

## SECTION 6

# Heating and Cooling Control Commands

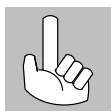
This section describes the commands used for heating and cooling control.

- 6-1 Dead Band and Overlap Band Write: WD .....
- 6-2 Dead Band and Overlap Band Read: RD .....
- 6-3 Cooling Coefficient Write: WC .....
- 6-4 Cooling Coefficient Read: RC .....

## 6-1 Dead Band and Overlap Band Write: WD

### Function

This command is used to write the dead band or overlap band of a control output in heating and cooling control operation.



1. Refer to the following for the designation of the dead band or overlap band of a control output.
  - If positive parameters are set with Dead Band and Overlap Band Write (WD), the dead band of the control output will be designated.
  - If negative parameters are set with Dead Band and Overlap Band Write (WD), the overlap band of the control output will be designated.
2. Dead Band and Overlap Band Write (WD) cannot be used at a control point being auto-tuned.

### Setting Data Range

Setting unit	1	
°C or °F	°C	°F
Default	0000	
Setting data	-999 to 0999	

### Command

													Setting data					
@	Unit x16 <sup>1</sup>   x16 <sup>0</sup>		W	D	Bank	Control point	0	0	Dead band or overlap band x10 <sup>3</sup>   x10 <sup>2</sup>   x10 <sup>1</sup>   x10 <sup>0</sup>				FCS	*	↵			
Header code						Data code			Or minus sign (-)				Terminator					

### Response

@	Unit x16 <sup>1</sup> x16 <sup>0</sup>		W	D	End code x16 <sup>1</sup> x16 <sup>0</sup>		FCS	*	↵
Header code							Terminator		

### Communications Example

In this example, the E5ZE is operated with Dead Band and Overlap Band Write (WD) under the following conditions.

Unit no.: 1  
Memory Bank no.: 2  
Control Point: 3  
Overlap Band: 5°C

#### Command

@	0	1	W	D	2	3	0	0	-	0	0	5	4	B	*	↵
										-5°C (Overlap band)						

#### Response

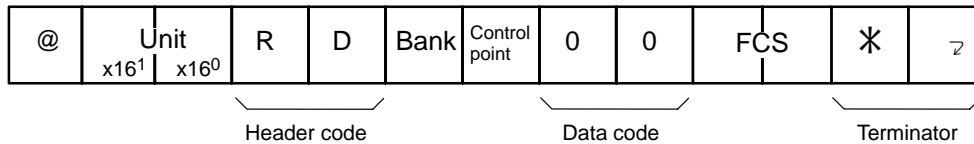
@	0	1	W	D	0	0	5	2	*	↵
Normal end										

## 6-2 Dead Band and Overlap Band Read: RD

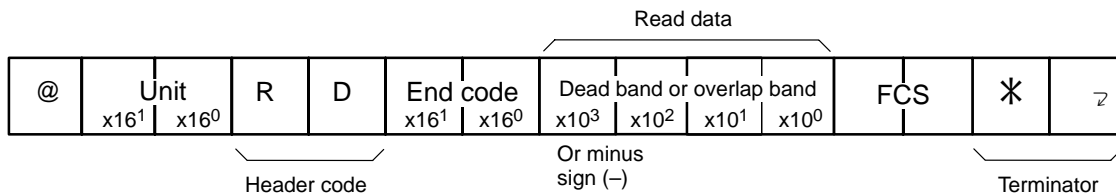
### Function

This command is used to read the dead bands or overlap bands that have been set at a control point.

### Command



### Response



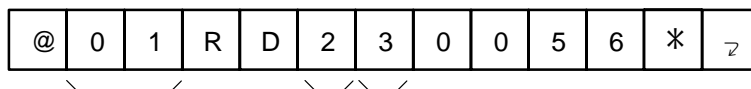
1. The response block for Dead Band and Overlap Band Read (RD) does not include read data if the end code of the response block is other than 00.
2. Refer to 1-4 End Codes.

### Communications Example

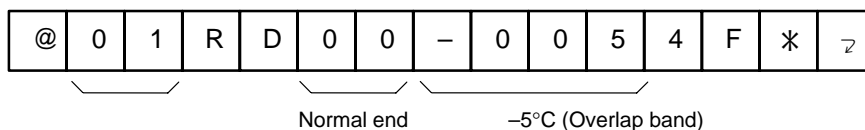
In this example, the E5ZE is operated with Dead Band and Overlap Band Read (RD) under the following conditions.

Unit no.: 1  
Memory Bank no.: 2  
Control Point: 3  
Overlap Band: 5°C

### Command



### Response



## 6-3 Cooling Coefficient Write: WC

### Function

This command is used to write cooling coefficients that designate cooling-side proportional bands to a control point in heating and cooling control operation.



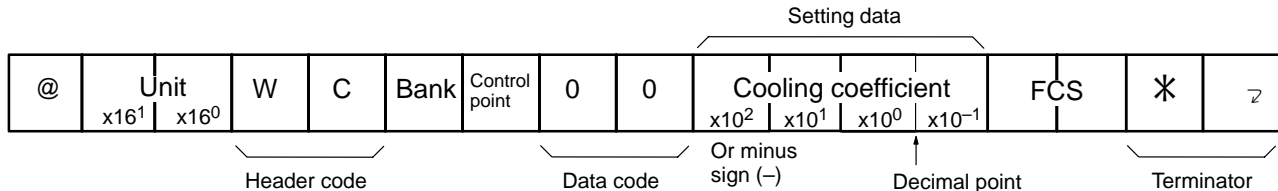
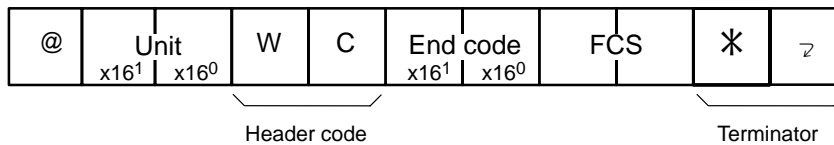
1. The cooling-side proportional band to be set a control point is calculated according to the cooling coefficient and proportional band. Refer to the following formula.  
Cooling-side proportional band = Cooling coefficient x Proportional band
2. Cooling Coefficient Write (WC) cannot be used at a control point being auto-tuned.

**Setting Data Range**

Setting unit	0.1
Default	0010
Setting data	0000 to 0100

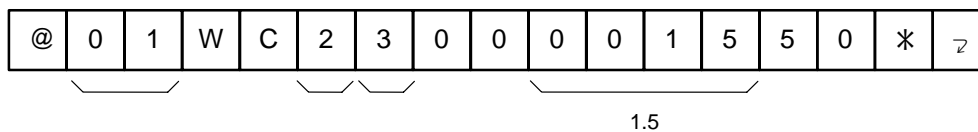
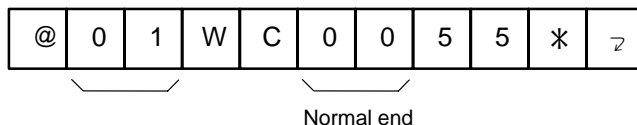


If the cooling coefficient of a control point set to 0000 is used for temperature control with the E5ZE, the percentage of the cooling-side control output will be always 0.

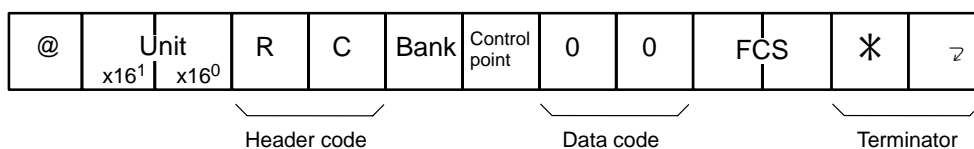
**Command****Response****Communications Example**

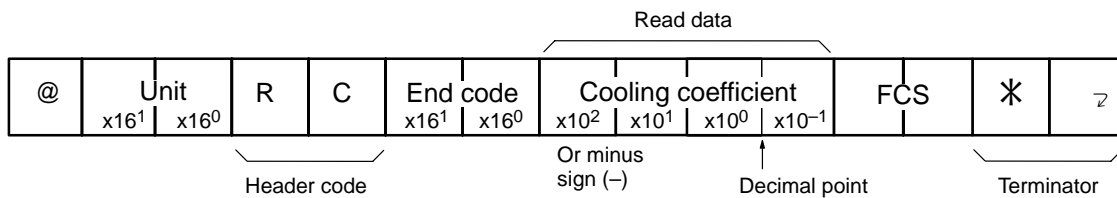
In this example, the E5ZE is operated with Cooling Coefficient Write (WC) under the following conditions.

Unit no.: 1  
Memory Bank no.: 2  
Control Point: 3  
Cooling Coefficient: 1.5

**Command****Response****6-4 Cooling Coefficient Read: RC****Function**

This command is used to read the cooling coefficients that have been set at a control point.

**Command**

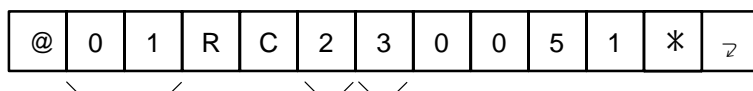
**Response**

1. The response block for Cooling Coefficient Read (RC) does not include read data if the end code of the response block is other than 00.
2. Refer to 1-4 End Codes.

**Communications Example**

In this example, the E5ZE is operated with Cooling Coefficient Read (RC) under the following conditions.

Unit no.: 1  
 Memory Bank no.: 2  
 Control Point: 3  
 Cooling Coefficient: 1.5

**Command****Response**