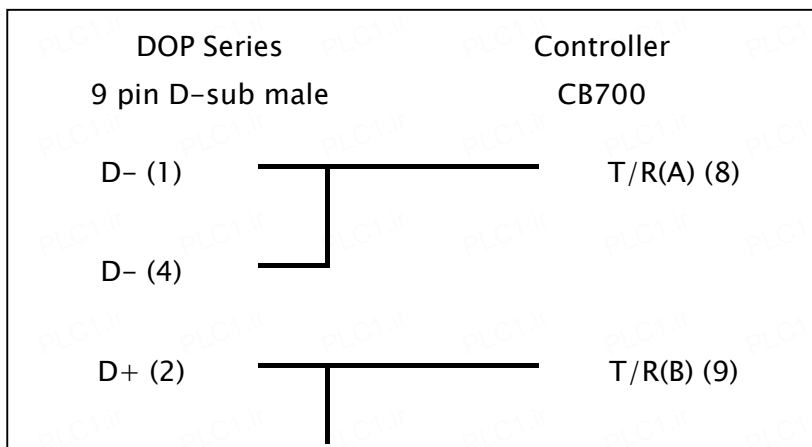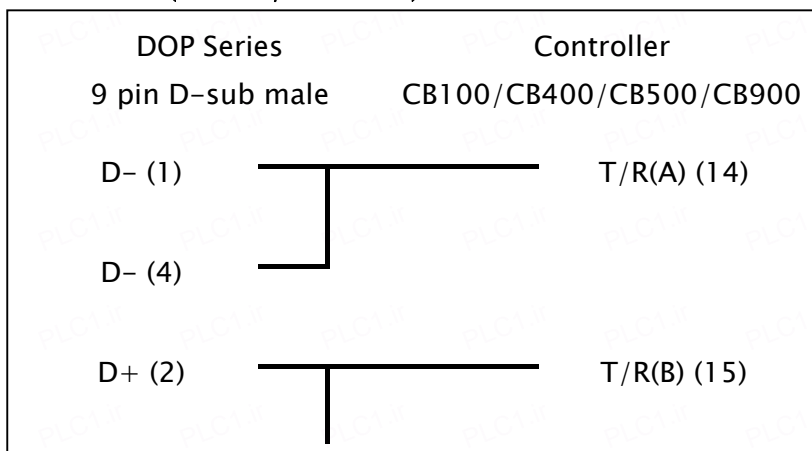# RKC CB Series

## HMI Factory Setting:

Baud rate: 9600, 8, Even, 1 (RS-485)

Controller Station Number: 0
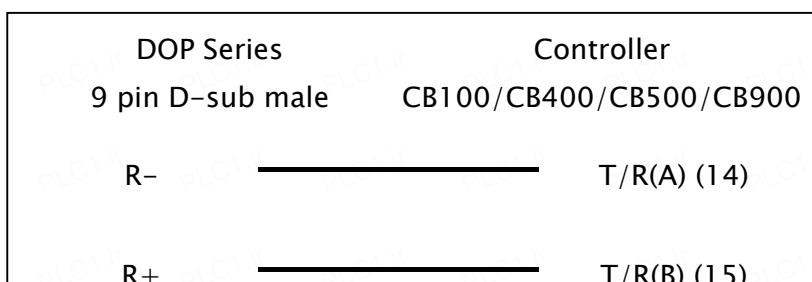
Control Area / Status Area: None/None

## Connection

### a. RS-485 (DOP-A/AE Series)

```
        DOP Series              Controller
     9 pin D-sub male      CB100/CB400/CB500/CB900

        D- (1)                   T/R(A) (14)


        D- (4)


        D+ (2)                   T/R(B) (15)
```

```
        DOP Series              Controller
     9 pin D-sub male           CB700

        D- (1)                   T/R(A) (8)


        D- (4)


        D+ (2)                   T/R(B) (9)
```

### b. RS-485 (DOP-AS57 Series)

```
        DOP Series              Controller
     9 pin D-sub male      CB100/CB400/CB500/CB900

         R-                      T/R(A) (14)


         R+                      T/R(B) (15)
```

```
┌─────────────────────────────────────────────────────┐
│        DOP Series              Controller             │
│      9 pin D-sub male          CB700                  │
│                                                       │
│        R−      ─────────────   T/R(A) (8)             │
│                                                       │
│        R+      ─────────────   T/R(B) (9)             │
└─────────────────────────────────────────────────────┘
```
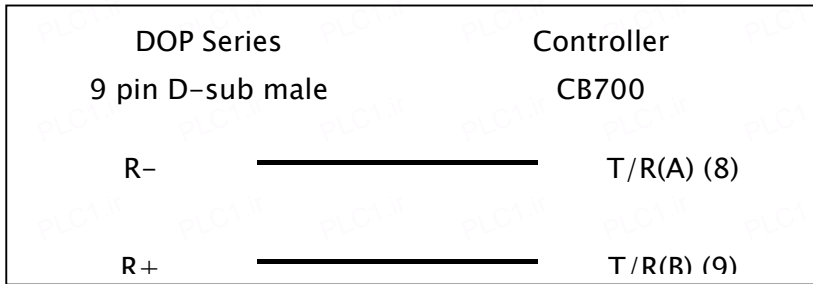
### c.  RS-485 (DOP-AS35/A38 Series)

```
┌─────────────────────────────────────────────────────┐
│        DOP Series              Controller             │
│      9 pin D-sub male      CB100/CB400/CB500/CB900    │
│                                                       │
│        R−      ──────┐──────   T/R(A) (14)            │
│                      │                                │
│        T−      ──────┘                                │
│                                                       │
│        R+      ──────┬──────   T/R(B) (15)            │
│                      │                                │
└─────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────┐
│        DOP Series              Controller             │
│      9 pin D-sub male          CB700                  │
│                                                       │
│        R−      ──────┐──────   T/R(A) (8)             │
│                      │                                │
│        T−      ──────┘                                │
│                                                       │
│        R+      ──────┬──────   T/R(B) (9)             │
│                      │                                │
└─────────────────────────────────────────────────────┘
```

### d.  RS-485 (DOP-B Series)

```
┌─────────────────────────────────────────────────────┐
│        DOP Series              Controller             │
│      9 pin D-sub male      CB100/CB400/CB500/CB900    │
│                                                       │
│        D−(6)   ─────────────   T/R(A) (14)            │
│                                                       │
│        D+(1)   ─────────────   T/R(B) (15)            │
└─────────────────────────────────────────────────────┘
```

```
┌─────────────────────────────────────────────────────────┐
│       DOP Series                    Controller           │
│     9 pin D-sub male                  CB700              │
│                                                          │
│        D-(6)  ──────────────────────  T/R(A) (8)        │
│                                                          │
│        D+(1)  ──────────────────────  T/R(B) (9)        │
└─────────────────────────────────────────────────────────┘
```
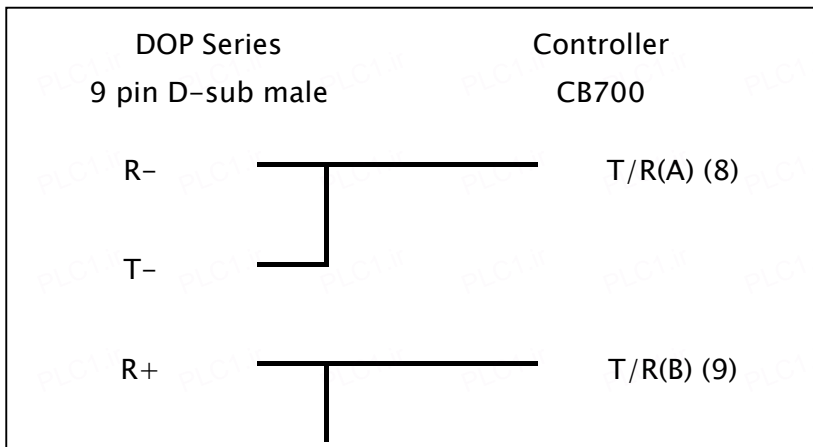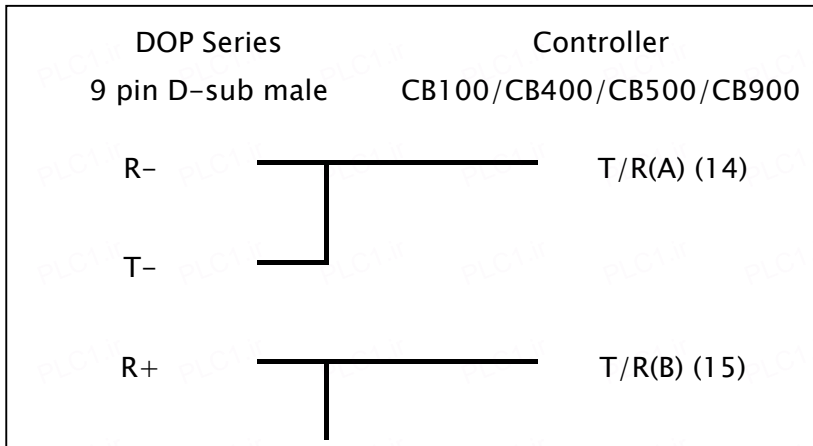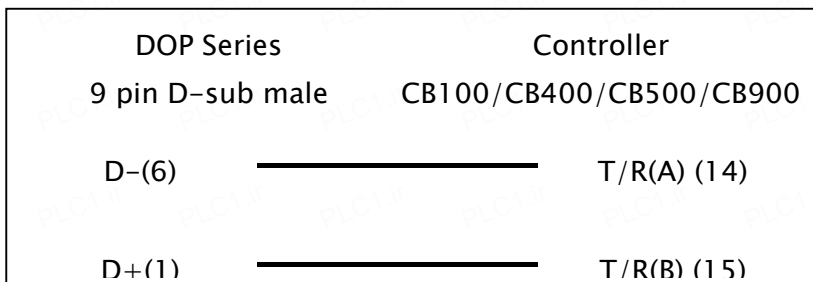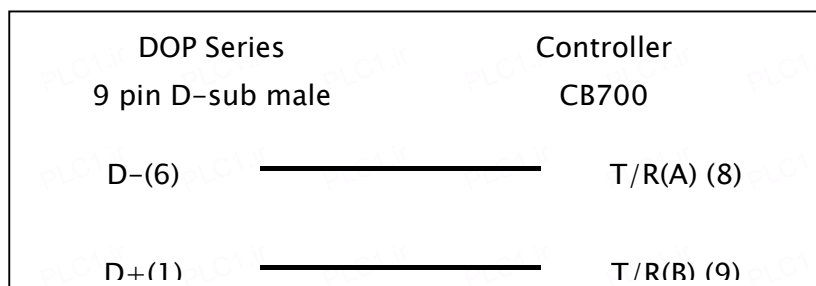
**Definition of PLC Read/Write Address**

**a. Registers**

| Type | Format Channel No.(n) | Read/Write Range | Data Length | Note |
|------|------|------|------|------|
| Measured value (PV) | M1:n | M1:1 | Word | Read only, 1 |
| Current transformer input 1 | M2:n | M2:1 | Word | Read only, 1 |
| Current transformer input 2 | M3:n | M3:1 | Word | Read only, 1 |
| Error code | ER:n | ER:1 | Word | Read only, 1 |
| Set value (SV) | S1:n | S1:1 | Word | 1 |
|  | S1:n.m | S1:1.1 | Word | 2 |
| Alarm 1 setting | A1:n | A1:1 | Word | 1 |
|  | A1:n.m | A1:1.1 | Word | 2 |
| Alarm 2 setting | A2:n | A2:1 | Word | 1 |
|  | A2:n.m | A2:1.1 | Word | 2 |
| Heater break alarm 1 setting | A3:n | A3:1 | Word | 1 |
|  | A3:n.m | A3:1.1 | Word | 2 |
| Heater break alarm 2 setting | A4:n | A4:1 | Word | 1 |
|  | A4:n.m | A4:1.1 | Word | 2 |
| Control loop break alarm (LBA) setting | A5:n | A5:1 | Word | 1 |
|  | A5:n.m | A5:1.1 | Word | 2 |
| LBA deadband | A6:n | A6:1 | Word | 1 |
|  | A6:n.m | A6:1.1 | Word | 2 |
| Heat-side proportional band | P1:n | P1:1 | Word | 1 |
|  | P1:n.m | P1:1.1 | Word | 2 |
| Integral time | I1:n | I1:1 | Word | 1 |
| Derivative time | D1:n | D1:1 | Word | 1 |
| Anti-reset windup | W1:n | W1:1 | Word | 1 |

| Type | Format Channel No.(n) | Read/Write Range | Data Length | Note |
|---|---|---|---|---|
| Heat-side proportioning cycle | **T0**:n | **T0**:1 | Word | 1 |
| Cool-side proportional band | **P2**:n | **P2**:1 | Word | 1 |
| Overlap/deadband | **V1**:n | **V1**:1 | Word | 1 |
| | **V1**:n.m | **V1**:1.1 | Word | 2 |
| Cool-side proportioning cycle | **T1**:n | **T1**:1 | Word | 1 |
| PV bias | **PB**:n | **PB**:1 | Word | 1 |
| | **PB**:n.m | **PB**:1.1 | Word | 2 |
| Set data lock function | **LK**:n | **LK**:1 | Word | 1 |

b. Contacts

| Type | Format Channel No.(b) | Read/Write Range | Note |
|---|---|---|---|
| Alarm 1 status | **AA**:b | **AA**:1 | Read only |
| Alarm 2 status | **AB**:b | **AB**:1 | Read only |
| Burnout status | **B1**:b | **B1**:1 | Read only |
| RUN/STOP transfer | **SR**:b | **SR**:1 | |
| Autotuning (AT) | **G1**:b | **G1**:1 | |
| Self-tuning (ST) | **G2**:b | **G2**:1 | |
| EEPROM storage mode | **EB**:b | **EB**:1 | |
| EEPROM storage state | **EM**:b | **EM**:1 | Read only |

**NOTE**

1) The input value and display value of RKC CB Series supports integer only.

2) The input value and display value of RKC CB Series must in one decimal place.

3) This communication protocol supports multiple PLC connection, but 31 is the most.

4) After PLC is set, please re-activate the PLC.

5) The input pin 11 and pin 12 of CB900 should to be short when they are no loading, otherwise ALM1 signal would blink and PV would show overscale("0000").

6) This PLC should be set to PKC protocol(Tens digits of SL10 should be set to 0(XX0X))

7) The register Set data lock function(**LK:**n) doesn't affect communication , this PLC still can be set.

8) When the value in register is integer but write a decimal in PLC, the fraction part will be ignored; only integer part will be written in PLC.