output) (Resolution: Approx. 2,800 for 4 to 20 mA DC, approx. 3,500 for 0 to 20 mA DC)
Event Inputs	Input points	—	2
	Contact Input	—	ON: 1 kΩ max., OFF: 100 kΩ min.
	Non-contact Input	—	ON: Residual voltage: 1.5 V max., OFF: Leakage current: 0.1 mA max.
		—	Outflow current: Approx. 4 mA per point
Number of input and control points		Input points: 4, Control points: 4	Input points: 2, Control points: 2
Setting method		Via communications	
Control method		ON/OFF control or 2-PID (with autotuning, self-tuning)	
Other functions		Two-point input shift, digital input filter, remote SP, SP ramp, manual manipulated variable, manipulated variable limiter, interference overshoot adjustment, loop burnout alarm, RUN/STOP, banks, I/O allocations, etc.	
Ambient temperature range		Operating: −10 to 55°C, For 3 years of assured use: −10 to 50°C, Storage: −25°C to 65°C (with no condensation or icing)	
Ambient humidity rature range		Operating: 25% to 85% (with no condensation)	
Indication accurasy		Thermocouple input/platinum resistance thermometer input: (±0.5% of indication value (PV) or ±1°C, whichever is greater) ±1 digit max. Analog input: ±0.5% FS ±1 digit max. CT input: ±5% FS ±1 digit max.	
Hysteresis		0.1 to 999.9 EU (in units of 0.1 EU)	
Proportional band (P)		0.1 to 999.9 EU (in units of 0.1 EU)	
Integral time (I)		0 to 3,999 s (in units of 1 s)	
Derivative time (D)		0.0 to 999.9 s (in units of 0.1 s)	
Control period		0.5 s, 1 to 99 s (in units of 1 s)	
Manual reset value		0.0 to 100.0% (in units of 0.1%)	
Alarm setting range		-1999 to 9999 (decimal point position depends on input type)	
Sampling period		250 ms	

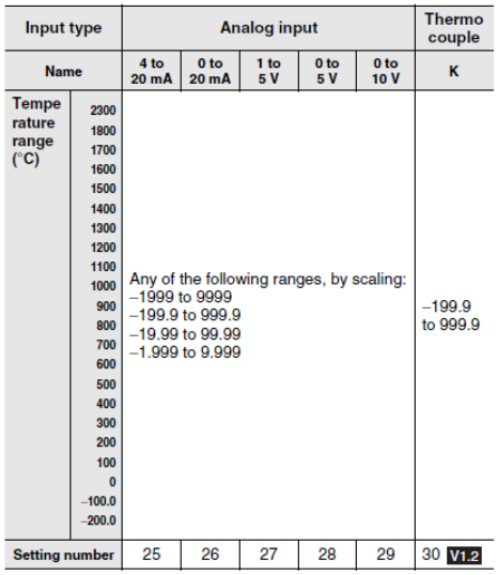
[Rating／Characteristics] (Recommended replacement)

Item		Recommended replacement Model EJ1N series	
		Model EJ1N-TC4 type	Model EJ1N-TC2 type
Influence of signal source		Thermocouple: 0.1°C (0.2°F)/Ω max. (100Ω max per line) Platinum resistance thermometer: 0.4°C (0.8°F)/Ω max. (10Ω max per line)	
Insulation resistance		20 MΩ min. (at 500 VDC)	
Dielectric strength		600 VAC, 50/60 Hz for 1 min between current-carrying terminals of different polarity	
Vibration resistance		10 to 55 Hz, 20 m/s^2 for 2 hours each in X, Y, and Z directions	
Shock resistance		150 m/s^2, 3 times each in 6 directions	
Weight		180 g	
Degree of protection		Rear case: IP20, Terminal section: IP00	
Memory protection		Non-volatile memory (number of writes: 100,000)	
Applicable standards	Approved standards	UL61010C-1, CSA C22.2 No.1010-1	

[Input range]

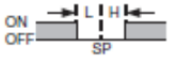
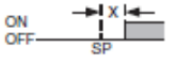
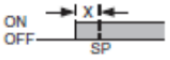
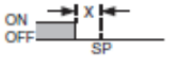
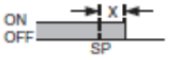
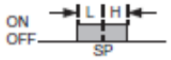
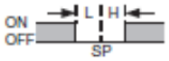
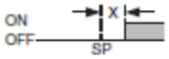
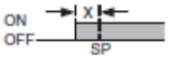
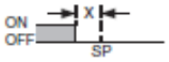
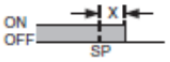
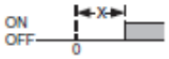
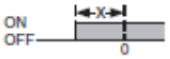
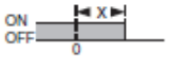
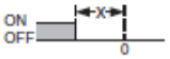
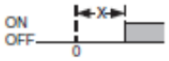
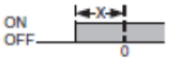
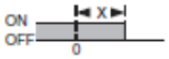
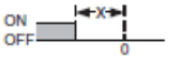
Recommended replacement Model EJ1N series





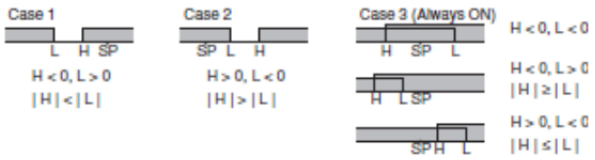
[Alarm Types] (Recommended replacement)

Recommended replacement
Model EJ1N series

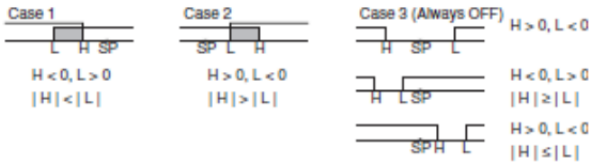
Set value	Alarm type	Alarm Output Function	
		When alarm value X is positive	When alarm value X is negative
0	Alarm function OFF	Output OFF	
1 (See note 1.)	Upper and lower limit		(See note 2.)
2 Default	Upper limit		
3	Lower limit		
4 (See note 1.)	Upper and lower-limit range		(See note 3.)
5 (See note 1.)	Upper and lower-limit alarm with standby sequence	(See note 5.) 	(See note 4.)
6	Upper-limit alarm with standby sequence		
7	Lower-limit alarm with standby sequence		
8	Absolute-value upper limit		
9	Absolute-value lower limit		
10	Absolute-value upper limit with standby sequence		
11	Absolute-value lower limit with standby sequence		
12	LBA (Loop Burnout Alarm)		

Note (1) With set values 1, 4 and 5, the upper and lower limit values can be set independently for each alarm type, and are expressed as “L” and “H.”

(2) Set value: 1, Upper and lower-limit alarm



(3) Set value: 4, Upper and lower-limit range

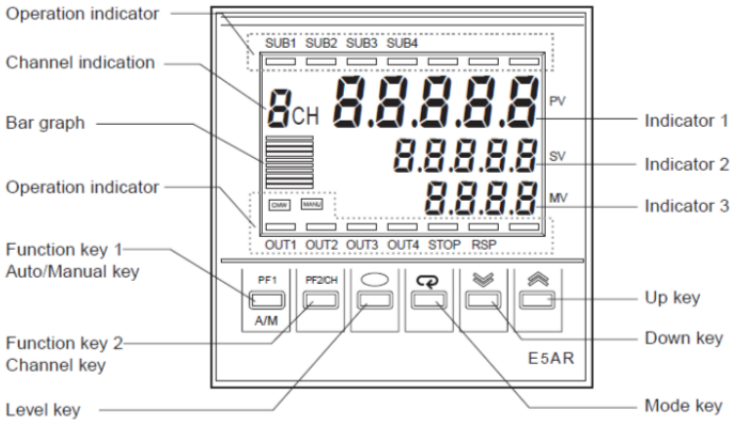


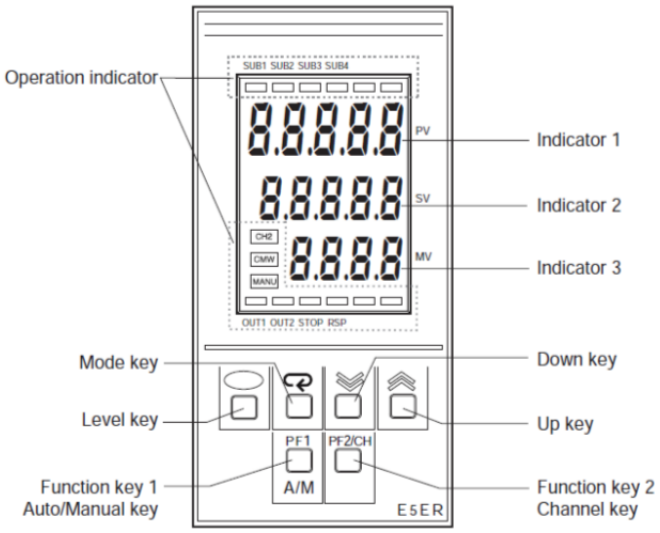
[Communications Specifications] (Recommended replacement)

Item	Recommended replacement Model EJ1N series		
	Port B	**Port A/Port A (Connector)**	**Model G3ZA Connection Port**
Transmission path connection	RS-485 (Multiple points)		
Communications method	RS-485 (two-wire, half duplex)		
Synchronization method	Start-stop synchronization		
Communications protocol	CompoWay/F, Modbus	CompoWay/F	
Band rate	9.6 k/19.2 k/38.4 k/57.6 k/ 115.2 kbps	38.4 kbps fixed	57.6 kbps fixed
Transmission code	CompoWay/F: ASCII, Modbus: RTU	CompoWay/F: ASCII	
Data bit length	7 or 8 bits	7 bits	
Stop bit length	1 or 2 bits	2 bits	
Error detection	Vertical parity (none, even or odd)	Vertical parity (even)	
	Block check character (BCC): with CompoWay/F, CRC-16: (with Modbus)		
Flow control	None		
Interface	RS-485		
Retry function	None		
Communication response send wait time	0 to 99 ms (Default: 5 ms)	1 to 99 ms (Default: 1 ms)	―
Number of Units that can be connected in parallel	64 Units (model numbers with TC4: 256 channels, model numbers with TC2: 128 channels) Communications connection via port B on the End Unit	64 Units (model numbers with TC4: 256 channels, model numbers with TC2: 128 channels) Communications connection via port A on the End Unit	8 Units (Communications connection via G3ZA port on the Basic Unit)

[Operation methods] (Product Discontinuation)

Product Discontinuation
Model E5AR series, Model E5ER series,
Model E5AR-DRT series, Model E5ER-DRT series

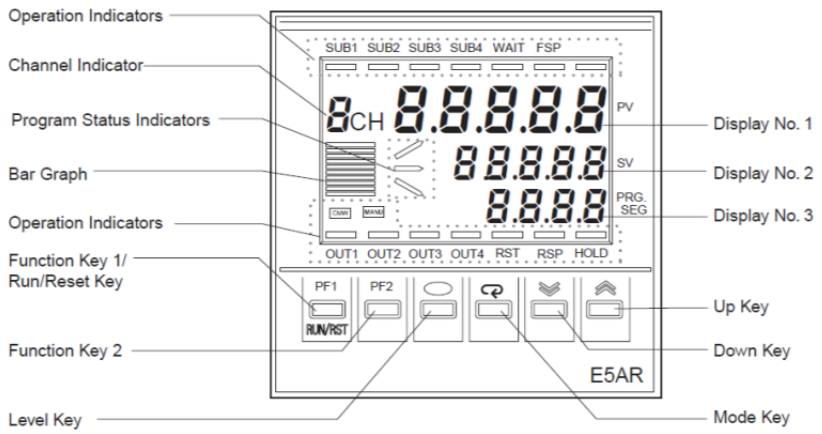


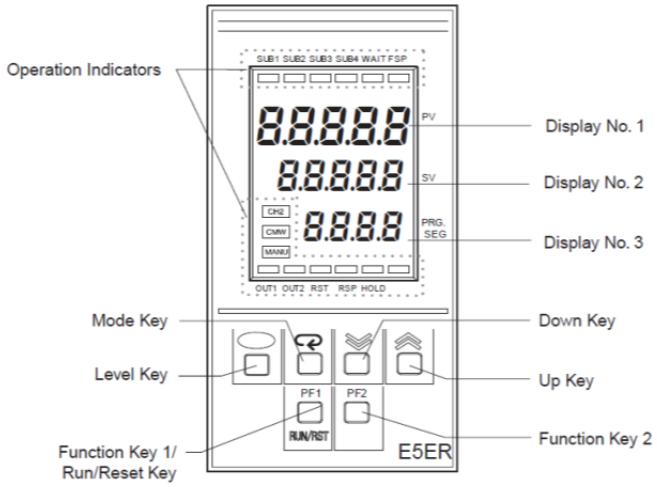


Key	Name	Explanation
□	Level key	Press to change setting levels.
⟲	Mode key	Press to change the setting data within a setting level.
∧	Up key	Each time ∧ is pressed, the value of display 2 increases. Hold down the key to increase the value quickly. The key is also used to scroll forward through the setting item.
∨	Down key	Each time ∨ is pressed, the value of display 2 decreases. Hold down the key to decrease the value quickly. The key is also used to scroll backward through the setting item.
□+⟲	Protect key	Press to change to a protected level. See "4.1 Configuration of Setting Levels and Key Operation" (page 4-2) for operation when the □ key and ⟲ are pressed simultaneously.
PF1 / A/M	Function key 1/ Auto/Manual key	When pressed, this function key activates the function set in "PF1 setting". Example: "PF1 setting" is "A/M" ("A/M" is the default setting) Functions as an Auto / Manual key (hereafter shown as the A/M key) that is used to switch between auto mode and manual mode. The mode changes when the key is pressed for at least one second (the timing of key release does not matter).
PF2 / CH	Function key 2 / channel key	Functions as a channel key for multi-channel control. For 1-point input types, the key acts as a function key that activates the function set in "PF2 setting" when pressed. When used as a channel key: Switches channels on models with a multi-channel configuration. The channel switching sequence is as follows: CH1 → CH2 → ··· → Highest channel set in "Enabled channel setting" ↑_____↓

[Operation methods] (Product Discontinuation)

Product Discontinuation
Model E5AR-T series, Model E5ER-T series



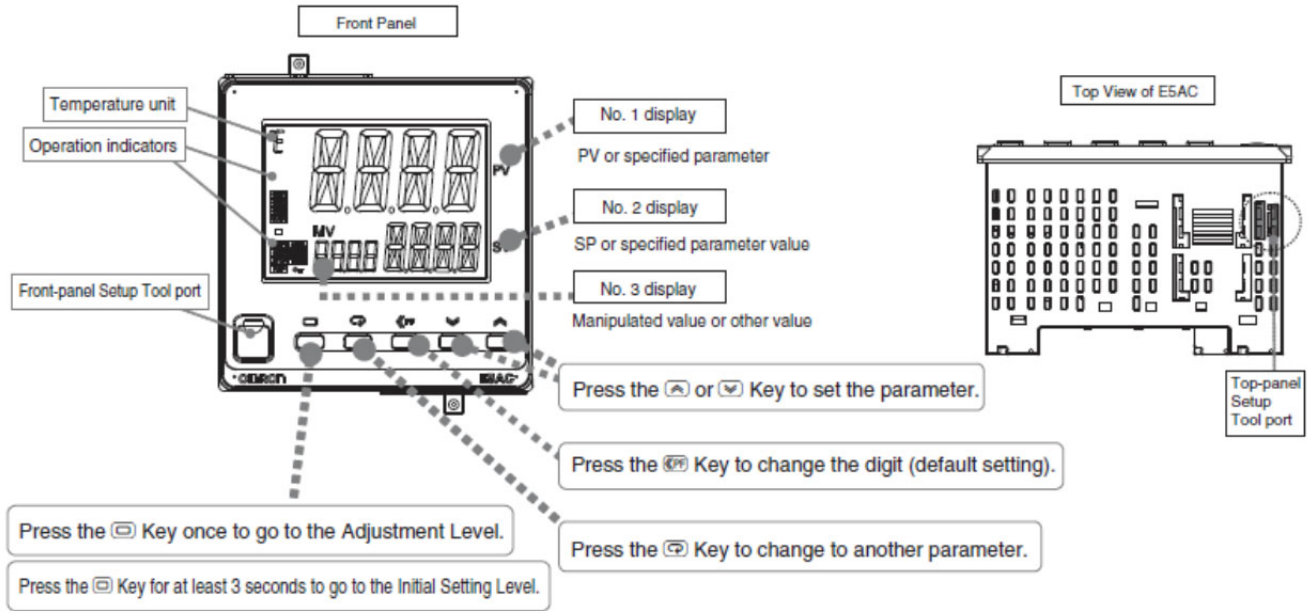


Key	Name	Description
□	Level Key	Press to change setting levels.
⇄	Mode Key	Press to change the parameter within a setting level. Hold down to change the parameter backward (one change per second).
∧	Up Key	Each time the ∧ Key is pressed, the value of the No. 2 display increases. Hold down the key to increase the value quickly. The key is also used to scroll forward through the setting items.
∨	Down Key	Each time the ∨ Key is pressed, the value of the No. 2 display decreases. Hold down the key to decrease the value quickly. The key is also used to scroll backward through the setting items.
□+⇄	Protect Key	Press both the □ and ⇄ Keys simultaneously to change to the Protect Level. Refer to *4.1 Setting Levels and Key Operations* (P. 4-2) for details.
PF1 / RUN/RST	Function Key 1/ Run/Reset Key	When pressed, this function key activates the function set with the PF1 parameter. Example: When the PF1 parameter is set to "RUN/RST," this key functions as an Run/Reset Key that is used to switch between Run Mode and Reset Mode. ("RUN/RST" is the default PF1 setting.) The mode changes from Reset Mode to Run Mode when the key is pressed for at least one second and changes from Run Mode to Reset Mode when the key is press for at least two seconds.
PF2	Function key 2	When pressed, this function key activates the function set with the PF2 parameter. Example: When this key is set as a Channel Key, the channel is switched on models with a multi-channel configuration. The channel switching sequence is as follows: CH1 → CH2 → ··· → Highest channel set in the Enabled Channel Setting ↑_____↓

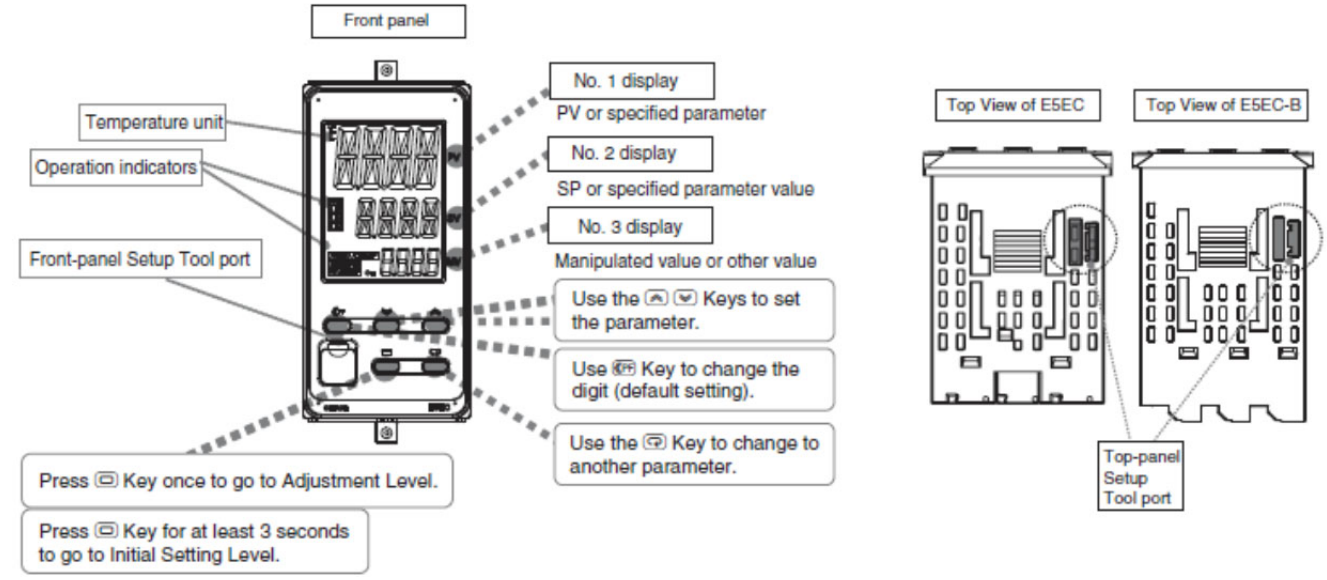
[Operation methods] (Recommended replacement)

Recommended replacement
Model E5AC series, Model E5EC series

E5AC



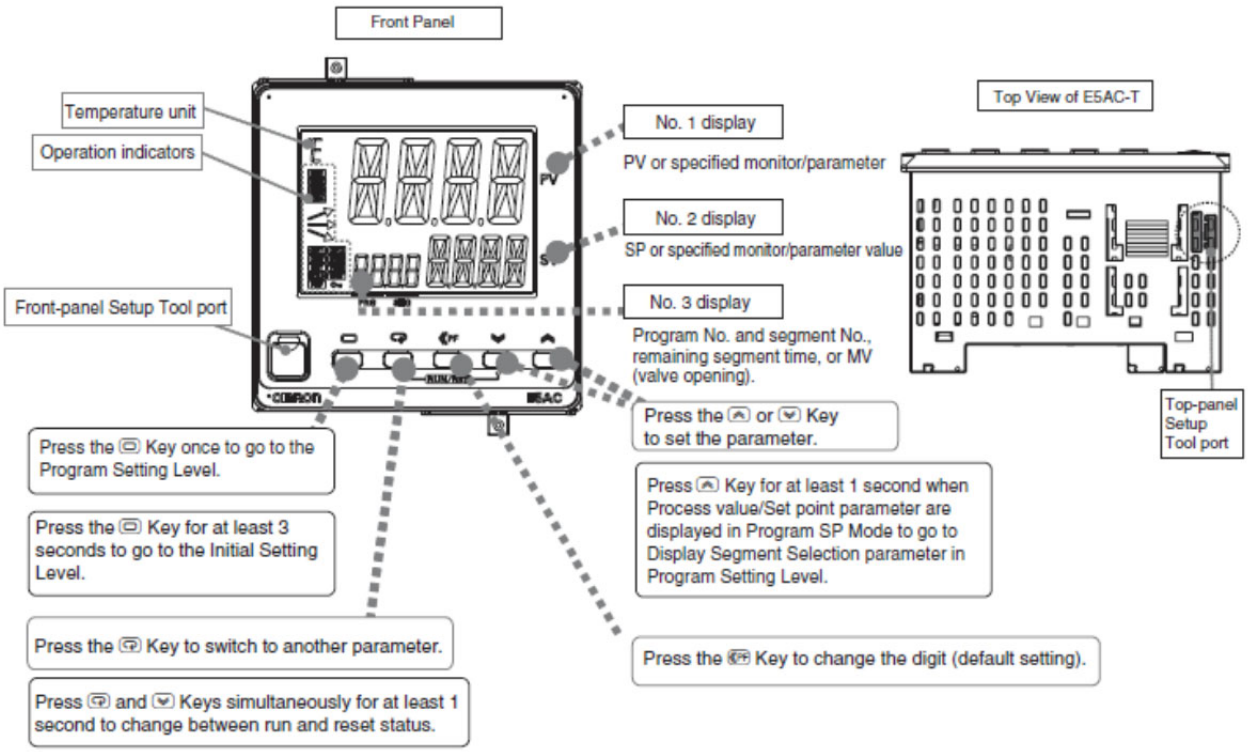
E5EC



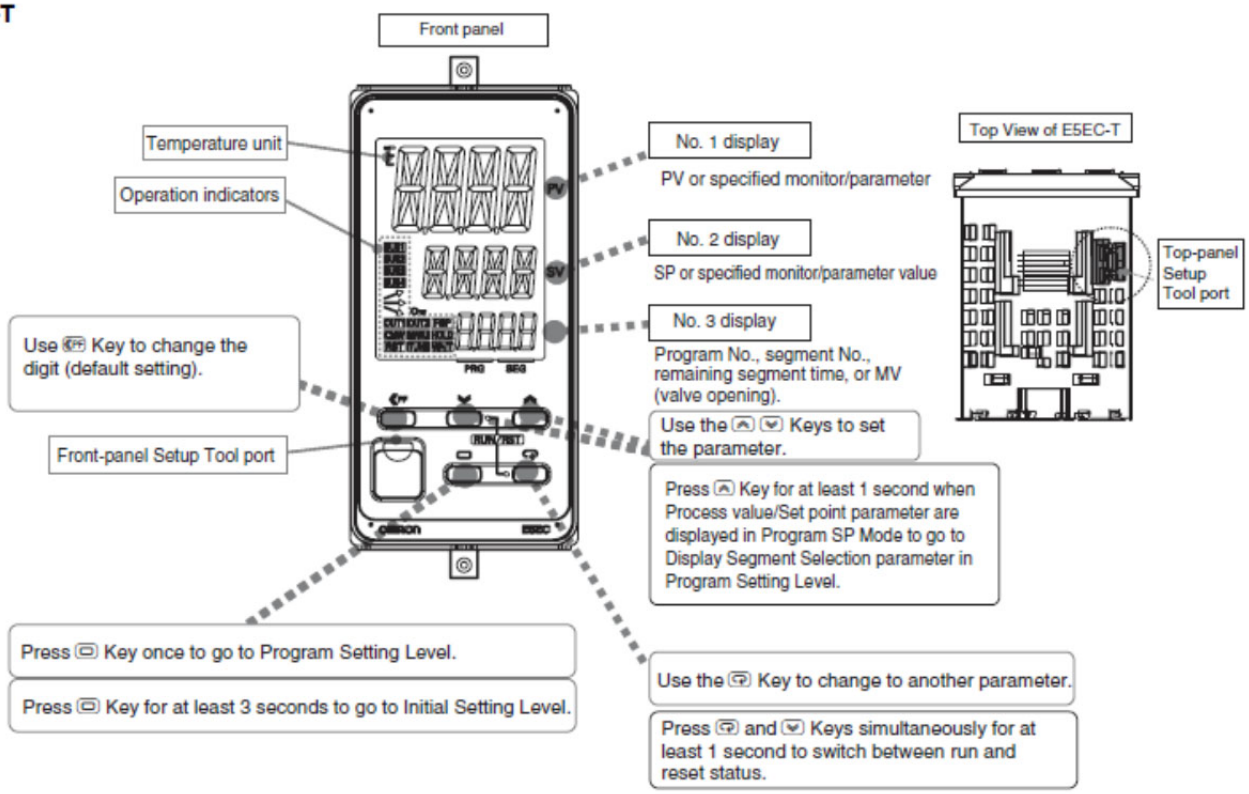
[Operation methods] (Recommended replacement)

Recommended replacement
Model E5AC-T series, Model E5EC-T series

E5AC-T

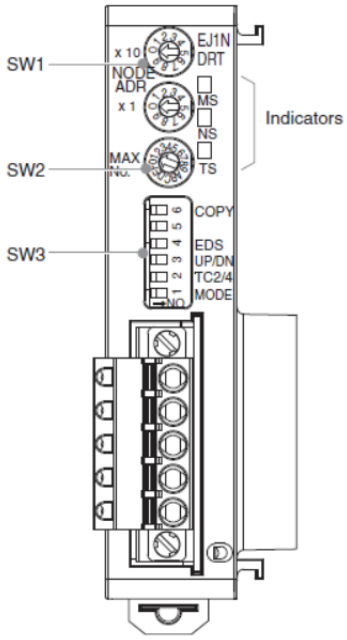


E5EC-T



[Operation methods] (Recommended replacement)

Recommended replacement
Model EJ1N-HFUB-DRT



Specification Settings

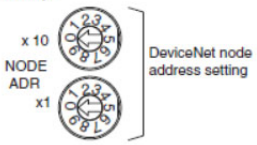
Switch Operation

- Always turn OFF the DeviceNet communications power supply and EDU power supply before setting the Unit. ✻
- Set the switches with a small flat-blade screwdriver. Do not set the switches midway between settings.
- The SW1 switches are set to 00, SW2 is set to 0, and SW3 pins are all set to OFF in the default settings.

✻ The setting of pin 3 on SW3 can be changed while the power is ON.

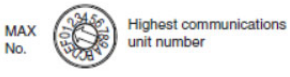
SW1 Settings

Use these switches to set the node address as a slave in the DeviceNet network between 00 and 63 decimal (node addresses 64 to 99 cannot be used).



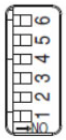
SW2 Settings

Use this switch to set the highest communications unit number (0 to F: 0 to 15 decimal) of the connected Temperature Controllers. This setting is enabled only when DIP switch pin 1 is set to ON (simple I/O allocations).



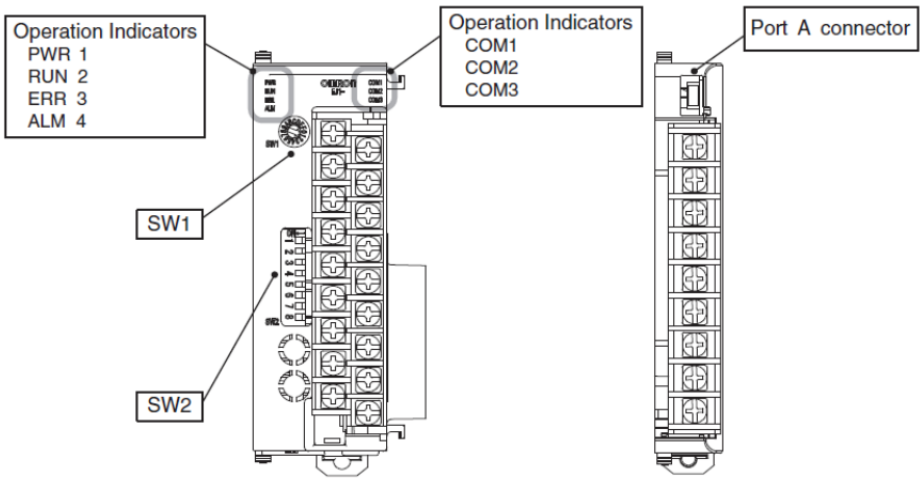
SW3 Settings

DIP switch		Meaning
6 (COPY)	---	Upload/Download OFF → ON (1 s min., 5 s max.) → OFF
5	---	Not used.
4 (EDS)	OFF	Use the OMRON Configurator.
	ON	Use universal Configurator. (EDS files supported)
3 (UP/DN)	OFF	Upload (from Temperature Controller to DeviceNet Communications Unit)
	ON	Download (from DeviceNet Communications Unit to Temperature Controller)
2 (TC2/4)	OFF	Simple allocation to TC2 Units.
	ON	Simple allocation to TC4 Units.
1 (MODE)	OFF	I/O Allocation from the Configurator.
	ON	Simple I/O Allocation



[Operation methods] (Recommended replacement)

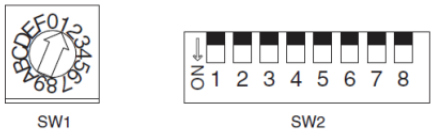
Recommended replacement
Model EJ1N series



Setting the Unit Number

SW1 and SW2 are used together to set the unit number to between 00 and 63.

Note The factory setting is unit number 01.



Unit Number Settings

SW2		SW1															
1	2	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
OFF	OFF	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
ON	OFF	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
OFF	ON	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
ON	ON	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63

EJ1□-HFU (Advanced Unit)

SW2	Meaning
3 to 7	Not used (OFF)
8	• EJ1□-HFU□-NFLK OFF: RS-485 is selected. ON: RS-232C is selected. • EJ1□-HFU□-NFL2 Not used (OFF).

Specifications and prices in this product news are as of the issue date and are subject to change without notice.
Only main changes in specifications are described in this document. Please be sure to read the relevant catalogs, datasheets, product specifications, instructions, and manuals for precautions and necessary information when using products.