FARA PLC
N70plus 삼성전자
6. ¼³Ä¡½ÃÁÖÀÇ»çÇ×
- 6-1 ¼³Ä¡½ÃÁÖÀÇ »çÇ×
- 6-2 ¼³Ä¡½ÃÁÖÀÇ »çÇ×
- 6-3 ¼³Ä¡½ÃÁÖÀÇ »çÇ×
- 6-4 ¼³Ä¡½ÃÁÖÀÇ »çÇ×
- 6-5 ¼³Ä¡½ÃÁÖÀÇ »çÇ×
- 6-6 ¼³Ä¡½ÃÁÖÀÇ »çÇ×
- 6-7 EEPROM BACK-UP »çÇ×

7. ½Ã¿îÀü °úÀÌ»ó½ÃÁ¶Ä¡»çÇ×
- 7-1 ½Ã¿îÀüÀǼø¼­
- 7-2 ½Ã¿îÀüÀǼø¼­
- 7-3 ½Ã¿îÀüÀǼø¼­
- 7-4 ½Ã¿îÀüÀǼø¼­

8. ³ëÀÌÁî ¿¡´ëÇÑ´ëÃ¥¼ö¸³
- 8-1 ³ëÀÌÁî ¿¡´ëÇÑ´ëÃ¥¼ö¸³
- 8-2 ³ëÀÌÁî ¿¡´ëÇÑ´ëÃ¥¼ö¸³

9. ½Ã½ºÅÛ Ä¡¼ö µµ
- 9-1 ½Ã½ºÅÛ Ä¡¼ö µµ
- 9-2 ½Ã½ºÅÛ Ä¡¼ö µµ
- 9-3 CPU SLAVE Ä¡¼ö µµ
- 9-4 CPU SLAVE Ä¡¼ö µµ
- 9-5 I/O LINK Ä¡¼ö µµ

ºÎ·Ï1. Åë½Å±Ô¾à¹×ÀýÂ÷
ºÎ·Ï2. G PC5 »ç¿ë¹ý¿ä¾à
1-1. N70plus PLC .................................
1-2. N70plus PLC .................................
1-1. N70plus PLC

N70plus PLC

N70plus PLC 为 PLC 型号。

IC: IC1, IC2
CPU: CPU1, CPU2
RTC: Real Time Clock
STEP: 0.2 μs
FLASH: EEPROM
DC24V: 16/32, AC110V, AC220V
SSR, A/D: 4CH
D/A: 2CH
CCU
SU

RUN

CPU

RTD: 32, 20k STEP(CPL9216A), 9.6k STEP(CPL9215A)
FLASH: EEPROM
DC24V: 16/32, AC110V, AC220V
SSR, A/D: 4CH
D/A: 2CH
CCU
SU

W-Link: 100Mbps
2 Loop-Link: 100Mbps

CPU: GPC5, WGPC
PGM500

2, 3, 4, 5, 6, 7, 8: CPU
1-2. N70plus PLC

**Environmental Conditions:**
1. Temperature: 0~55°C
2. Humidity: 35~85%
3. Relative Humidity: 35~85%
4. Operating Voltage: 24V DC
5. Ambient Temperature: 0~55°C
6. Humidity: 35~85%
7. Pollution Degree: 2

**On/Off State:**
1. PLC (ON) or (OFF)
2. Input (ON) or (OFF)
3. Output (ON) or (OFF)

**Power Supply:**
1. PLC Voltage: 24V DC
2. PLC Input Voltage: 24V DC
3. PLC Output Voltage: 24V DC
4. PLC Operation: ON or OFF

**Emergency Stop:**
1. Press the emergency stop button.
2-1. N70plus .................................................................
2-2. N70plus .............................................................
2-3. N70plus .............................................................
2-4. N70 .................................................................
2-5. .................................................................
2-1. N70plus ディスプレイス
### 2-2. N70plus

#### CPU

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPL9215A</td>
<td>9.6K STEP(±10.0%), 0.2'/STEP, FLASH ROM</td>
</tr>
<tr>
<td>CPL9216A</td>
<td>20K STEP(±10.0%), 0.2'/STEP, FLASH ROM</td>
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(*1. CPL9215A Ver0.99 Flash ROM(EEPROM) Back-Up (EEEPROM) Back-Up *)

#### Relays

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>CPL9502</td>
<td>2 ½½·ÔŸÀÔ</td>
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<tr>
<td>CPL9503</td>
<td>3 ½½·ÔŸÀÔ</td>
</tr>
<tr>
<td>CPL9504</td>
<td>4 ½½·ÔŸÀÔ</td>
</tr>
<tr>
<td>CPL9505</td>
<td>5 ½½·ÔŸÀÔ</td>
</tr>
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<td>CPL9506</td>
<td>6 ½½·ÔŸÀÔ</td>
</tr>
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<td>CPL9507</td>
<td>7 ½½·ÔŸÀÔ</td>
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<td>CPL9508</td>
<td>8 ½½·ÔŸÀÔ</td>
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#### AC POWER

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<tr>
<th>Model</th>
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<tbody>
<tr>
<td>CPL9631</td>
<td>AC 110—220V Free Voltage, 5V 2.5A, 24V 0.3A</td>
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<tr>
<td>CPL9631A</td>
<td>AC 110—220V Free Voltage, 5V 2.5A, 24V 0.4A</td>
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<tr>
<td>CPL9635</td>
<td>AC 220V Input Voltage, 5V 1.0A, 24V 0.1A</td>
</tr>
<tr>
<td>CPL9636</td>
<td>AC 110V Input Voltage, 5V 1.0A, 24V 0.1A</td>
</tr>
<tr>
<td>CPL9632</td>
<td>DC 24V Input Voltage, 5V 3.0A</td>
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</table>

#### DC POWER

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPL93023</td>
<td>DC12—24V, 8'/COM, 8'/COM</td>
</tr>
<tr>
<td>CPL93033</td>
<td>DC24V, 8'/COM, 8'/COM</td>
</tr>
<tr>
<td>CPL93043</td>
<td>AC100~120V, 8'/COM, 8'/COM</td>
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<tr>
<td>CPL93053</td>
<td>AC200~240V, 8'/COM, 8'/COM</td>
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<tr>
<td>CPL93024</td>
<td>DC12—24V, 8'/COM, 8'/COM</td>
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<tr>
<td>CPL93034</td>
<td>DC24V, 8'/COM, 8'/COM</td>
</tr>
<tr>
<td>CPL93022</td>
<td>RELAY 250V 3A, 4' x1, 1' x4 /COM</td>
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<tr>
<td>CPL93103</td>
<td>RELAY 250V 1A, 8' /COM</td>
</tr>
<tr>
<td>CPL93203</td>
<td>RELAY 250V 1A, 8' /COM</td>
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<tr>
<td>CPL93483</td>
<td>TR NPN, 12~24V 0.6A, 8' /COM</td>
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<tr>
<td>CPL93703</td>
<td>SSR, 100~220V, 0.5A, 8' /COM</td>
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<tr>
<td>CPL93484</td>
<td>TR NPN, 12~24V 0.4A, 20' x2, 16' /COM</td>
</tr>
<tr>
<td>CPL93584</td>
<td>TR NPN, 12~24V 0.4A, 20' x2, 16' /COM</td>
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<tr>
<td>CPL93088</td>
<td>DC12~24V, 8'/COM, 8'/COM</td>
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<td></td>
<td>RELAY 8', 250V 1A, 8'/COM</td>
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</table>

FARA PLC N70plus
## PLC   registrazione  e  preparazione  del  sistema  

<table>
<thead>
<tr>
<th>Modello</th>
<th>Dettagli</th>
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<tbody>
<tr>
<td>CPL9400</td>
<td>4Ch, 16-bit A/D Converter ±1, ±10V, 0–5V, ±20mA, 0–20mA, 1.25ms/Ch, ±1mV, ±4μA</td>
</tr>
<tr>
<td>CPL9410</td>
<td>2Ch, Voltage Output 14-bit D/A ±1, ±10V, ±5V, 0–10V, 0–5V, 2.5ms/Ch, ±1mV</td>
</tr>
<tr>
<td>CPL9412</td>
<td>2Ch, Current Output 12-bit D/A ±1, 4–20mA, 2.5ms/Ch, ±1mV</td>
</tr>
<tr>
<td>CPL9411</td>
<td>4Ch, 3-Wire ±1, Pt100, Pt100, 125ms/Ch, ±1°C/0.1°F, 0.1mΩ, 10mΩ</td>
</tr>
<tr>
<td>CPL9420</td>
<td>4Ch, Type B/R/S/N/K/E/J/T, 60ms/Ch, ±1°C/0.1°F, 1µV/2µV</td>
</tr>
<tr>
<td>CPL9450</td>
<td>1Ch, 100Kpps, 24-bit Counter Input, UpDown/Encoder, 1 Pulse Output(40KHz)</td>
</tr>
<tr>
<td>CPL9451</td>
<td>2Ch, 100Kpps, 24-bit Counter Input, UpDown/Encoder</td>
</tr>
</tbody>
</table>

## PLC   registrazione  e  preparazione  del  sistema  

<table>
<thead>
<tr>
<th>Modello</th>
<th>Dettagli</th>
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<tbody>
<tr>
<td>CPL9460</td>
<td>RS-232C X 2CH</td>
</tr>
<tr>
<td>CPL9462</td>
<td>RS-232C X 1CH, C, BASIC µV/µA, &quot;SECTOCOL&quot;µV/µA, 1: 1, 2: N</td>
</tr>
<tr>
<td>CPL9470</td>
<td>1: PLC, LOOP, 2LOOP, 375Kbps, 800m, 10Km</td>
</tr>
<tr>
<td>CPL9471</td>
<td>2: PLC, LOOP, 2LOOP, 375Kbps, 800m, 10Km</td>
</tr>
<tr>
<td>CPL9480</td>
<td>1: 4Ch, 2-Wire ±1, Pt100, 125ms/Ch, ±60ms/Ch, ±0.1°C/0.1°F</td>
</tr>
<tr>
<td>CPL9481</td>
<td>2: 4Ch, Type B/R/S/N/K/E/J/T, 60ms/Ch, ±0.1°C/0.1°F</td>
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<tr>
<td>CPL9500</td>
<td>1: 1Ch, 100Kpps, 24-bit Counter Input, UpDown/Encoder, 1 Pulse Output(40KHz)</td>
</tr>
<tr>
<td>CPL9501</td>
<td>2Ch, 100Kpps, 24-bit Counter Input, UpDown/Encoder</td>
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</table>

## Remote I/O  interfaccia  

<table>
<thead>
<tr>
<th>Modello</th>
<th>Dettagli</th>
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<tbody>
<tr>
<td>CPL9741</td>
<td>CPU Support 24-bit Counter Input, UpDown/Encoder</td>
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FARA PLC N70plus  韓文  説明書
<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Rs232C/485 Cable</td>
<td>Cable configurations: Handy-Load (PG M300A, PG M500), IBM PC (GPC, WGPC)</td>
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<tr>
<td></td>
<td>2m</td>
</tr>
<tr>
<td></td>
<td>5m</td>
</tr>
<tr>
<td>Rs485&lt;-&gt;Rs232 ADPT</td>
<td>ADPT configurations: RS485&lt;-&gt;RS232</td>
</tr>
<tr>
<td></td>
<td>N70plus, N700plus SPC10</td>
</tr>
<tr>
<td></td>
<td>N70 PLC</td>
</tr>
<tr>
<td></td>
<td>N70 PLC DUMMY COVER</td>
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<tr>
<td>Rs485&lt;-&gt;Rs232 ADPT</td>
<td>N70 PLC DC IN 32</td>
</tr>
<tr>
<td></td>
<td>1.5m</td>
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<tr>
<td></td>
<td>N70 PLC TR OUT 32</td>
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<tr>
<td></td>
<td>1.5m</td>
</tr>
<tr>
<td></td>
<td>20 (Pin 20)</td>
</tr>
<tr>
<td>FIBER (2) DVQ</td>
<td>FIBER configurations: 1m, 100m</td>
</tr>
<tr>
<td></td>
<td>FIBER configurations: 1m, 3m, 5m, 10m</td>
</tr>
<tr>
<td></td>
<td>20 (Pin 20)</td>
</tr>
<tr>
<td>FIBER (2) 2-C-V</td>
<td>FIBER configurations: 10m, 800m</td>
</tr>
<tr>
<td></td>
<td>FIBER configurations: 10m, 20m, 30m, 40m, 50m, 60m, 70m, 80m, 90m, 100m</td>
</tr>
</tbody>
</table>
2-3. N70plus

- **CPU**
  - AC
    - 110/220V
  - DC
- **Slave**
  - Remote I/O

- **I/O**
  - 8
  - 8/8
  - 16
  - 32

- **CCU, SDU**
- **A/D, D/A, RTD, TC**
- **LINK** (W-LINK)

- **Remarks**
  - *(CPU: CPL9215A, SLAVE: CPL9216A)*

---

<table>
<thead>
<tr>
<th>I/O Type</th>
<th>8IO</th>
<th>8/8IO</th>
<th>16IO</th>
<th>32IO</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>CCU</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>SDU</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>A/D, D/A</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>RTD, TC</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>LINK</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

*1 CPL9216A(CPU: 16IO, SLAVE: 32IO)
2-4. N70 プラック・ライティング・モジュール (N70plus)

N70 アーキプレートは内部コントロール基板を含む基本形状を示す。I/O の機能は以下の通りです。

- 2N70plus: 32Á¡ (64Á¡)
- 3N70plus: 48Á¡ (96Á¡)
- 4N70plus: 64Á¡ (128Á¡)
- 5N70plus: 80Á¡ (160Á¡)
- 6N70plus: 96Á¡ (192Á¡)
- 7N70plus: 112Á¡ (224Á¡)
- 8N70plus: 128Á¡ (256Á¡)

N70plus は AC/DC および 8 軸の表示と内蔵のスイッチ設定を提供します。
2-5. FARA PLC N70plus 

(1) POWER SUPPLY

[ AC POWER ]

[ DC POWER ]

(2) CPU

[ CPL9215A ]

[ CPL9216A ]
(3) FARA PLC N70plus

- LED
- ON/OFF

(4) FARA PLC N70plus

- CPU
- I/O
3

3-1. 各々
3-2. ここ
3-3. CPU
3-4. ここ
3-5. ここ
### 3-1. 条件

<table>
<thead>
<tr>
<th>条件</th>
<th>范围</th>
</tr>
</thead>
<tbody>
<tr>
<td>温度</td>
<td>0 ~ 55°C</td>
</tr>
<tr>
<td>温度</td>
<td>-25 ~ 70°C</td>
</tr>
<tr>
<td>湿度</td>
<td>5 ~ 95% RH</td>
</tr>
<tr>
<td>湿度</td>
<td>5 ~ 95% RH</td>
</tr>
</tbody>
</table>

- I/O 信号 (AC) <-> Frame Ground (Power Unit), AC 1500V 1μs
- I/O 信号 (DC) <-> Frame Ground (Power Unit), AC 500V 1μs
- I/O 信号 <-> Frame Ground (Power Unit), 100Ω 50ns

<table>
<thead>
<tr>
<th>电源</th>
<th>10 ~ 55Hz</th>
<th>100MΩ</th>
</tr>
</thead>
<tbody>
<tr>
<td>电源</td>
<td>0.75mm</td>
<td>15g/ 11ms</td>
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<tr>
<td>电源</td>
<td>X, Y, Z</td>
<td>3Ω</td>
</tr>
</tbody>
</table>

- 1500Vp-p 50ns, 1μs (30Ω)

### 3-2. 规格

<table>
<thead>
<tr>
<th>规格</th>
<th>AC/DC POWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>规格</td>
<td>AC110~220V Free Voltage</td>
</tr>
<tr>
<td>规格</td>
<td>AC 220V</td>
</tr>
<tr>
<td>规格</td>
<td>AC 110V</td>
</tr>
<tr>
<td>规格</td>
<td>AC 85~264V</td>
</tr>
<tr>
<td>规格</td>
<td>AC 176~264V</td>
</tr>
<tr>
<td>规格</td>
<td>AC 85~132V</td>
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<tr>
<td>规格</td>
<td>DC 24V</td>
</tr>
<tr>
<td>规格</td>
<td>47 ~ 63Hz</td>
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<tr>
<td>规格</td>
<td>20A</td>
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<tr>
<td>规格</td>
<td>10A</td>
</tr>
<tr>
<td>规格</td>
<td>5V 2.5A, 24V 0.3A</td>
</tr>
<tr>
<td>规格</td>
<td>5V 2.5A, 24V 0.4A</td>
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<tr>
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<th>规格</th>
<th>DC/AC POWER</th>
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<tr>
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<tr>
<td>规格</td>
<td>AC 220V</td>
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<tr>
<td>规格</td>
<td>AC 110V</td>
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<td>规格</td>
<td>DC 24V</td>
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<td>AC 85~264V</td>
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<tr>
<td>规格</td>
<td>AC 176~264V</td>
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<tr>
<td>规格</td>
<td>AC 85~132V</td>
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<tr>
<td>规格</td>
<td>DC 24V ± 10%</td>
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<td>规格</td>
<td>47 ~ 63Hz</td>
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<td>规格</td>
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<td>5V 2.5A, 24V 0.4A</td>
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</table>

3. FARA PLC N70plus
### 3-3. CPU  "ç°½áë³äë³ä"  "ç°½áë³äë³ä"

<table>
<thead>
<tr>
<th>CPU</th>
<th>CPL.9215A</th>
<th>CPL.9216A</th>
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<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td>CPU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32-bit</td>
<td>256 (32-bit / 8 slots)</td>
<td>32-bit (4-bit / 8 slots)</td>
</tr>
<tr>
<td>32-bit</td>
<td>28-bit</td>
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<td>150-bit</td>
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<tr>
<td>CPU</td>
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</tr>
<tr>
<td>32-bit</td>
<td>0.2-04 μS/step</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td>CPU</td>
<td></td>
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</tr>
<tr>
<td>32-bit</td>
<td>1.0-10 μS/step</td>
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</tr>
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<tr>
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<td>9.6K (10-bit =100-bit)</td>
<td>20K-bit</td>
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<tr>
<td>CPU</td>
<td></td>
<td></td>
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<tr>
<td>R (R)</td>
<td>R0.0 ~ R63.15 (1024, 64-bit)</td>
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<tr>
<td>CPU</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R (R)</td>
<td>R64.0 ~ R127.15 (1024, 64-bit)</td>
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<tr>
<td>CPU</td>
<td></td>
<td></td>
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<tr>
<td>L (L)</td>
<td>L0.0 ~ L63.15 (1024, 64-bit)</td>
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<td></td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td></td>
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<tr>
<td>M (M)</td>
<td>M0.0 ~ M127.15 (2048, 128-bit)</td>
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<tr>
<td>CPU</td>
<td></td>
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<tr>
<td>K (K)</td>
<td>K0.0 ~ K127.15 (2048, 128-bit)</td>
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<tr>
<td>CPU</td>
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<td></td>
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<tr>
<td>F (F)</td>
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<tr>
<td>CPU</td>
<td>256-bit (TC: 0 ~ TC63), 0.01μS: TC0 ~ TC63 (64-bit)</td>
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<tr>
<td>CPU</td>
<td>0.1μS: TC64 ~ TC127 (192-bit)</td>
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<tr>
<td>CPU</td>
<td>0.01μS: TC0 ~ TC25 (256-bit)</td>
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<tr>
<td>CPU</td>
<td>W0 ~ W2047 (2048-bit)</td>
<td></td>
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<tr>
<td>CPU</td>
<td>W0 ~ W2047 (2048-bit)</td>
<td></td>
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<tr>
<td>CPU</td>
<td>W0 ~ W2047 (2048-bit)</td>
<td></td>
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<tr>
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<td></td>
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<tr>
<td>CPU</td>
<td>W2560 (SR0) ~ W6143 (SR511) (512-bit)</td>
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<tr>
<td>CPU</td>
<td>W0 ~ W2047 (2048-bit)</td>
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</tr>
<tr>
<td>CPU</td>
<td>W0 ~ W2047 (2048-bit)</td>
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<tr>
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<tr>
<td>CPU</td>
<td>4,800/9,600/19,200/38,400 bps</td>
<td></td>
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<td></td>
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<tr>
<td>CPU</td>
<td>4,800/9,600/19,200/38,400 bps</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td>1Port (RS232/RS485-bit)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td>2Port (RS232/RS485-bit)</td>
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<tr>
<td>CPU</td>
<td>9.6K (CPL.9215A)*1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td>20K-bit (CPL.9216A)</td>
<td></td>
</tr>
<tr>
<td>Memory BACK-UP</td>
<td>Battery Back-Up: 10,000 μF</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Battery LED 48-bit</td>
<td></td>
</tr>
</tbody>
</table>

- K, W, Timer/Counter PV Register: 0-0, 0-1, 0-2, 0-3, 0-4, 0-5, 0-6, 0-7, 0-8, 0-9. Clear: 0-10.
- *1 CPL.9215A Ver0.99, Flash ROM (EEPROM): Back-Up (CPL.9215A)
(1) CPL9215A

### LED

<table>
<thead>
<tr>
<th></th>
<th>RUN (CPU RUN Mode)</th>
<th>PROG. (Program Mode)</th>
<th>ERROR (CPU Error)</th>
<th>BATT. (Battery)</th>
<th>COMM. (CPU Communication)</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>CPU</td>
<td>CPU</td>
<td>CPU</td>
<td>CPU</td>
<td>CPU</td>
</tr>
<tr>
<td>ON</td>
<td></td>
<td></td>
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### Dip Switch 1

<table>
<thead>
<tr>
<th>PIN</th>
<th>Switch</th>
<th>Dip Switch 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>2</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>3</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>OFF</td>
</tr>
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### Dip Switch 2

<table>
<thead>
<tr>
<th>PIN</th>
<th>Switch</th>
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</tr>
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<tbody>
<tr>
<td>1, 2</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>OFF</td>
</tr>
</tbody>
</table>

CPU Error Clear (CPU Clear) Program (CPU Stop, Program)
### Dip Switch 1

<table>
<thead>
<tr>
<th>PIN</th>
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<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OFF OFF</strong></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td><strong>ON OFF</strong></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td><strong>OFF ON</strong></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td><strong>ON ON</strong></td>
<td>ON</td>
<td>OFF</td>
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</table>

### Dip Switch 2

<table>
<thead>
<tr>
<th>PIN</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>ON ON</strong></td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td><strong>OFF OFF</strong></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td><strong>ON OFF</strong></td>
<td>OFF</td>
<td>ON</td>
</tr>
</tbody>
</table>

---

**INITIALIZE**

- CPU Error\ delet**.
- CPU error\ clear**.
- Program**.

**LED**

<table>
<thead>
<tr>
<th>LED</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
</table>
| **RUN** | CPU RUN| Mode**.
| **PROG.** | Program**.
| **ERROR** | CPU Error**.
| **BATT.** | Battery**.
| **COMM.** | CPU COM**.

**DIAGRAM**

- CPU RUN**.
- CPU PROG**.
- CPU Error**.
- Battery**.
- Program**.
- CPU COM**.

---

**NOTE**

- CPU RUN**.
- CPU PROG**.
- CPU Stop**.
- CPU STOP**.

---

**Diagram**

- CPU RUN**.
- CPU PROG**.
- CPU Error**.
- Battery**.
- Program**.
- CPU COM**.

---

**Diagram**

- CPU RUN**.
- CPU PROG**.
- CPU Error**.
- Battery**.
- Program**.
- CPU COM**.

---

**Diagram**

- CPU RUN**.
- CPU PROG**.
- CPU Error**.
- Battery**.
- Program**.
- CPU COM**.

---

**Diagram**

- CPU RUN**.
- CPU PROG**.
- CPU Error**.
- Battery**.
- Program**.
- CPU COM**.
### 3-4. Specifications

<table>
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<tr>
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<tr>
<td></td>
<td></td>
<td>CPL93023</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16Ω</td>
</tr>
<tr>
<td>Operating Volt</td>
<td></td>
<td>12 ~ 24V DC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10.2 ~ 26.4V DC</td>
</tr>
<tr>
<td>Current ON</td>
<td>10mA</td>
<td></td>
</tr>
<tr>
<td>Current OFF</td>
<td>2.5V</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFF → ON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ON → OFF</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2ms</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5V)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>COMMON</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LED</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.5 ~ 1.25 mm²</td>
</tr>
<tr>
<td></td>
<td></td>
<td>160g</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(A) Type</td>
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![Diagram](image-url)
### 3.3.3

<table>
<thead>
<tr>
<th></th>
<th>DC</th>
<th>24V DC</th>
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<tbody>
<tr>
<td>CPL93024</td>
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<td></td>
</tr>
<tr>
<td>CPL93034</td>
<td>32Ω</td>
<td></td>
</tr>
<tr>
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<td></td>
</tr>
<tr>
<td>12 ~ 24V DC</td>
<td></td>
<td>24V DC</td>
</tr>
<tr>
<td>10.2 ~ 26.4V DC</td>
<td></td>
<td>21.6V ~ 26.4V DC</td>
</tr>
<tr>
<td>10mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON / ON</td>
<td>9.6V</td>
<td>20V</td>
</tr>
<tr>
<td>OFF / OFF</td>
<td>2.5V</td>
<td>7 V</td>
</tr>
<tr>
<td></td>
<td>3KΩ</td>
<td></td>
</tr>
<tr>
<td>OFF→ON</td>
<td>2ms</td>
<td></td>
</tr>
<tr>
<td>ON→OFF</td>
<td>2ms</td>
<td></td>
</tr>
<tr>
<td>(5V)</td>
<td>90mA</td>
<td></td>
</tr>
<tr>
<td>COMMON (A)</td>
<td>8Ω</td>
<td>1COM (± Ø¼º£«, £­°øÅë)</td>
</tr>
<tr>
<td></td>
<td>LED</td>
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</tr>
<tr>
<td></td>
<td>20Ω × 2</td>
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</tr>
<tr>
<td></td>
<td>0.2 mm²</td>
<td></td>
</tr>
<tr>
<td></td>
<td>130g</td>
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<td>(B) Type</td>
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### (1) [ ]

[Diagram 1]

DC 12~24V

### (II) [ ]

[Diagram 2]

DC 12~24V

### (CPL93034) [ ]

24V DC

* サブメーター [1], [II] の針を多機能レンチで取り外すとポルトボルト機能をします。
* サブメーター [CPL 8800] Pin Type Ass'y(CPL 8880) の針を多機能レンチで取り外すとポルトボルト機能をします。
<table>
<thead>
<tr>
<th>Function</th>
<th>AC Voltage Range</th>
<th>CPL93043</th>
<th>CPL93053</th>
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<tr>
<td>Input</td>
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<td></td>
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<tr>
<td>ON/ON</td>
<td>80V / 6mA</td>
<td>160V / 6mA</td>
<td></td>
</tr>
<tr>
<td>OFF/OFF</td>
<td>30V / 3mA</td>
<td>50V / 3mA</td>
<td></td>
</tr>
<tr>
<td>30V / 3mA</td>
<td>20mA, 20KΩ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50V / 3mA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15KΩ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OFF→ON</td>
<td>15ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ON→OFF</td>
<td>15ms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMMON (5V)</td>
<td>80mA</td>
<td></td>
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</tr>
<tr>
<td>LED</td>
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<tr>
<td>0.5 ~ 1.25 mm²</td>
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- **(A)** Type

---

**Diagram:**

- Diagram showing electrical connections and components.
- Note: The diagram includes various electrical symbols and connections, illustrating the circuit layout.

---

(FAR) CPL93053 is for AC 200~240V.
### 3-5. RELAY SPECIFICATIONS

<table>
<thead>
<tr>
<th>RELAY TYPE</th>
<th>CPL93202</th>
<th>CPL93103</th>
<th>CPL93203</th>
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<td>RELAY VOLTAGE</td>
<td>250V AC, 30V DC</td>
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<td>85 V ~ 264V AC</td>
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<tr>
<td>OFF→ON</td>
<td>1A</td>
<td>10mS</td>
<td></td>
</tr>
<tr>
<td>ON→OFF</td>
<td>10mS</td>
<td></td>
<td></td>
</tr>
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<td>COMMON VOLTAGE (5V)</td>
<td>60mA</td>
<td>100mA</td>
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</tr>
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<td>COMMON CURRENT</td>
<td>24V 150mA</td>
<td>24V 200mA</td>
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<td>COMMON PINS</td>
<td>4 / COM, 1 / COM x 4</td>
<td>8 / COM</td>
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</tr>
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<td>LED TYPE</td>
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<tr>
<td>WEIGHT</td>
<td>200g</td>
<td>300g</td>
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- **[CPL93202]**
- **[CPL93103]**
- **[CPL93203]**

![Relay Diagram](image-url)
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<tr>
<td>2</td>
<td>16[ ]</td>
</tr>
<tr>
<td>3</td>
<td>12～24V DC</td>
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<tr>
<td>4</td>
<td>10～30V AC</td>
</tr>
<tr>
<td>5</td>
<td>0.6A /[]</td>
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<tr>
<td>6</td>
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</tr>
<tr>
<td>7</td>
<td>ON→OFF</td>
</tr>
<tr>
<td>8</td>
<td>(5V)</td>
</tr>
<tr>
<td>9</td>
<td>COMMON</td>
</tr>
<tr>
<td>10</td>
<td>LED</td>
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<tr>
<td>11</td>
<td>( )</td>
</tr>
<tr>
<td>12</td>
<td>0.5～1.25 mm²</td>
</tr>
<tr>
<td>13</td>
<td>□160g</td>
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<td>14</td>
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### 電気特性

- 12～24V
- 12～24V

![電気回路図](image-url)
<table>
<thead>
<tr>
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<th>CPL93584 (PNP)</th>
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<tr>
<td>OFF</td>
<td>100µA</td>
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</tr>
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<td>OFF→ON</td>
<td>1ms</td>
<td></td>
</tr>
<tr>
<td>ON→OFF</td>
<td>1ms</td>
<td></td>
</tr>
<tr>
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<td>140mA</td>
<td></td>
</tr>
<tr>
<td>COMMON</td>
<td>16I / 1COM</td>
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<td>LED</td>
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<td></td>
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<tr>
<td>(B) Type</td>
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</table>

![Diagram](image_url)
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<th>Value</th>
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<td>CPL93703</td>
</tr>
<tr>
<td><strong>SSR Type</strong></td>
<td>SSR</td>
</tr>
<tr>
<td><strong>Operating Voltage (AC)</strong></td>
<td>100 ~ 240V AC</td>
</tr>
<tr>
<td><strong>Operating Voltage (AC)</strong></td>
<td>85 ~ 264V AC</td>
</tr>
<tr>
<td><strong>Current (OFF)</strong></td>
<td>0.5A /mA</td>
</tr>
<tr>
<td><strong>Current (ON)</strong></td>
<td>100μA /mA</td>
</tr>
<tr>
<td><strong>Switch Time (OFF)</strong></td>
<td>1ms</td>
</tr>
<tr>
<td><strong>Switch Time (ON)</strong></td>
<td>0.5 CYCLE + 1ms</td>
</tr>
<tr>
<td><strong>Output Current (5V)</strong></td>
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</tr>
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<td><strong>Commons</strong></td>
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<td><strong>LED Current</strong></td>
<td>3A</td>
</tr>
<tr>
<td><strong>Wiring Size</strong></td>
<td>0.5 ~ 1.25 mm²</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>300g</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td>(A) Type</td>
</tr>
</tbody>
</table>

---

**Diagram:**

- Input: AC100-240V
- Output: Vcc
- Circuit diagram with SSR and FUSE connections.
<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC / RELAY</td>
<td>CPL93088</td>
</tr>
<tr>
<td>(16)</td>
<td>8</td>
</tr>
<tr>
<td>12 ~ 24V</td>
<td></td>
</tr>
<tr>
<td>10.2 ~ 26.4V</td>
<td></td>
</tr>
<tr>
<td>10mA</td>
<td></td>
</tr>
<tr>
<td>250V AC, 30V DC, 1A</td>
<td></td>
</tr>
<tr>
<td>ON / OFF</td>
<td></td>
</tr>
<tr>
<td>9.6V / 4mA</td>
<td></td>
</tr>
<tr>
<td>2.5V / 1.5mA</td>
<td></td>
</tr>
<tr>
<td>3KΩ</td>
<td></td>
</tr>
<tr>
<td>OFF → ON</td>
<td>10μS</td>
</tr>
<tr>
<td>ON → OFF</td>
<td>10μS</td>
</tr>
<tr>
<td>(5V)</td>
<td>80mA</td>
</tr>
<tr>
<td>COMMON</td>
<td>8 / 1COM (1COM)</td>
</tr>
<tr>
<td>LED</td>
<td>LED</td>
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<tr>
<td>(M3.0)</td>
<td></td>
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<tr>
<td>0.5 ~ 1.25 mm²</td>
<td></td>
</tr>
<tr>
<td>220g</td>
<td>(A) Type</td>
</tr>
</tbody>
</table>

![Diagram of DC / RELAY CPL93088](image-url)
| 4-1. | ... |
| 4-2. | ... |
| 4-3. | ... |
| 4-4. | ... |
| 4-5. | ... |
| 4-6. | ... |
| 4-7. | CPU (Mode) |
| 4-8. | CPU |
### 4-1. Address/Data

- The PLC supports various types of addresses and data:
  - **R, L, M, K, F, TC**: (Address) Data

<table>
<thead>
<tr>
<th>Address Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>R</strong> (0.0 ~ R127.15)</td>
<td>- Local (2048, 128)</td>
</tr>
<tr>
<td><strong>L</strong> (0.0 ~ L63.15)</td>
<td>- 1024, Loop 0</td>
</tr>
<tr>
<td><strong>M</strong> (0.0 ~ M127.15)</td>
<td>- 2048, 128</td>
</tr>
<tr>
<td><strong>K</strong> (0.0 ~ K127.15)</td>
<td>- 2048, 128</td>
</tr>
<tr>
<td><strong>F</strong> (0.0 ~ F15.15)</td>
<td>- 256, 16</td>
</tr>
<tr>
<td><strong>TC</strong> (TC0 ~ TC255)</td>
<td>- 256, SV (PV), CPU, RTC</td>
</tr>
<tr>
<td><strong>W</strong> (W0 ~ W2047)</td>
<td>- Bit, Word</td>
</tr>
<tr>
<td><strong>W</strong> (W2560 (~SR0) ~ W3071 (~SR511))</td>
<td>- CPU, RTC, Clear</td>
</tr>
</tbody>
</table>

- **W**: Bit, Word.
- **L**: Word.
- **K, Timer/Counter PV Register**: Word.
- **Clear**:
1. ON/OFF ±îº­ 0°í 1°í ±îÁö ÀìÅÍ±îÀººñÆ®Á¤. 0°í 4°í 16°í ±îÁö , ±îÁö 32°í ±îÁö ±îÀººñÆ®Á¤.
2. M1.0 ±îº­ 0°í 1.15 ±îÁö Á¤ DecimalÁ¢Á¡À̳ª 0°í 1.15 ±îÁö ±îÀººñÆ®Á¤.
4-2. 16비트 및 32비트

■ 16비트 및 32비트에 대한 다양한 사용 예제. 
  32비트의 경우 'Double'을, 'D'와 달리 'W'를 사용할 수 있다.

1) LET

\[
\begin{array}{c|c}
\text{LET} & \\
\text{D=WO} & \\
\text{S=7000} & \\
\end{array}
\]

\[
\begin{array}{c|c}
\text{WO} & 16\text{bit}\{0 \sim 65,535\} \\
\text{S} & 0 \sim 65,535 \\
\end{array}
\]

2) DLET

\[
\begin{array}{c|c}
\text{D=WO} & \\
\text{S=70000} & \\
\end{array}
\]

\[
\begin{array}{c|c|c|c|c|c|c|c|c}
\text{WO001} & \text{WO000} \\
\hline
\text{2}^{15} & \text{2}^{14} & \cdots & \text{2}^{1} & \text{2}^{0} & \text{2}^{15} & \text{2}^{14} & \cdots & \text{2}^{0} \\
\end{array}
\]

3) 

- GPC5의 'Single'

- W5: M3을 16비트로 32비트로 확장합니다.

- GPC5의 'Double' (Ctrl-T) 로 확장합니다.

### 4-3. LDR, DLDR, STO, DSTO

- LDR, DLDR, STO, DSTO are instructions used to move data between registers and memory. CPU instructions are written in assembly language.

<table>
<thead>
<tr>
<th>Register</th>
<th>Value</th>
<th>Dec.</th>
<th>Hex.</th>
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</thead>
<tbody>
<tr>
<td>R0</td>
<td>0</td>
<td>0000</td>
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<tr>
<td>R1</td>
<td>1</td>
<td>0001</td>
<td></td>
</tr>
<tr>
<td>R2</td>
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<td>0002</td>
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<td>...</td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R126</td>
<td>126</td>
<td>007E</td>
<td></td>
</tr>
<tr>
<td>R127</td>
<td>127</td>
<td>007F</td>
<td></td>
</tr>
<tr>
<td>L0</td>
<td>128</td>
<td>0080</td>
<td></td>
</tr>
<tr>
<td>L1</td>
<td>129</td>
<td>0081</td>
<td></td>
</tr>
<tr>
<td>L2</td>
<td>130</td>
<td>0082</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L62</td>
<td>190</td>
<td>00BE</td>
<td></td>
</tr>
<tr>
<td>L63</td>
<td>191</td>
<td>00BF</td>
<td></td>
</tr>
<tr>
<td>M0</td>
<td>192</td>
<td>00C0</td>
<td></td>
</tr>
<tr>
<td>M1</td>
<td>192</td>
<td>00C1</td>
<td></td>
</tr>
<tr>
<td>M2</td>
<td>194</td>
<td>00C2</td>
<td></td>
</tr>
<tr>
<td>M3</td>
<td>195</td>
<td>00C3</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
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<td></td>
</tr>
<tr>
<td>M126</td>
<td>318</td>
<td>013E</td>
<td></td>
</tr>
<tr>
<td>M127</td>
<td>319</td>
<td>013F</td>
<td></td>
</tr>
<tr>
<td>K0</td>
<td>320</td>
<td>0140</td>
<td></td>
</tr>
<tr>
<td>K1</td>
<td>321</td>
<td>0141</td>
<td></td>
</tr>
<tr>
<td>K2</td>
<td>322</td>
<td>0142</td>
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</tr>
<tr>
<td>K3</td>
<td>323</td>
<td>0143</td>
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<tr>
<td>...</td>
<td>...</td>
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<tr>
<td>K126</td>
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<tr>
<td>K127</td>
<td>447</td>
<td>01BF</td>
<td></td>
</tr>
</tbody>
</table>

- The address space for the 1-bit registers is 0000 to $1BFC (0 to 15 or 0 to $F) and the 16-bit registers is 0000 to 3583 (0 to 553).

<table>
<thead>
<tr>
<th>Register</th>
<th>Value</th>
<th>Dec.</th>
<th>Hex.</th>
</tr>
</thead>
<tbody>
<tr>
<td>F0</td>
<td>448</td>
<td>01C0</td>
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</tr>
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<td>F1</td>
<td>449</td>
<td>01C1</td>
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</tr>
<tr>
<td>F2</td>
<td>450</td>
<td>01C2</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F126</td>
<td>462</td>
<td>01CE</td>
<td></td>
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<tr>
<td>F127</td>
<td>462</td>
<td>01CF</td>
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</tr>
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<td>0200</td>
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</tr>
<tr>
<td>W1</td>
<td>513</td>
<td>0201</td>
<td></td>
</tr>
<tr>
<td>W2</td>
<td>514</td>
<td>0202</td>
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</tr>
<tr>
<td>...</td>
<td>...</td>
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<td></td>
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<td>2558</td>
<td>09FE</td>
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</tr>
<tr>
<td>W2047</td>
<td>2559</td>
<td>09FF</td>
<td></td>
</tr>
<tr>
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<td>2560</td>
<td>0A00</td>
<td></td>
</tr>
<tr>
<td>W2049</td>
<td>2561</td>
<td>0A01</td>
<td></td>
</tr>
<tr>
<td>W2303</td>
<td>2815</td>
<td>0AFF</td>
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</tr>
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<td>W2304</td>
<td>2816</td>
<td>0B00</td>
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</tr>
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<td>2817</td>
<td>0B01</td>
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<td>3071</td>
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<td>W2564</td>
<td>3583</td>
<td>0DFF</td>
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</tr>
</tbody>
</table>

- K12712 is equal to $01BF (Hex).

(“01BFC” + “01BFC” = “02BFC” = “$1BFC”)

- For FARA PLC N70plus documentation.
4-4. FARA PLC N70plus - 6개의 슬롯

<table>
<thead>
<tr>
<th>슬롯</th>
<th>00</th>
<th>01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
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</thead>
<tbody>
<tr>
<td>R0</td>
<td>R1</td>
<td>R2</td>
<td>R3</td>
<td>R4</td>
<td>R5</td>
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<td></td>
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<tr>
<td>CPU</td>
<td>R0.0</td>
<td>R1.0</td>
<td>R2.0</td>
<td>R3.0</td>
<td>R4.0</td>
<td>R5.0</td>
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</tr>
<tr>
<td>R0.1</td>
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<td>R2.1</td>
<td>empty</td>
<td>R3.1</td>
<td>R4.1</td>
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<td>:</td>
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<td>:</td>
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<td>R3.15</td>
<td>R4.15</td>
<td>R5.15</td>
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</tr>
</tbody>
</table>

Slot

■ CPU: 6개의 슬롯을 통한 16비트의 입력/출력 가능.
■ 16비트 입력/출력: 16비트 입력/출력을 위해 1개의 슬롯을 사용한다.
■ 16비트 입력: 16비트 입력을 위해 8개의 입출력(0-7)이 필요하다.
■ CPU: 음소자(1)를 통한 6개의 사용러시가 가능.
■ 6개의 슬롯을 통한 16비트의 입력/출력: CPU93000 중 6개의 사용러시가 가능, 사용러시에 대한 CPU는 각각의 슬롯에 연결된다.
### 4-5. F0.0 ~ F0.15

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<th>F0.3</th>
<th>F0.4</th>
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<th>F0.6</th>
<th>F0.7</th>
<th>F0.8</th>
<th>F0.9</th>
<th>F0.10</th>
<th>F0.11</th>
<th>F0.12</th>
<th>F0.13</th>
<th>F0.14</th>
<th>F0.15</th>
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</thead>
<tbody>
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### 2. F1.0 ~ F1.5 Setup (F1.0 - F1.15)

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<th>STOP→RUN</th>
<th>10ms:ON, 10ms:OFF</th>
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<td>0.02s</td>
<td>10ms:ON, 10ms:OFF</td>
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<td>0.1s</td>
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<td>F1.5</td>
<td>20ms</td>
<td>OFF, ON</td>
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<td>F1.6</td>
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<td>F1.7</td>
<td>K</td>
<td>K:ON</td>
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<td>F1.12</td>
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<td>F1.15</td>
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**Notes:**
- **F1.0:** Stop → Run
- **F1.5:** CPU 20ms ON, 20ms OFF
- **F1.11:** Reserved
- **F1.15:** Reserved
- **F1.16:** CPU 16ms ON, 16ms OFF

---

**xFFFF**
3. F12 ชุดของคำสั่ง (F12.0 ~ F12.15) ตารางในหน้า

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<tr>
<th>ลำดับ</th>
<th>คำสั่ง</th>
<th>หมายเหตุ</th>
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<tr>
<td>F12.0</td>
<td>RTC</td>
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4. SR0~SR16 (W2560~W2576) ตารางในหน้า

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FARA PLC N70plus โน้ต ไดรฟ์
5. SR017 (W2577) ตัวเลข ตัวเลข: F0.00 ON,

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MSB <--------

7 6 5 4 3 2 1 0
6. CONTROLLER PROG. LIST (W2590 16)°Î¹øÁöÁ¤

- CPU PROG. (STOP ³) ¿¡«­ RUN ¿¡±¥³á»ç¿ëÀÚ¸Þ¸ð¸® ¿¡¾²±â¿¡·¯¹ß»ý½Ã ONµÊ.
- W2590¿¡ÀÅÌÀÔ/×ÇÁ·Î±×·¥À»Á¡°ÆÄ±«µÈ°æ¿ìONµÊ.
- FO4°Î¹øÁöÁ¤ ONµÊ ERR LED¿¡°Ô¿¡·¯¸¦¾Ë·ÁÁÝ´Ï´Ù.
- °Î¹øÁöÁ¤µîÀÇÇÁ·Î±×·¥À»ÀÚµ¿À¸·Î°Ë»çÇÏ¿©±×°á°ú¸¦W 2590¹øÀÇÀÔ/×ÇÁ·Î±×·¥À»ÀåÇÕ´Ï´Ù.
- CPU On-Line ¿¡¼­¿¡·¯¸¦Ã£°íÇÁ·Î±×·¥À»¼öÁ¤ÇÕ´Ï´Ù.

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FARA PLC N70plus ³» ¿ë
7. SR289~SR297 (W2849~W2857) 

- **RTC**: Real Time Clock/Calendar
- **BCD**: Binary Coded Decimal

### Table

|    |    |    | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  | 0  |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| SR289 | (4) | BCD |     |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| SR290 | (0) |     | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  |
| SR291 | (0) |     | X  | X  | X  | X  | X  | X  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  |
| SR292 | (0) |     | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  |
| SR293 | (0) |     | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  |
| SR294 | (0) |     | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  |
| SR295 | (0) |     | X  | X  | X  | X  | X  | X  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  |
| SR296 | (0) |     | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  |
| SR297 | (0) |     | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  | O  |

- **SR289** - 4-digit BCD
- **SR290** - 0-99
- **SR291** - 0-12
- **SR292** - 01-31
- **SR293** - 01-07
- **SR294** - 00-23
- **SR295** - 00-59
- **SR296** - 00-59

### Diagrams

1. **Example 1**: 00-99, 01-12, 01-31, 01-07
2. **Example 2**: 00-23, 00-59

### Notes

- **SR289~SR297** BCD, Hex
- **RTC** in **SR289~SR297**

---

**FARACL PLC N70plus**
4-6. 

1. 

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GFCI: 편의/보안 위험을 줄이기 위해 사용됩니다.
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- **(Channel):** [Not specified] (TC000 to 2000) [Not specified] (TC000 to 2000)
- **(SV):** [Not specified] (ON) [Not specified] (ON) [Not specified] (ON) [Not specified] (ON)
- **(PV):** [Not specified] (ON) [Not specified] (ON) [Not specified] (ON) [Not specified] (ON) [Not specified] (ON)
1. **Bit**

- **Function**:
  - 1 - 0
  - 0 - 1

2. **Byte**

- **Function**: 0 - 255 (0 - FF)

3. **Word**

- **Function**: 0 - 65,535 (0 - FFFF)

4. **Double Word**

- **Function**: 0 - 4,294,967,295 (0 - FFFFFFFF)

- **Formula**:
  
  \[
  W003(\text{Double Word}) = W003(\text{Word}) + W004(\text{Word})
  \]

5. **Scan Time**

6. **Edge**

    - OFF → ON
    - ON → OFF

8. **BCD (Binary Coded Decimal)**

    - **Function**: 0 - 9

    - **Formula**:
      
      \[
      59(\text{BCD}) = 59(\text{HEX}), 32(\text{BCD}) = 32(\text{HEX})
      \]

9. **FLASH ROM**

    - **Function**: ROM (EEPROM)
1. R(Relay)·¹Áö½ºÅÍ ... (ºñÆ®/¿öµå/´õºí¿öµå»ç¿ë°¡´É)

2. M(Memory)·¹Áö½ºÅÍ ... (ºñÆ®/¿öµå/´õºí¿öµå»ç¿ë°¡´É)

3. W(Word)·¹Áö½ºÅÍ ... (ºñÆ®/¿öµå/´õºí¿öµå»ç¿ë°¡´É)

4. K(Keep)·¹Áö½ºÅÍ ... (ºñÆ®/¿öµå/´õºí¿öµå»ç¿ë°¡´É)

5. F(Flag)·¹Áö½ºÅÍ ... (ºñÆ®/¿öµå/´õºí¿öµå»ç¿ë°¡´É)

6. °è»ê°ªÀ̳ªÀԷ°ªÀÌ65,535(FFFFh)À»³ÑÀ»¶§´Â

7. ¿À´ÃÀÛ¾÷Çѳ»¿ëÀ̳ª°ªÀ»´ÙÀ½¿¡ºÒ·¯¾²°í½ÍÀ»¶§¿¡´Â

8. A+B=C,34×45=6, A1>C1,¸Ç­¼¿ä...  

9. 1) W2304ºÎÅÍW2309¹øÁö¶Ç´Â, PV0ºÎÅÍPV255¿µ¿ªÀ»ÂüÁ¶/¼öÁ¤Çϰí½ÍÀ»¶§¿¡´Â

FARA PLC N70plus ̀üã øì
4-7. CPU 모드 (mode) 

CPU 전환 방법?
CPU로 RUN / REMOTE / PROG 모드를 변경할 수 있습니다. PLC의 전원을 꺼도 4초 이후에 전환됩니다.

RUN 모드
RUN N70plus PLC의 CPU에는 N과 RAM, FLASH ROM이 연결되어 있습니다.

STOP 모드
STOP과 메모리 모드의 ON/OFF를 변경할 수 있습니다.
(FLASH ROM의 메모리가 확장이 가능하므로 참조)

PAUSE 모드
PAUSE와 CPU의 1을 변경 할 수 있습니다.

ERROR 모드
ERROR N70plus PLC의 CPU는 OFF로 변경되고, PROG와 CPU의 ERROR 및 CLEAR가 설정됩니다.

CPU 전환 LED 표

<table>
<thead>
<tr>
<th>CPU 모드</th>
<th>LED</th>
<th>RUN LED</th>
<th>PROG LED</th>
<th>INITIALIZE</th>
<th>OFF-ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUN</td>
<td>RUN</td>
<td>⚫</td>
<td>〇〇〇</td>
<td>〇</td>
<td>RUN</td>
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<tr>
<td>STOP</td>
<td>⚫</td>
<td>〇〇〇</td>
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<tr>
<td>PAUSE</td>
<td>⚫</td>
<td>〇〇〇</td>
<td>〇〇〇</td>
<td>〇</td>
<td>PAUSE</td>
</tr>
<tr>
<td>STOP</td>
<td>⚫</td>
<td>〇〇〇</td>
<td>〇〇〇</td>
<td>〇</td>
<td>STOP</td>
</tr>
</tbody>
</table>

- PROG, LED는 ON, OFF, INITIALIZE, ERROR, CLEAR가 가능합니다.
- CPU 전환 LED는 ON, OFF가 가능합니다.
- CPU 전환 LED는 REMOTE를 ON, OFF가 가능합니다.
4-8. CPU 콘텐츠

1. 외부 메모리 (Working RAM) 설정

2. 사양 메모리 설정

3. 온도 제어 설정

4. 패턴 제어 설정

5. 원문 및 다이어그램 정보

PLC: PLC 라인 및 컨트롤러의 콘텐츠
CPU: CPU 설계 및 작동
1→5: 1→5 메시지 및 작동
R0.1, R0.2, M0.0, R15.0: PLC에 사용되는 변수 및 컨트롤러의 콘텐츠.
### 5-1. 串表符号

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<th>Ladder Symbol</th>
<th>Description</th>
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<td>STR</td>
<td></td>
<td>Start</td>
</tr>
<tr>
<td>STN</td>
<td></td>
<td>Start Not</td>
</tr>
<tr>
<td>AND</td>
<td></td>
<td>And</td>
</tr>
<tr>
<td>ANN(ADN)</td>
<td></td>
<td>And Not</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td>Or</td>
</tr>
<tr>
<td>ORN</td>
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<td>Or Not</td>
</tr>
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<td>SET</td>
<td></td>
<td>Set</td>
</tr>
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<td>Reset</td>
</tr>
<tr>
<td>NOT</td>
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<td>STR DIF</td>
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</tr>
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<tr>
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<td>Or Dif. Not</td>
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<tr>
<td>ANB</td>
<td></td>
<td>And Block</td>
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<tr>
<td>ORB</td>
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<td>Or Block</td>
</tr>
<tr>
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<td></td>
<td>Master Control Set</td>
</tr>
<tr>
<td>MCR</td>
<td></td>
<td>Master Control Reset</td>
</tr>
</tbody>
</table>

### Ladder Symbol

- **STR**: Start (ON)
- **STN**: Start Not (OFF)
- **AND**: And
- **ANN(ADN)**: And Not
- **OR**: Or
- **ORN**: Or Not
- **OUT**: Out
- **SET**: Set (ON)
- **RST**: Reset (OFF)
- **NOT**: Not
- **STR DIF**: Start Differential
- **STR DFN**: Start Dif. Not
- **AND DIF**: And Dif.
- **AND DFN**: And Dif. Not
- **OR DIF**: Or Dif.
- **OR DFN**: Or Dif. Not
- **ANB**: And Block
- **ORB**: Or Block
- **MCS**: Master Control Set
- **MCR**: Master Control Reset
<table>
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<th>Ladder Symbol</th>
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<th>Single Shot Timer</th>
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| TIM      | TIM
          | T CH=10
          | SV=500         | TOF             | SST              | UC         | DC           | RCT          | UDC             | SR             |
| TOF      | TOF
          | T CH=11
          | SV=500         |                  |             |              |              |               |                 |                |
| SST      | SST
          | T CH=12
          | SV=500         |                  |             |              |              |               |                 |                |
| UC       | UC
          | U CH=13
          | SV=5           |                  |             |              |              |               |                 |                |
| DC       | DC
          | U CH=14
          | SV=5           |                  |             |              |              |               |                 |                |
| RCT      | RCT
          | U CH=15
          | SV=3           |                  |             |              |              |               |                 |                |
| UDC      | UDE
          | U CH=16
          | SV=3           |                  |             |              |              |               |                 |                |
| SR       | SR
          | Sb=K1.4
          | Eb=K1.7        |                  |             |              |              |               |                 |                |

* $xx\cdot$: $xxH$ Hex(16) $xx\cdot$
### 5-3 MNEMONIC

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WinGPR# ఒక ఒక ఒక ఒక ఒక DAND, DOR, DXOR, DXNR ఒక ఒక.

### 5-7 とりえき

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## 5-8. 機能コード一覧

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<th>D+1</th>
<th>D+2</th>
<th>D+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr</td>
<td>D+0</td>
<td>D+1</td>
<td>D+2</td>
<td>D+3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sr</th>
<th>D+0</th>
<th>D+1</th>
<th>D+2</th>
<th>D+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr</td>
<td>D+0</td>
<td>D+1</td>
<td>D+2</td>
<td>D+3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sr</th>
<th>D+0</th>
<th>D+1</th>
<th>D+2</th>
<th>D+3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sr</td>
<td>D+0</td>
<td>D+1</td>
<td>D+2</td>
<td>D+3</td>
</tr>
<tr>
<td>MNEMONIC</td>
<td>D</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>BSET</td>
<td>Bit Set</td>
<td>D</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>BRST</td>
<td>Bit Reset</td>
<td>D</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>BNOT</td>
<td>Bit Not</td>
<td>D</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>BTST</td>
<td>Bit Test</td>
<td>D</td>
<td>N</td>
<td></td>
</tr>
<tr>
<td>SUM</td>
<td>Sum</td>
<td>D</td>
<td>S</td>
<td></td>
</tr>
<tr>
<td>SC</td>
<td>Set Carry</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RC</td>
<td>Reset</td>
<td></td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td>Complementary Carry</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

### Bit Set (BSET)

- **D = N =**
- 

### Bit Reset (BRST)

- **D = N =**
- 

### Bit Not (BNOT)

- **D = N =**
- 

### Bit Test (BTST)

- **D = N =**
- 

### Sum (SUM)

- **D = S =**
- 

### Set Carry (SC)

- 

### Reset (RC)

- 

### Complementary Carry (CC)

- 

---

**F1.8**

- **$00$**
- **ON (N=1)**
- **OFF (N=0)**

---

- **F1.8**
- **$00$**

---

- **F1.8**
- **$00$**
<table>
<thead>
<tr>
<th>MNEMONIC</th>
<th>Description</th>
<th>Diagram</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDR (DLDR)</td>
<td>Load D→ Sr</td>
<td><img src="https://via.placeholder.com/150" alt="LDR Diagram" /></td>
</tr>
<tr>
<td>STO (DSTO)</td>
<td>Store (D)→Sr</td>
<td><img src="https://via.placeholder.com/150" alt="STO Diagram" /></td>
</tr>
<tr>
<td>MOV</td>
<td>Move</td>
<td><img src="https://via.placeholder.com/150" alt="MOV Diagram" /></td>
</tr>
<tr>
<td>FMOV</td>
<td>Fill Move</td>
<td><img src="https://via.placeholder.com/150" alt="FMOV Diagram" /></td>
</tr>
<tr>
<td>BMOV</td>
<td>Bit Move</td>
<td><img src="https://via.placeholder.com/150" alt="BMOV Diagram" /></td>
</tr>
<tr>
<td>BFMV</td>
<td>Bit Fill Move</td>
<td><img src="https://via.placeholder.com/150" alt="BFMV Diagram" /></td>
</tr>
</tbody>
</table>
### 5-11.  コマンドマップ

<table>
<thead>
<tr>
<th>MNEMONIC</th>
<th>Comment</th>
<th>示例</th>
<th>参数</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOR (DFOR)</td>
<td>For Loop</td>
<td>FOR D =</td>
<td>D: 1<del>100, NEXT D: 0</del>100</td>
</tr>
<tr>
<td>NEXT</td>
<td>Next</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JMP</td>
<td>Jump</td>
<td>JMP L =</td>
<td>L: 0~63</td>
</tr>
<tr>
<td>LBL</td>
<td>Label</td>
<td>LBL L =</td>
<td>L: 0~63</td>
</tr>
<tr>
<td>JMPS</td>
<td>Jump Start</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JMPE</td>
<td>Jump End</td>
<td>JMPE</td>
<td></td>
</tr>
<tr>
<td>CALL</td>
<td>Call Subroutine</td>
<td>CALL Sb =</td>
<td></td>
</tr>
<tr>
<td>SBR</td>
<td>Subroutine Start</td>
<td>SBR Sb =</td>
<td>Sb: 0~63 (64°)</td>
</tr>
<tr>
<td>RET</td>
<td>Subroutine Return</td>
<td>RET</td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>Interrupt</td>
<td>INT Ni =</td>
<td>Ni := 1~999 (20ms-10s)</td>
</tr>
<tr>
<td>RETI</td>
<td>Retrun Interrupt</td>
<td>RETI</td>
<td></td>
</tr>
</tbody>
</table>

### 5-12.  インターポート

<table>
<thead>
<tr>
<th>MNEMONIC</th>
<th>Comment</th>
<th>示例</th>
<th>参数</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPR</td>
<td>Input Refresh</td>
<td>INPR Ch =</td>
<td></td>
</tr>
<tr>
<td>OUTR</td>
<td>Out Refresh</td>
<td>OUT R Ch =</td>
<td></td>
</tr>
<tr>
<td>WAT</td>
<td>Watchdog Timer</td>
<td>WAT</td>
<td></td>
</tr>
</tbody>
</table>
| END | END | END | GPC ¿¡ µ¿»ý¼ººÒÇÊ¿ä.
### FARA PLC N70plus

<table>
<thead>
<tr>
<th>영문 명령어</th>
<th>한글 명령어</th>
<th>예시</th>
<th>참고</th>
</tr>
</thead>
<tbody>
<tr>
<td>READ</td>
<td>Data Read</td>
<td>To = RR1, Sz = NR3, Fr = NN5 : NR6</td>
<td>Slot(NN5) : Slot(NN6)</td>
</tr>
<tr>
<td>WRITE</td>
<td>Data Write</td>
<td>To = NN1 : NR2, Sz = NR3, Fr = NR5</td>
<td>Remote Network Loop(NN3) : Station(NN4) : Slot(NN5) : NR6</td>
</tr>
<tr>
<td>RMRD</td>
<td>Data Read</td>
<td>To = NR1 : RR2, Nt = NN3 : NN4, Fr = NN5 : NR6</td>
<td>Remote Network Loop(NN3) : Station(NN4) : Slot(NN5) : NR6</td>
</tr>
<tr>
<td>RMWR</td>
<td>Data Write</td>
<td>Nt = NN1 : NN2, To = NN3 : NR4, Fr = NR5 : NR6</td>
<td>Remote Network Loop(NN3) : Station(NN4) : Slot(NN5) : NR6</td>
</tr>
<tr>
<td>RECV</td>
<td>RECV</td>
<td>To = RR1, Nt = NN3 : NN4, Fr = NN5 : NR6</td>
<td>Remote Network Loop(NN3) : Station(NN4) : Slot(NN5) : NR6</td>
</tr>
<tr>
<td>SEND</td>
<td>SEND</td>
<td>Nt = NN1 : NN2, To = NN3 : NR4, Fr = NR5 : NR6</td>
<td>Remote Network Loop(NN3) : Station(NN4) : Slot(NN5) : NR6</td>
</tr>
<tr>
<td>RECVB</td>
<td>RECVB</td>
<td>To = BR1, Nt = NN3 : NN4, Fr = NN5 : NR6</td>
<td>Remote Network Loop(NN3) : Station(NN4) : Slot(NN5) : NR6</td>
</tr>
<tr>
<td>SENDB</td>
<td>SENDB</td>
<td>Nt = NN1 : NN2, To = NN3 : NR4, Fr = NB5</td>
<td>Remote Network Loop(NN3) : Station(NN4) : Slot(NN5) : NR6</td>
</tr>
</tbody>
</table>

- N70plus CPU: CLPZ16A, CLPZ15A (CPLZ15A CPU 사용시 약간의 차이가 있습니다.)
- N70plus RMWD, RMWR 브로드캐스트 사용.
5-13  

- 5xx01, xxh12  
- Hxw161 r12  

...
5-14. FARA PLC N70plus

<table>
<thead>
<tr>
<th>STR</th>
<th>a</th>
<th>R0.2</th>
<th>R4.2 (OUT)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>R0.3</td>
<td>R5.3 (OUT)</td>
</tr>
</tbody>
</table>

A: a
B: b

1. (branch) STR, STN NOT
2. STR, STN NOT
3. R0.2, R0.3
   R4.2, R5.3

GPC

<table>
<thead>
<tr>
<th>R0.0</th>
<th>M0.0 (OUT)</th>
<th>M0.2 (OUT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0.1</td>
<td>M0.1 (OUT)</td>
<td></td>
</tr>
</tbody>
</table>

PGM-300A

<table>
<thead>
<tr>
<th>STR</th>
<th>R</th>
<th>SET 0</th>
<th>ENF</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIR</td>
<td>8</td>
<td>144</td>
<td>01</td>
</tr>
<tr>
<td>STN</td>
<td>7</td>
<td>STR</td>
<td>CRN 1</td>
</tr>
<tr>
<td>AND</td>
<td>ANN (ADN)</td>
<td>PGM-300A</td>
<td>PGM-500</td>
</tr>
<tr>
<td>-----</td>
<td>-----------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

1. AND, ADN(AND NOT)
2. R0.3 R0.4 (RUNG)

```
M0.0 R0.3
M0.0 R0.4
```

3. R0.3 R0.4 OFF ON

```
M0.0 R0.3 ON
M0.2 OFF ON
```

**GPC**

```
R0.1    R0.2
M0.0    M0.1
```

**PGM-300A**

```
AND | ANN (ADN) | PGM-300A | PGM-500 | GPC 5 |
-----|-----------|-----------|----------|-------|
     |           |           |  x       |       |

```

- AND: a
- ANN: b
- PGM-300A ADN
- GPC 5
5. OR, ORN(OR NOT)의 입력 모드
2. 하위 모드를 선택할 수 있습니다.

■ OR : ① a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z

■ ORN : ② a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z

### (GPC)

- R0.1
- R0.2
- M0.1

- M0.1
- R0.1 ON
- R0.2 OFF

- STR
- R0.1
- M0.1

### (PGM-300A)

- STR
- CR
- ORN
- ENF
- CLR
- MCR
- ENF
- CR
### FARA PLC N70plus

#### Table

<table>
<thead>
<tr>
<th>OUT</th>
<th>SET</th>
<th>RST</th>
<th>PGM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>×</td>
</tr>
</tbody>
</table>

- **OUT** - Actuator output
- **SET** - Set
- **RST** - Reset
- **PGM** - Program

#### Diagrams

1. **OUT**
   - **OUT**: Output
   - **SET**: Set
   - **RST**: Reset

2. **GPC**
   - **M0.4**: OUT
   - **M0.5**: SET
   - **M0.6**: RST

3. **PGM-300A**
   - **STR**: Start
   - **RST**: Reset
   - **M**: Memory
   - **ENT**: Enter

---

### Instructions

1. **OUT**
   - **OUT**: Output
   - **SET**: Set
   - **RST**: Reset

2. **GPC**
   - **M0.4**: OUT
   - **M0.5**: SET
   - **M0.6**: RST

3. **PGM-300A**
   - **STR**: Start
   - **RST**: Reset
FARA PLC N70plus 설정서

---

<table>
<thead>
<tr>
<th>NOT</th>
<th>PGM-300A</th>
<th>PGM-500</th>
<th>GPC 5</th>
</tr>
</thead>
</table>

A / B

A ON → B OFF
A OFF → B ON

1. ON/OFF 상태를 확인하세요.
2. NOT 상태를 확인하세요.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>ON</td>
</tr>
</tbody>
</table>

---

GPC (GPC)

R0.0 R0.1 R1.0 (OUT)

---

PGM-300A

---

| STR | STR | SET | 0 | EN | AND | STR | ORN | 1 | NOT | EN | OUT | STR | ORN | SET | 0 | SET | EN |
1. DIF, DFN 
N700plus: R, L, M, K, F, TC Bit 
N70plus: R0.0~R127.15, M0.0~M63.15, TC0~TC255

2. DIF $\rightarrow$ OFF$\rightarrow$ON $\rightarrow$ OFF $\rightarrow$ ON 
3. DFN $\rightarrow$ ON$\rightarrow$OFF $\rightarrow$ ON $\rightarrow$ OFF

M2.4 $\rightarrow$ R1.4 $\rightarrow$ OFF$\rightarrow$ON $\rightarrow$ R1.5 $\rightarrow$ ON$\rightarrow$OFF$\rightarrow$ON $\rightarrow$
1. **ANB** - STR, STN(3) 반전.  

2. **ORB** - STR, STN(3) 반전.  

3. **ORB** 16번, SPC 8번 방향으로 나갑니다.  

---

### ANB (PGM-300A)

<table>
<thead>
<tr>
<th>R0.0</th>
<th>R0.2</th>
<th>M000.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0.1</td>
<td>R0.3</td>
<td>(OUT)</td>
</tr>
</tbody>
</table>

### ORB (PGM-300A)

<table>
<thead>
<tr>
<th>R0.0</th>
<th>R0.2</th>
<th>M0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0.1</td>
<td>R0.3</td>
<td>(OUT)</td>
</tr>
</tbody>
</table>

---

### Diagram

- **ANB** - R0.0, R0.2, R0.0(OUT)  
- **ORB** - R0.0, R0.2, R0.0(OUT)
1. MCS (Master Control Set) - MCS의 상태를 설정합니다.
   - MCS의 상태가 ON일 때만 설정이 가능합니다.
2. MCR (Master Control Reset) - MCS의 상태를 리셋합니다.
   - MCS의 상태가 OFF일 때만 리셋이 가능합니다.
3. MCS - MCR의 중복 설정
   - MCS와 MCR의 중복 설정은 불가능합니다.
4. MCS - MCR의 중복 리셋
   - MCS와 MCR의 중복 리셋은 불가능합니다.

---

### (GPC)

- F0.15 R15.0 (SET)
- R0.0 (MCS)
- R15.0 (RST)
- (MCR)

### (PGM-300A)

```
<table>
<thead>
<tr>
<th>STR</th>
<th>OR</th>
<th>ON</th>
<th>AN</th>
<th>ENF</th>
</tr>
</thead>
<tbody>
<tr>
<td>SET</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SET</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MC</td>
<td>ENF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RST</td>
<td>ON</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>RST</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>MER</td>
<td>ENF</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```
1. TIM T CH=25 SV=70
   SST T CH=200 SV=70
   CH0~CH63: 0.01s (10msec) CH64~CH255: 0.1s (100msec)

2. GPC R0.0 0.7sec
   R0.1 7sec

3. PGM-300A
   TIM T CH=25 SV=70
   SST T CH=200 SV=70
   CH0~CH63: 0.01s (10msec) CH64~CH255: 0.1s (100msec)

4. TIM T CH=25 SV=70
   SST T CH=200 SV=70
   CH0~CH63: 0.01s (10msec) CH64~CH255: 0.1s (100msec)

5. TIM, SST R0.0
   CH0~CH63: 0.01s (10msec)
   CH64~CH255: 0.1s (100msec)
   R0.1
   CH0~CH63: 0.01s (10msec)
   CH64~CH255: 0.1s (100msec)
   STOP

6. GPC R0.0 0.7sec
   R0.1 7sec
   TC200

7. PGM-500
   TIM T CH=25 SV=70
   SST T CH=200 SV=70
   CH0~CH63: 0.01s (10msec) CH64~CH255: 0.1s (100msec)

8. PGM-300A
   TIM T CH=25 SV=70
   SST T CH=200 SV=70
   CH0~CH63: 0.01s (10msec) CH64~CH255: 0.1s (100msec)
<table>
<thead>
<tr>
<th>TOF</th>
<th>PGM-300A</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- TOF: ON/OFF
- CH: 0~255
- SV: 0~65535

- TIM, SST, GPC5
- PGM-500

---

**GPC**

- R0.0
- TC100
- M2.0
- W2404

- TIM: T CH=100 SV=50
- W2404

- >=30
- <80

---

**PGM-300A**

- ORB
- STR
- R
- C
- MCR
- M
- AND
- SET
- ENF
- COUT

- K
- HLP
- OR
- SET
- ENF
- COUT

---

**PGM-500**

- ORB
- STR
- R
- C
- MCR
- M
- AND
- SET
- ENF
- COUT

- K
- HLP
- OR
- SET
- ENF
- COUT
FARA PLC N70plus
Reset OFF, ON

- **RCT (Ring Counter)**
  - **R**
  - **U** CH=50
  - **SV=3**

- **GPC5**
  - **R0.0**
  - **R0.1**
  - **TC50**
  - **M1.0** (OUT)

- **PGM-300A**
- **PGM-500**
- **GPC 5**

- **R0.0** (R0.1)
- **PV50**
- **TC50**

- **U CH=** 50
- **SV=** 3

- **Reset** OFF, ON
  - **0”** Reset
  - **ON**

- **GPC5**
  - **PGM-500**

<table>
<thead>
<tr>
<th>UDC</th>
<th>Up-Down</th>
<th>PGM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

- Reset OFF, Up-Down ON PV "0" であり、Down ON PV "0" である。
- Reset OFF
- Down ON "0" Up ON "1"

- Reset OFF
- Up ON Down OFF
- PV "65535" ヘ Up ON Down OFF
- PV "256" (CH0~CH255)
- PV "6535" で ON OFF

- 1. SPCで UDCが ON OFF OFF

---

**（GPC 5）**

- R0.0 U CH=64 S V=3
- TC15 M1.0 (OUT)
- TC64

---

**（PGM-300A）**

- U CH= SV=3
- Down S V=3
- Reset (TC15)

---

**（PGM-500）**

- U CH= SV=3
- Down S V=3
- Reset (TC64)

---

**（GPC 5）**

- U CH= SV=3
- Down S V=3
- Reset (TC64)
1. \(I_1\) (Input Data) : \(S_b = (Sb)\) \(P = (Eb)\) \(R = (Eb)\) \(\text{OUT} = 0\)
2. \(I_2\) (Shift Pulse) : \(S_b = (Sb)\) \(P = (Eb)\) \(R = (Eb)\) \(\text{OUT} = 0\)
3. \(I_3\) (Reset) : \(S_b = (Sb)\) \(P = (Eb)\) \(R = (Eb)\) \(\text{OUT} = 0\)

**SR**

- \(R = \text{ON}\)
- \(S_b = \text{K114}\)
- \(E_b = \text{K201}\)

**High Register**

- \(P = \text{K3.0 (OUT)}\)
- \(R = \text{K3.0 (OUT)}\)
- \(K1.14\)
- \(K1.15\)
- \(K2.0\)
- \(K2.1\)

**PGM**

- \(\text{SR} = \text{High Register}\)
- \(\text{PGM-300} = \text{X}\)
- \(\text{PGM-500} = \text{X}\)
- \(\text{GPC} = \text{X}\)

---

**Reset**

- \(\text{ON} = \text{Sb} \leq E_b\)
- \(\text{OFF} = \text{Sb} > E_b\)

**Input Data**

- \(I_1\) : \(0, 0, 1, 1, 0, 1, 0, 0\)
- \(I_2\) : \(0, 0, 0, 1, 0, 1, 1, 0, 0\)
- \(I_3\) : \(0, 0, 0, 0, 1, 0, 1, 1, 0, 0\)
FARA PLC N70plus 5

PGM-300A

1. M51 K12 ON
   M51 K12 ON
2. R7.0 K12 ON
   M51 K12 ON
3. R8.0 < R5.0 ON
   M51 <=300 ON

PGM-500

1. A = B: 0~65535
2. A < B
3. A > B
4. A <= B

GPC 5

1. ON bit A, B
2. AND, OR, NOT
3. 32bit (0~4,294,295)

A <= B
A < B
A > B
A >= B
### PGM-300A

<table>
<thead>
<tr>
<th>LET</th>
<th>DLET</th>
</tr>
</thead>
<tbody>
<tr>
<td>S=M0, M0=123, R3=123</td>
<td>M0=123, R3=123</td>
</tr>
</tbody>
</table>

#### 1. SET 2. GET 3. SET 4. GET

### GPC 5

#### LET : 0 - 65,535

**S** : 源 (Source) **D** : 源和目标 (Destination)

### PGM-500

#### LET : 0 - 4,294,295

1. 设定 (R, M, K, L, W) : 源
2. 设定 (R, M, K, L, W) : 源
3. 设定 (R, M, K, L, W) : 源
4. 设定 (R, M, K, L, W) : 源

### FARA PLC N70plus

![Image](image_url)
<table>
<thead>
<tr>
<th>패널</th>
<th>기능</th>
<th>PGM 모델</th>
<th>1.11</th>
</tr>
</thead>
<tbody>
<tr>
<td>INC</td>
<td>INC (INC, DINC)</td>
<td>PGM-300A</td>
<td>1.11</td>
</tr>
<tr>
<td>DINC</td>
<td>BCD INC (INCB, DINCB)</td>
<td>PGM-300A</td>
<td>1.11</td>
</tr>
<tr>
<td>INCB</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DINCB</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- INC, DINC: 10의 (Decimal) 16의 ON D: 16의 D.
- INCB, DINCB: BCD(Binary Coded Decimal) D: BCD의 D.
- INC, INCB: 0~9999, INCB, DINCB: 0~99999999.

### GPC5

<table>
<thead>
<tr>
<th>R0.1</th>
<th>INC D = M5</th>
<th>INCB D = M8</th>
</tr>
</thead>
</table>

### PGM-300A

<table>
<thead>
<tr>
<th>R0</th>
<th>M005(10의)</th>
<th>M008(BCD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 0 0 0 0 0</td>
<td>0 0 0 0 0</td>
</tr>
<tr>
<td>1</td>
<td>0 0 0 1 0 0</td>
<td>0 0 0 0 1</td>
</tr>
<tr>
<td>2</td>
<td>0 0 0 1 0 0</td>
<td>0 0 0 0 1</td>
</tr>
<tr>
<td>9</td>
<td>0 0 1 0 1 0</td>
<td>0 0 0 0 1</td>
</tr>
<tr>
<td>10</td>
<td>0 0 1 0 1 0</td>
<td>0 0 0 0 1</td>
</tr>
<tr>
<td>11</td>
<td>0 0 1 0 1 0</td>
<td>0 0 0 0 1</td>
</tr>
</tbody>
</table>

| | $FFFF | $9999 |

---

**FARA PLC N70plus**
### DEC, DDEC

- ON: D = 10
- OFF: D = 0

### DECB, DDECB

- ON: D = BCD
- OFF: D = 10

### GPC 5

- DEC, DECB: 16bit
- DDEC, DDECB: 32bit

### PGM-300A, 500

- DEC (DEC, DECB) 16bit
- DDEC (DDEC, DDECB) 32bit

---

<table>
<thead>
<tr>
<th>DEC</th>
<th>DDEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>---</td>
<td>10</td>
</tr>
<tr>
<td>DECB</td>
<td>BCD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DEC</th>
<th>DECB</th>
</tr>
</thead>
<tbody>
<tr>
<td>D = M10</td>
<td>S = $11</td>
</tr>
<tr>
<td>D = M12</td>
<td>S = $11</td>
</tr>
</tbody>
</table>

### R0.1

- LET

### R0.2

- LET

### MCR

- M | ORN | 1 |
- M | ORN | 2 |

### FUN

- WR | ORN | 1 |
- ORB | 2 |

---

### GPC 5

- R1, R2

### M10, M12

- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

### PGM-300A

- | STR | R | SET | ENF |
- | STR | VR | S | ENF |

---

FARA PLC N70plus odynamics

Samsung
### 1. S1 S2 D S D (ADD, DADD)

#### 2. ADD

- S1, S2, D: S1 + S2 = D (0 ~ 65,535)
- BCD: S1 + S2 = D (0 ~ 9,999)

#### 3. DADD

- S1, S2, D: S1 + S2 = D (0 ~ 4,294,967,295)
- BCD: S1 + S2 = D (0 ~ 9,999,999)

#### 4. D = S1 + S2

- 10-bit: S1 = 21, S2 = 22
- BCD: S1 = 22, S2 = 16
- D = 43, D = 49

#### 5. Set (ON) F108

### (GPC)

<table>
<thead>
<tr>
<th>R0</th>
<th>ADD</th>
<th>D = W10</th>
<th>S1 = W0</th>
<th>S2 = W2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DADD</td>
<td>D = W11</td>
<td>S1 = W0</td>
<td>S2 = W2</td>
</tr>
<tr>
<td></td>
<td>ADDB</td>
<td>D = W13</td>
<td>S1 = W0</td>
<td>S2 = W2</td>
</tr>
</tbody>
</table>

### (PGM-300A)

```
<table>
<thead>
<tr>
<th>STR  R</th>
<th>DIF 6</th>
<th>SET 0</th>
<th>ENR</th>
<th>STR  R</th>
<th>DIF 6</th>
<th>SET 0</th>
<th>ENR</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUN W</td>
<td></td>
<td></td>
<td></td>
<td>FUN W</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENR</td>
<td></td>
<td></td>
<td></td>
<td>ENR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENR</td>
<td></td>
<td></td>
<td></td>
<td>ENR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLP W</td>
<td>ORN 1</td>
<td>SET 0</td>
<td>ENR</td>
<td>HLP W</td>
<td>ORN 1</td>
<td>SET 0</td>
<td>ENR</td>
</tr>
<tr>
<td></td>
<td>ENR</td>
<td></td>
<td></td>
<td></td>
<td>ENR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLP W</td>
<td>SET 0</td>
<td>ENR</td>
<td></td>
<td>HLP W</td>
<td>SET 0</td>
<td>ENR</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENR</td>
<td></td>
<td></td>
<td></td>
<td>ENR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
```

### (PGM-500)

```
<table>
<thead>
<tr>
<th>R0</th>
<th>ADD</th>
<th>D = W10</th>
<th>S1 = W0</th>
<th>S2 = W2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DADD</td>
<td>D = W11</td>
<td>S1 = W0</td>
<td>S2 = W2</td>
</tr>
<tr>
<td></td>
<td>ADDB</td>
<td>D = W13</td>
<td>S1 = W0</td>
<td>S2 = W2</td>
</tr>
</tbody>
</table>
```

---

**FARA PLC N70plus 版本**
### FARA PLC N70plus

#### SUB, DSUB, SUBB, DSUBB

<table>
<thead>
<tr>
<th>SUB</th>
<th>DSUB</th>
<th>SUBB</th>
<th>DSUBB</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>4</td>
<td>10</td>
<td>4</td>
</tr>
</tbody>
</table>

#### BCD, SUB, DSUBB

- **SUB**: S1, S2, D = S1 - S2 (0~65,535) (0000H~FFFFH)
- **DSUB**: S1, S2, D = S1 - S2 (0~4,294,976,295) (0~FFFFFFFFH)
- **SUBB**: S1, S2, D = S1 - S2 (0~39,321) (0000H~9999H)
- **DSUBB**: S1, S2, D = S1 - S2 (0~2,576,980,377) (0~99999999H)

### 1. S1, S2 | D = S1 - S2 (0~65,535)

#### Example 1:

- S1 = 34, S2 = 19
- D = 34 - 19 = 15
- 15 = 00001111

#### Example 2:

- S1 = 22, S2 = 9
- D = 22 - 9 = 13
- 13 = 00001101

### 2. OpenClose

- **SUB**: W0 = 16, W1 = 2, W2 = 7, W3 = 1
- **DSUB**: W10 = 9, W11 = 0000065545, W13 = 3

### 3. Summary

- **SUB**: D = S1 - S2 (0~65,535) (0000H~FFFFH)
- **DSUB**: D = S1 - S2 (0~4,294,976,295) (0~FFFFFFFFH)
- **SUBB**: D = S1 - S2 (0~39,321) (0000H~9999H)
- **DSUBB**: D = S1 - S2 (0~2,576,980,377) (0~99999999H)
### 1. S1, S2, D

- **MUL**
  - S1, S2, D: 0~65,535 (0000H~FFFFH)
- **MULB**
  - S1, S2, D: 0~39,321 (0000H~9999H)

### 2. DMUL

- **DMUL**
  - S1, S2, D: 0~4,294,976,295 (0~FFFFFFFFH)
- **DMULB**
  - S1, S2, D: 0~2,576,980,377 (0~99999999H)

### 3. Set(ON) and Set(0)

- **Set(ON)**: W0=2, W1=1, W2=6, W3=1
- **Set(0)**: W10=12, W11=000524300, W13=18

### R0, 8

- **OUT**
  - W1=7

---

### Table

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FARA PLC N70plus</strong></td>
<td></td>
</tr>
</tbody>
</table>
1. S1, S2, D 모두 정의되어야 합니다. D의 범위는 0~65,535 (0000H~FFFFH).
2. DIV - S1, S2, D 모두 정의되어야 합니다. 0~65,535 (0000H~FFFFH)
   DIVB - S1, S2, D 모두 정의되어야 합니다. 0~39,321 (0000H~9999H)
3. DDIV - S1, S2, D 모두 정의되어야 합니다. 0~4,294,976,295 (0~FFFFFFFFH)
   DDIVB - S1, S2, D 모두 정의되어야 합니다. 0~2,576,980,377 (0~99999999H)
4. D의 값은 W2582에 등록됩니다.
5. a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9.
1. ABS : D = \text{ABS} (MSB) \oplus 1 \oplus 2 \oplus \ldots \oplus 0 \oplus \ldots \oplus D.

\text{Example: } 9A52_{16} = 1001 \ 0110 \ 0110 \ 0101 \ 0010_{2}, \quad 65AE_{16} = 0110 \ 0110 \ 1010 \ 0101 \ 0010_{2}, \quad 7A52_{16} = 0111 \ 0101 \ 0101 \ 0101 \ 0010_{2}.

2. NEG : D = 2 \oplus 1 \oplus D.

\text{Example: } 7A52_{16} = 0111 \ 0110 \ 0110 \ 0101 \ 0010_{2}, \quad 85AE_{16} = 1001 \ 0101 \ 1010 \ 0110 \ 1110_{2}.

3. NOT : D = 1 \oplus D.

\text{Example: } 7A52_{16} = 0111 \ 0110 \ 0110 \ 0101 \ 0010_{2}, \quad 85AD_{16} = 1001 \ 0101 \ 1010 \ 1010 \ 1110_{2}.

4. A BS : D = W_{0}.

\text{Example: } W_{0} = 9A52_{16}, \quad W_{1} = 7A52_{16}, \quad W_{2} = 7A52_{16}, \quad W_{3} = 7A52_{16}.

\text{Example: } W_{0} = 65AE_{16}, \quad W_{1} = 7A52_{16}, \quad W_{2} = 85AE_{16}, \quad W_{3} = 85AD_{16}.
1. S1, S2 (0/1) AND D (0/1)  
   \[ AND \quad D = \begin{cases} 
   S1 = 0 \\
   S1 = 1 
\end{cases} \]

2. \[ S1 = 00FF \text{(Hex)} \]
   \[ S2 = 3333 \text{(Hex)} \]
   \[ D = 0033 \text{(Hex)} \]

3. **GPC**
   \[ R0.0 \text{ AND} \]
   \[ D = W2 \]
   \[ S1 = W0 \]
   \[ S2 = W1 \]

4. **PGM-300A**
   \[ STR \quad STR \quad STR \quad STR \quad STR \quad STR \quad ENTR \]
   \[ ENT \]
   \[ HLP \quad WR \quad ORB \quad ORN \quad ORN \quad ORN \quad ENTR \]
   \[ HLP \quad W \quad SET \quad W \quad SET \quad W \quad ENTR \]
   \[ HLP \quad W \quad SET \quad W \quad SET \quad W \quad ENTR \]
FARA PLC N70plus
1. S1, S2, D Exclusive OR

S1 = $00FF (Hex)
S2 = $3333 (Hex)
D = $33CC (Hex)

2. XOR (Exclusive OR)

W0 = $00FF
W1 = $3333
W2 = $XXXX

W0 = $00FF
W1 = $3333
W2 = $33CC
### Excluisive NOR

<table>
<thead>
<tr>
<th>XNR</th>
<th>DXNR</th>
</tr>
</thead>
<tbody>
<tr>
<td>D = S1 = S2 =</td>
<td></td>
</tr>
</tbody>
</table>

### Exclusive OR Not

<table>
<thead>
<tr>
<th>S1</th>
<th>S2</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

### 1. S1 S2 D の関係

\( (S_1 \land S_2) \lor \neg D \)

<table>
<thead>
<tr>
<th>S1</th>
<th>S2</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>$00FF(Hex)</td>
<td>$3333(Hex)</td>
<td>$CC33(Hex)</td>
</tr>
</tbody>
</table>

### 2. XNR (Exclusive OR Not)

\( XNR = S_1 \lor S_2 \) \( D \)

### 3. GPC

\( XNR = W_2 \land S_1 = W_0 \land S_2 = W_1 \)

### 4. PGM-300A

<table>
<thead>
<tr>
<th>STR</th>
<th>RST</th>
<th>STR</th>
<th>SET</th>
<th>ENP</th>
</tr>
</thead>
<tbody>
<tr>
<td>FNM</td>
<td>WR</td>
<td>FTM</td>
<td>NR</td>
<td>WR</td>
</tr>
<tr>
<td>ENF</td>
<td>HLP</td>
<td>W</td>
<td>GR</td>
<td>ENF</td>
</tr>
<tr>
<td>HLP</td>
<td>W</td>
<td>SET</td>
<td>ENF</td>
<td></td>
</tr>
<tr>
<td>HLP</td>
<td>W</td>
<td>GR</td>
<td>ENF</td>
<td></td>
</tr>
</tbody>
</table>
FARA PLC N70plus

1. **①** \( (0~15) \) \( N \) \( 0~15 \)
   ② \( N \) \( (0~15) \)
   ③ \( MSB \) \( LSB \)
2. \( D = (0 \sim 0) \) \( N = (0 \sim 31) \)
3. \( D = M = b15 \) \( N = 0 \) \( (0 \sim 15) \)
4. \( D = M = b15 \) \( N = 0 \) \( (0 \sim 15) \)
5. \( DRLC \) \( RLC \)
6. \( DRLC \) \( RLC \)

### (GPC)

- \( M0 = 0F0F \)
- \( M1 = 0F0F \)
- \( M2 = 0F0F \)

### (PGM-300A)

- \( M0 = 1E1E \)
- \( M1 = 3C3C \)
- \( M2 = 3C3C \)
### 1. **RCC**

- **RCC** : M0=$0F0F, M1=$0F0F, M2=$0F0F
- **DRRC** : M0=$8787, M1=$C3C3, M2=$C3C3

### 2. **GPC**

- **GPC** : M0=$0F0F, M1=$0F0F, M2=$0F0F
- **PGM-300A** : M0=$8787, M1=$C3C3, M2=$C3C3

### 3. **PGM-500**

- **PGM-300A**
- **PGM-500**
- **GPC-5**

---

**FARA PLC N70plus**

---

**Samsung**
### 5 に関する設定

<table>
<thead>
<tr>
<th>ROL</th>
<th>D =</th>
<th>N =</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>D =</th>
<th>(0~15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N =</td>
<td>(0~15)</td>
</tr>
</tbody>
</table>

#### ページングメソッド

<table>
<thead>
<tr>
<th>ページングモード</th>
<th>PGM-300A</th>
<th>3, 13</th>
</tr>
</thead>
<tbody>
<tr>
<td>ページングモード</td>
<td>PGM-500</td>
<td>-</td>
</tr>
<tr>
<td>ページングモード</td>
<td>GPC-5</td>
<td>-</td>
</tr>
</tbody>
</table>

#### 設定

1. ROL と D の設定
2. MSB → F1.8 (F1.8)
3. LSB → F1.8 (F1.8)

#### 設定

<table>
<thead>
<tr>
<th>D</th>
<th>N=0~15</th>
<th>0~31</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 設定

<table>
<thead>
<tr>
<th>R</th>
<th>M0</th>
<th>R0.0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### ROL モード

<table>
<thead>
<tr>
<th>ROL</th>
<th>D =M0</th>
</tr>
</thead>
</table>

#### (GPC)

<table>
<thead>
<tr>
<th>ROL</th>
<th>D =M0</th>
</tr>
</thead>
</table>

#### (PGM-300A)

<table>
<thead>
<tr>
<th>ROL</th>
<th>D =M0</th>
</tr>
</thead>
</table>

#### 設定

- N=1 1bit
- N=2 2bit

#### 設定

- N=1 1bit
- LSB

- N=2 2bit
- LSB

- N=1 1bit
- MSB

- N=2 2bit
- MSB
<table>
<thead>
<tr>
<th>Operation</th>
<th>Inputs</th>
<th>Outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROR</td>
<td>D = M0</td>
<td>N = 2</td>
</tr>
<tr>
<td>DROR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **ROR**
  - D = M0
  - N = 2

- **DROR**
  - M S B
  - L S B

### Notes:
1. **RRC**
   - 1. 选择输入 (R, M, K, W, L)
   - 2. 选择 MSB
   - 3. 选择 LSB (F1.8)
2. **D**
   - R, M, K, W, L
   - N: 0–15
3. **GPC**
   - R0.0
   - R0.1

### GPC (PGM 300A)
- `(SET)`
- `(CLR)`
- `(OR)`
- `(STR)`
- `(LRT)`
- `(ENG)`
- `(ENT)`
- `(NOT)`
- `(MCR)`
- `(WR)`
- `(DFN)`
- `(NXT)`

### Memory Map
- **N**
  - 0000
  - 0001
  - ...
  - 0100
  - ...
  - 1100

- **C**
  - 0000
  - 0001
  - ...
  - 0100
  - ...
  - 1100

### Setup
- R0.0
- R0.1
- M0

- **Straps**
  - 8
  - 1
  - 1
  - 1

- **Memory**
  - 2
  - 0

- **C**
  - 0000
  - 0001
  - ...
  - 0100
  - ...
  - 1100

- **MSB**
  - 0000
  - 0001
  - ...
  - 0100
  - ...
  - 1100

- **N**
  - 0000
  - 0001
  - ...
  - 0100
  - ...
  - 1100
FARA PLC N70plus

<table>
<thead>
<tr>
<th>SHL</th>
<th>D = 0</th>
<th>N = 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSHL</td>
<td>D = 1</td>
<td>N = 1</td>
</tr>
</tbody>
</table>

1. D  R, M, K, W, L  N: 0~15(0~31)
2. D  R  $FFFF  M0  N: 0~31
3. D  R  $FFFF  M0  N: 0~31
4. D  R  $FFFF  M0  N: 0~31
5. D  R  $FFFF  M0  N: 0~31
6. D  R  $FFFF  M0  N: 0~31
<table>
<thead>
<tr>
<th>SHR</th>
<th>DSHR</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>D =</td>
</tr>
<tr>
<td>N</td>
<td>N = (0~15)</td>
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</tbody>
</table>

MSB

<table>
<thead>
<tr>
<th>15</th>
<th>14</th>
<th>13</th>
<th>12</th>
<th>11</th>
<th>10</th>
<th>9</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>p</td>
<td>o</td>
<td>n</td>
<td>m</td>
<td>i</td>
<td>k</td>
<td>j</td>
<td>h</td>
<td>g</td>
<td>f</td>
<td>e</td>
<td>d</td>
<td>c</td>
<td>b</td>
<td>a</td>
<td>C</td>
</tr>
</tbody>
</table>

LSB

1. (LSB) N 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0.
2. MSB 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0.
3. LSB 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0.

4. $FFFF $7FFF $3FFF (MSB=b15) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 (F1.8)
5. D 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 DSHR 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0.
6. 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 DSHR 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0.

---

### GPC

- R0.0
  - LET D = M0
  - S = $FFFF

- R0.1
  - SHR D = M0
  - N = 1

### PGM-300A

- R0.0
  - $FFFF $7FFF $3FFF

- M0
  - 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

- R0.1
  - M0 $FFFF

---

FARA PLC N70plus 5 4 3 2 1 0
1. **BCD : Binary**

   - **S**: 0~$270F$ (Hex) = 9999
   - **D**: 0~$99999999$ (Hex) = 2576980377

2. **BIN : Binary**

   - **S**: 0~$9999$ (Hex) = 39321
   - **D**: 0~$270F$ (Hex) = 9999

3. **Left**

   - **R**: W0=$07CC = 1996
   - **W1=$1996 = 6550

   - **R**: W0=$07CC
   - **W1=$1996
   - **W2=$1996 = 6550
   - **W3=$07CC = 1996
1. D1, D2 の値を交換する場合、D1 = D2 の場合と同じです。

   - D1 = $1234 (Hex), D2 = $5678 (Hex)
   - D1 = $5678 (Hex), D2 = $1234 (Hex)

2. D1, D2 の値を交換する場合、D1 = D2 の場合と同じです。

   - D1 = $12345678 (Hex), D2 = $9ABCDEF0 (Hex)
   - D1 = $9ABCDEF0 (Hex), D2 = $12345678 (Hex)

（GPC）

- XCHG
  - D1 = W0
  - D2 = W1
- DXCHG
  - D1 = W10
  - D2 = W12

（PGM-300A）

- XCHG
  - D1 = W0
  - D2 = W1
- DXCHG
  - D1 = W10
  - D2 = W12
1. $S = XXX5$ (Hex)  
   $D = XX6D$ (Hex)

2. $S = W0$  
   $W0 = 8765$ (Hex)  
   $W1 = 1234$ (Hex)

$W1$ is Active High.

---

### PGM-300A

- STR
- SET
- ENTR
- HLP
- ORN
- NXT
- NXT
- HLP

### PGM-500

- STR
- SET
- ENTR
- HLP
- ORN
- NXT

### GPC 5

- SEG
- $D = W1$
- $S = W0$
1. ENCO : S 4ºñÆ®¸¦°Ë»çÇÏ¿©ONµÈºñÆ®°¡ÀÖÀ¸¸é,À̰ÍÀ»ÄÚµåÈ­(=ONµÈºñÆ®¹øÈ£)ÇÏ¿©
   DECO : 4ºñÆ®¸¸À»Ã³¸®ÇÔ.DÀÇ»óÀ§8ºñÆ®´ÂºÒº¯.

2. DECO : S 4ºñÆ®¸¸À»Ã³¸®ÇÔ(S 4ºñÆ®¸¸À»Ã³¸®ÇÔ)°á°ú¸¦D¿¡ÀúÀåÇÔ.

GPC 5

PGM-300A

W0 = $0070 (Hex)
V2 = $5678 (Hex)
V8 = $9ABC (Hex)

W0 = $0070 (Hex)
V2 = $5678 (Hex)
V8 = $0020 (Hex)
FARA PLC N70plus

1. **DIS**
   - **Sr**
   - **Nd**
   - **D**

2. **UNI**
   - **Sr**
   - **Nd**

3. **STR**
   - **R0.0**
   - **D**
   - **Nd**
   - **Sr**

4. **PGM-300A**
   - **STR**
   - **R0.0**

5. **DIS**
   - **UNI**

6. **UNI**
   - **Sr**
   - **Nd**

---

**RAW TEXT END**
### Table: BSET, BRST, BNOT, BTST

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSET</td>
<td><code>D = N</code></td>
<td><code>N = 0</code></td>
</tr>
<tr>
<td>BRST</td>
<td><code>D = M1</code></td>
<td><code>N = 3</code></td>
</tr>
<tr>
<td>BNOT</td>
<td><code>D = M2</code></td>
<td><code>N = 4</code></td>
</tr>
<tr>
<td>BTST</td>
<td><code>D = M3</code></td>
<td><code>N = 6</code></td>
</tr>
</tbody>
</table>

### Diagram:

1. **BSET**: `D = N` (X → 1)
2. **BRST**: `D = M1` (X → 0)
3. **BNOT**: `D = M2` (0 → 1, 1 → 0)
4. **BTST**: `D = M3` (X → F1.8)

### GPC Example:

- **R0.0**: 
  - `BSET`: `D = M0` (X = 1)
  - `BRST`: `D = M1` (X = 0)
  - `BNOT`: `D = M2` (0 → 1, 1 → 0)
  - `BTST`: `D = M3` (X → F1.8)

### PGM-300A Example:

- **M0**: 0001 0010 0001 1100 (2)
- **M1**: 0011 0100 0101 1100 (2)
- **M2**: 0101 0110 0110 0100 (2)
- **M3**: 0111 1000 0111 0100 (2)
- **F1.8**: 0 (OFF)

- **M0**: 0001 0010 0001 1100 (2)
- **M1**: 0011 0100 0101 1100 (2)
- **M2**: 0101 0110 0110 0100 (2)
- **M3**: 0111 1000 0111 0100 (2)
- **F1.8**: 1 (ON)
1. ON(=1) µÈºñÆ®¼öÄ«¿îÆ® ¹ü À§ ÇÁ·Î±×·¡¸Ó
   \[ S = \begin{array}{cccccccc} 1 & 1 & 1 & 0 & 0 & 1 & 1 & 1 \\ 1 & 1 & 0 & 1 & 0 & 0 & 1 & 1 \end{array} \]
   \[ ON(=1) ] \]
   \[ D = \begin{array}{cccccccc} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 \end{array} \]

2. ¹ü À§ ÇÁ·Î±×·¥Ç¥Çö (GPC)
   \[ R0.0 \]
   \[ SUM \]
   \[ D = W0 \]
   \[ S = M0 \]

3. ON(=1) µÈºñÆ®¼öÄ«¿îÆ®ÇÏ¿©
   \[ \text{PGM-300A} \]
   \[ \text{PGM-500} \]
   \[ \text{GPC-5} \]

---

FARA PLC N70plus

---

SAMSUNG
1. SC : [F1.8] X → 1
2. RC : [F1.8] X → 0
3. CC : [F1.8] 0 → 1, 1 → 0

---

<table>
<thead>
<tr>
<th>SC</th>
<th>RC</th>
<th>CC</th>
<th>PGM</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC</td>
<td>SC</td>
<td>SC</td>
<td>PGM-300A</td>
</tr>
<tr>
<td>RC</td>
<td>RC</td>
<td>RC</td>
<td>PGM-500</td>
</tr>
<tr>
<td>CC</td>
<td>CC</td>
<td>CC</td>
<td>GPC 5</td>
</tr>
</tbody>
</table>

---

GPC

PGM-300A
1. R000.0 OFF→ON W[00] W[01] W[02]... W[99] (P0,P1,…P99) 10Q[0-9] W100..W199.$22,$10,$33... $05,$85


- W0, W100, W199: 611, 612, 613...

- P0, P1, P2...

- LDR, DLDR

- Sr = W0, D = W[00]
FARA PLC N70plus

<table>
<thead>
<tr>
<th>STO DSTO</th>
<th>Sr[]</th>
<th>D[]</th>
<th>(D)→Sr</th>
</tr>
</thead>
<tbody>
<tr>
<td>STO</td>
<td>Sr</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>DSTO</td>
<td>Sr</td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

Sr[] を D[] の値に置き換える。

1. R000.0(OFF) → ON

R001(ON) の各値を R000.0(ON) の各値に設定する。

<table>
<thead>
<tr>
<th>D0</th>
<th>D1</th>
<th>D2</th>
<th>......</th>
<th>D98</th>
<th>D99</th>
</tr>
</thead>
<tbody>
<tr>
<td>W100(612)</td>
<td>W101(613)</td>
<td>W102(614)</td>
<td>......</td>
<td>W198(710)</td>
<td>W199(711)</td>
</tr>
</tbody>
</table>

INC D=W0

STO Sr=R1
D=W0

GPC

Sr[]  W0 = 611

(R0.0(ON) → OFF)

WP 611 612 613 614 710 711

PGM-300A

<table>
<thead>
<tr>
<th>FUN</th>
<th>WR</th>
<th>ORN</th>
</tr>
</thead>
<tbody>
<tr>
<td>STR R</td>
<td>SET 1</td>
<td>END</td>
</tr>
<tr>
<td>SET 0</td>
<td>END</td>
<td></td>
</tr>
</tbody>
</table>

HLP W
W100 W101 W102......W198 W199
1. **BMOV**: 
   - Sb: Rs = 1, Db = Ns
   - R2: Db = Rs

2. **BFMV**: 
   - V: Rs = 0 or 1, Db = Ns

3. **BFMV**: 
   - V: Rs = 0 or 1, Db = Ns

**PGM-300A**

<table>
<thead>
<tr>
<th>BMOV</th>
<th>BMOV: 1:1</th>
<th>PGM-300A</th>
</tr>
</thead>
<tbody>
<tr>
<td>BFMV</td>
<td>BFMV: 0:0</td>
<td>PGM-500</td>
</tr>
</tbody>
</table>

**R0.0**

<table>
<thead>
<tr>
<th>R0.0</th>
<th>R1</th>
<th>Db = R2.3</th>
</tr>
</thead>
</table>

**R0.2**

<table>
<thead>
<tr>
<th>R0.4</th>
<th>T/F</th>
<th>R0.0</th>
<th>SET</th>
<th>ORB</th>
</tr>
</thead>
</table>

**R2**

| R2 | 01 | 01 | 01 | 01 | 01 |

**R3**

| R3 | 01 | 01 | 01 | 01 | 01 |

**PGM-500**

| R2 | 01 | 01 | 01 | 01 | 01 |

**GPC**

| R2 | 01 | 01 | 01 | 01 | 01 |

**PGM-300A**

| R2 | 01 | 01 | 01 | 01 | 01 |

**GPC**

| R2 | 01 | 01 | 01 | 01 | 01 |

**PGM-300A**

| R2 | 01 | 01 | 01 | 01 | 01 |
1. FOR~NEXT(or DFOR~NEXT)는 다음의 경우에는 동작합니다: (JMP,CALL 등)  
2. FOR~NEXT의 경우 D가 0이거나 NEXT가 동작할 경우 다음의 동작이 이루어집니다. 
3. FOR~NEXT의 경우의 동작은 다음과 같습니다. 
4. 처리할 때 a의 b의 처리가 되어 상황이 다르게 나타납니다.

### (GPC)

- D가 0이거나 NEXT가 동작할 경우 다음의 동작이 이루어집니다.
- FOR~NEXT의 경우의 동작은 다음과 같습니다.
- 처리할 때 a의 b의 처리가 되어 상황이 다르게 나타납니다.

### (PGM-300A)

- D가 0이거나 NEXT가 동작할 경우 다음의 동작이 이루어집니다.
- FOR~NEXT의 경우의 동작은 다음과 같습니다.
- 처리할 때 a의 b의 처리가 되어 상황이 다르게 나타납니다.
1. R0.0 OFF  →  ON  | JMP L=1
   | LBL L=1
   | Error

2. R0.0 OFF  →  ON  | JMP L=3
   | LBL L=3
   | LBL L=1

3. R0.1 OFF  →  ON  | JMP L=3
   | LBL L=3
   | LBL L=1

4. STR  R  6
   | STR  R  6
   | ENT

5. FUN  VR  2  AND  5
   | ENT
   | ENT

PGM-300A

GPC
FARA PLC N70plus

| J MPS | J MPS : || J ME : || PGM-300A |
|-------|----------------|-----------------|-----------------|
| J MPE | J MPE : || | PGM-500 |
|        | (OUT) | GPC 5 |

1. J MPS, J MPE : JM L= ... J MPS ..., J MPE ... Error Error.
2. R0.0 R0.1 OFF->ON JMPS J MPE ...
3. R0.0 R0.1 OFF->ON JMPS J MPE ...

PGM-300A

- STR R | ENF
- STR R | ENF
- STR R | ENF
- STR R | ENF
- STR R | ENF
- STR R | ENF
- STR R | ENF
- STR R | ENF
- STR R | ENF
1. CALL, SBR~RET ::서의 함수 호출 및 반환
2. CALL :: 서의 함수 호출 및 반환
3. SBR~RET ::서의 함수 호출 및 반환
4. CALL, SBR~RET ::서의 함수 호출 및 반환

PGM-300A

<table>
<thead>
<tr>
<th>CALL</th>
<th>SBR</th>
<th>RET</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL</td>
<td>SBR</td>
<td>RET</td>
</tr>
</tbody>
</table>

PGM-500

<table>
<thead>
<tr>
<th>CALL</th>
<th>SBR</th>
<th>RET</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL</td>
<td>SBR</td>
<td>RET</td>
</tr>
</tbody>
</table>

GPC

R0.0 R0.1 OFF→ON CALL Sb=3
SBR Sb=3 ~ RET
CALL Sb=3 ~ RET
SBR Sb= ~ RET
SBR Sb= ~ RET

PGM-300A

<table>
<thead>
<tr>
<th>SBR</th>
<th>DFR</th>
<th>SET</th>
<th>DFR</th>
<th>DFR</th>
<th>DFR</th>
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<th>DFR</th>
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<td>DFR</td>
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</table>

FARA PLC N70plus 19 19
### FARA PLC N70plus

#### PGM-300A

<table>
<thead>
<tr>
<th>INT</th>
<th>RETI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INT</th>
<th>RETI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INT</th>
<th>RETI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### INT RETI:

1. INT RETI: 1~999(20ms~10sec) Block 

2. Ni: (Ni+1)*10msec

3. Ni: 1~999(20ms~10sec)

4. Ni: (Ni+1)*10msec

5. Ni: 1~999(20ms~10sec)
1. Ch=2로 설정한 후 INPR, OUTR에 대한 프로그램 (Refresh)를 실행.
2. INPR에 대한 R0.0전위, OUTR에 대한 R0.1전위를 설정.
3. INPR Ch=2(R0.0전위)에 의한 전위 및 R0.0전위 후 R0.1전위의 설정.
4. R0.1전위의 설정 후 R0.0전위의 설정 및 R0.0전위와 R0.1전위의 설정.
### FARA PLC N70plus

#### WAT

<table>
<thead>
<tr>
<th>WAT</th>
<th>WAT :</th>
<th></th>
</tr>
</thead>
</table>

#### PGM

<table>
<thead>
<tr>
<th>PGM</th>
<th>PGM-300A</th>
</tr>
</thead>
<tbody>
<tr>
<td>PGM</td>
<td>PGM-500</td>
</tr>
<tr>
<td>GPC</td>
<td>GPC-5</td>
</tr>
</tbody>
</table>

#### Watchdog (Watchdog) 定时器模式

1. CPU 是否长时间不运行，CPU 会自动重启。
2. 在 CPU 运行过程中，如果 CPU 发生异常，CPU 会自动重启。
3. 如果 CPU 发生故障，PLC 会自动重启。CPU 发生故障的模式 Error

#### GPC (GPC)

1. CPU 是否长时间不运行，CPU 会自动重启。
2. 在 CPU 运行过程中，如果 CPU 发生异常，CPU 会自动重启。
3. 如果 CPU 发生故障，PLC 会自动重启。CPU 发生故障的模式 Error

#### PGM-300A (PGM-300A)

1. CPU 是否长时间不运行，CPU 会自动重启。
2. 在 CPU 运行过程中，如果 CPU 发生异常，CPU 会自动重启。
3. 如果 CPU 发生故障，PLC 会自动重启。CPU 发生故障的模式 Error

---

**FARA PLC N70plus**

---
1. RR1: Read[] I/O Word[] (RR1) 
   NR3: Read[] Word[] (NR3) 
   NR5: I/O Word[] (NR5) 
   RR6: I/O Word[] (RR6) 

2. Analog[], I/O Word[] (anallog I/O) 

3. a[] b[] c[] d[] e[] f[] g[] h[] i[] j[]
### 1. NN1:°í±â´ÉI/O À¯´ÏÆ®½½·Ô(¼ýÀÚ,ù¹øÂ°I/0 ½½·ÔÀº0ºÎÅͽÃÀÛ)
NR2:°í±â´ÉI/O À¯´ÏÆ®°øÀ¯¸Þ¸ð¸®»óÀÇW riteÇÒ¼±µÎ¹øÁö(¼ýÀÚ/·¹Áö½ºÅÍ)
NR3:W riteÇÒWord(¼ýÀÚ/·¹Áö½ºÅÍ)
NR5:W riteÇÒµ¥ÀÌÅÍÀǼ±µÎ¹øÁö(¼ýÀÚ/·¹Áö½ºÅÍ)

### 2. °í¼ÓÄ«¿îÅÍ,A analog¸ðµâ,À§Ä¡°áÁ¤¸ðµâµî°í±â´ÉI/O ¸ðµâ¿¡¼­°øÀ¯¸Þ¸ð¸®¿¡µ¥ÀÌÅ͸¦
W riteÇÒ°æ¿ì¿¡»ç¿ëÇÕ´Ï´Ù.

### 3. ÀÔ·ÂÁ¶°ÇÀÌaÁ¢Á¡À̳ªbÁ¢Á¡À϶§´Â¸Å½ºÄµ¸¶´Ù½ÇÇàµÇ¹Ç·Î´ëºÎºÐ¿§ÁöÁ¢Á¡À»ÀÔ·ÂÀ¸·Î

---

### [GPC]

#### WRITE

- To=0:5
- Sz=2
- Fr=W10

#### W10: 2 Word(W10,W11)
Slot0: I/O Slot1: I/O Slot2: I/O Slot3: I/O Slot4: I/O 5: Write (ATB) Fr=W10

---

### Slot 0 Slot 1 Slot 2 Slot 3 Slot 4

- **W8**: $0011
- **W9**: $2233
- **W10**: $4455
- **W11**: $6677
- **W12**: $8899
- **W13**: $AABB

---

### FARA PLC N70plus の関係
Remote Network (NN3) Station (NN4) Slot (NN5)
(RR2) Remote (NR6) Slave (NR1)

1. NR1: Remote

2. Analog Slave

3. Scan 1 Scan Remote network

Remote Master (F8.0) Error (F8.8) Slave Slot 0 (F8.1 4) Remote (F8.5 Slave 4) Slot 0 Remote 16 M0...
FARA PLC N70plus

<table>
<thead>
<tr>
<th>RMWR</th>
<th>REMOTE SLAVE</th>
<th>I/O ACCESS</th>
<th>WRITE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- RMWR: Remote Slave
- I/O: Input/Output
- WRITE: Write

<table>
<thead>
<tr>
<th>F8.0</th>
<th>F8.8</th>
<th>F8.14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- F8.0: Remote Master
- F8.8: Error
- F8.14: Slot

1. NN1: Remote Network 1 (1, 2, 3)
   - Remote Network
   - Slave Station

2. Remote, Analog, Slot
   - Slave
   - I/O
   - Error

3. SCAN: Remote Network
   - 1 SCAN
   - Remote Network
<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>RECEV</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Link</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **To** = NR1: RR2
- **Nt** = NN3: NN4
- **Fr** = NN5: NR6

**RECV**

- **NR?** : 1 (1~3)
- **NR?** : / (1~56)
- **RR?** : 1 (1~56)

1. **NR1**: 1~56 (1~56)
   - **RR2**: 1~56
   - **NN3**: Link Network Loop (1, 2, 3 : 1, 2, 3 Link Network)
   - **NN4**: Link network Station
   - **NN5**: Register
   - **NR6**: 1~56

2. **SCAN**: 1~56

---

**GPC**

- **F3.3**
- **F3.10**

**RECV**

- **To** = 1: R2
- **Nt** = 1: 3
- **Fr** = 7: 1

- **Link**: (F3.3) 1~3, (F3.10) 1~56

- **Link Network**: 1~3, 7 (F), 1 (F), 1 (F)

---

**FARA PLC N70plus**
5. 주요 사항

<table>
<thead>
<tr>
<th>SEND</th>
<th>Link</th>
<th>PGM-500</th>
<th>GPC-5.3</th>
<th>WinGPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEND</td>
<td>N1</td>
<td>N2</td>
<td>N3</td>
<td>N4</td>
</tr>
</tbody>
</table>

- Link Network(NN1) Station(NN2) Station(NN3) Link Network(NN4) Station(NN5) Station(NN6)

1. NN1: Link Network (1,2,3 : 연결 모듈 Link, 4 : Network 1)
   N2: 1 : Link network (Station 1)
   N3: 2 : Link network (Station 2)
   N4: 3 : Link network (Station 3)
   NR4: 4 : Link Network
   NR5: 5 : Link Network
   NR6: 6 : Link Network

2. SCAN: 1 SCAN(1) Link network(1) Station(1)

---

GPC (General Purpose Computer)

- Link Modul[e] (F3.3) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 (F3.10) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

- Link NetworkStation(1) Station(2) Station(3) Station(4) Station(5) Station(6) Station(7) Station(8) Station(9) Station(10) Station(11) Station(12) Station(13) Station(14) Station(15) Station(16) Station(17) Station(18) Station(19) Station(20)
1. BR1: 
   NN3: Link Network Loop (1, 2, 3: Link Network Loop) 
   NN4: Link Network Station 
   NR6: 16-bit Counter
   NR4 == $0035

2. SCAN: 
   SCAN 1 SCAN Link Network Station

---

FARA PLC N70plus
### SENDB

<table>
<thead>
<tr>
<th>Sender (SEND)</th>
<th>Link Module (F3.3)</th>
<th>Link Module (F3.10)</th>
<th>PGM-500</th>
<th>GPC-5.3</th>
<th>WinGPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Link Network (1-3)</td>
<td>Station (1-3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fr=NB5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 1. NN1: Link Network Loop

- NN2: Link network 1 Station 1
- NN3: Register
  - (0:L ·¹ÅºÅÍ, 1:M ·¹ÅºÅÍ, 2:R ·¹ÅºÅÍ, 3:K ·¹ÅºÅÍ, 4:T/C µå, 5:T/C Ç÷, 6:W ·¹ÅºÅÍ, 7:F ·¹ÅºÅÍ)
- NR4: 3¹øÂ°ºñÆ®À§Ä¡ (01, 16) 3¹øÂ°ºñÆ®À§Ä¡ (16)
- NR4 == $01
- NB5: ±âÀÔÇÒµ¥ÀÌÅÍ

#### 2. SCAN

- 1 SCAN Link network 1 Station 1 SCAN Link network 2 Station 2

---

### (GPC)

#### SENDB

- Nt=1.03
- To=2: $01
- Fr=F1.3
6-1. ............................
6-2. ............................
6-3. ............................
6-4. ............................
6-5. ............................
6-6. ............................
6-7. EEPROM BACK-UP ............................
6-1.  오류 발생 시 조치

(1) 오류 발생

PLC의 구조에 관한 설명을 고려하여 문제를 해결해야 함. 

(2) 오류 발생 조치

PLC의 구조에 관한 설명을 고려하여 문제를 해결해야 함. 

(3) 오류 발생 조치

PLC의 구조에 관한 설명을 고려하여 문제를 해결해야 함.
6-2. 샤리관 설치 조건

(1) 설치 조건

<table>
<thead>
<tr>
<th>조건</th>
<th>내용</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>0~55°C</td>
</tr>
<tr>
<td>-</td>
<td>30~85%RH</td>
</tr>
<tr>
<td>-</td>
<td>±10%</td>
</tr>
<tr>
<td>-</td>
<td>±15%</td>
</tr>
<tr>
<td>-</td>
<td>±15%</td>
</tr>
</tbody>
</table>

**참고**
- [문서 내용]
- [문서 내용]
(2) アクセサリーコントロール

- UNIT: NO GOOD (O)
- DUCT: NO GOOD (X)
- PLC:...
6.  

6-3.  

(1)  

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
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<tbody>
<tr>
<td>2</td>
<td>CPL9502</td>
<td>149.5</td>
<td>129.5</td>
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<td>3</td>
<td>CPL9503</td>
<td>185.0</td>
<td>165.0</td>
<td>151.0</td>
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<td>4</td>
<td>CPL9504</td>
<td>220.5</td>
<td>200.5</td>
<td>186.5</td>
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<td>5</td>
<td>CPL9505</td>
<td>256.0</td>
<td>236.0</td>
<td>222.0</td>
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<tr>
<td>6</td>
<td>CPL9506</td>
<td>291.5</td>
<td>271.5</td>
<td>257.5</td>
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<tr>
<td>7</td>
<td>CPL9507</td>
<td>327.0</td>
<td>327.0</td>
<td>293.0</td>
</tr>
<tr>
<td>8</td>
<td>CPL9508</td>
<td>362.5</td>
<td>342.5</td>
<td>328.5</td>
</tr>
</tbody>
</table>
(2) 참고 사항

1. 닫기 전에 확인한 후, 개폐기를 잠금니다.

2. Locking ±â±¸¹°À»´©¸£°í¾ÕÀ¸·Î´ç°ÜÁÖ½Ê

3. PUSH[] LOCKING

1. 닫기 전에 확인한 후, 개폐기를 잠금니다.

2. Locking ±â±¸¹°À»´©¸£°í¾ÕÀ¸·Î´ç°ÜÁÖ½Ê

3. PUSH[] LOCKING
(3) 규격

N70plus PLC는 롤러 모양의 타입으로 길이는 90mm로 정해져 있습니다. 
최적의 인장력을 얻기 위해서는 적절한 길이로 설치되어야 합니다. N70 PLC는 
각각의 길이에 따라 다르게 설치됩니다.

90mm

130mm
6- 4. 电路图

(1) 

- 

(2) 

- PLC 피쳐들 간의 케이블 연결과 Noise 제거 방법에 대한 시각적 설명이 포함되어 있습니다.
(3) パワー入力

- AC POWER

(4) パワー入力

- M3.5 ねじ
- メタル製

7.0mm

- ミッドスナップ(Lug)
- ヨーダスナップ(Lug)

(M3.5 螺ネ)
6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.

(1) 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.

1. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.
2. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.

(2) 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.

1) 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.

2) NPN 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.

3) 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.

4) 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.

5) PNP 6-5. 6-5. 6-5. 6-5. 6-5. 6-5. 6-5.
1) A C ÀԷ±â±â¿ÍÀÇÁ¢¼Ó¿¹

2) ¶ûÁ¢Á¡Ãâ·ÂŸÀÔ

• OFF Àü¾Ð 2.5V, ÀÔ·ÂÀÓÇÇ´ø½º 3kΩ

I : ¼¾¼­ÀÇ´©¼³Àü·ù
R : ºê¸´ÁöÀúÇ×R

DC 12-24V ÔÇÀ± ÔÇÀ± ÔÇÀ± ÔÇÀ± ÔÇÀ±
(OFF Àü¾Ð 2.5V, ÀÔ·ÂÀÓÇÇ´ø½º 3kΩ)

R = \frac{I \times 3R}{3 + R} \leq 2.5 \text{ (kΩ)}

W = \frac{(3 - 5) R}{R} \text{ or 3- 5Ω,}
6. **LED**

**OFF**

- DC 12-24V
  - (OFF 2.5V, 3kΩ)

**ON**

- DC 12-24V
  - (ON 10V)

**LED**

- r: 3kΩ (kΩ)
- R: 2.5V (kΩ)

\[ I = \frac{24 - 2.5}{r} \]

\[ R \leq \frac{7.5}{3I \cdot 2.5} \text{ (kΩ) } \]

\[ W = \frac{(\frac{3I \cdot 2.5}{7.5})^2}{R} \times (3-5\%) \]

**LED**

- LED OFF 10V (ON 10V)
- LED ON 10V (ON 10V)

**LED**

- LED OFF 10V (ON 10V)
(2) 2 채음

1. ON, OFF
2. AC, DC
3. Common

1) AC 채음

2) DC 채음
图示了FARA PLC N70plus的电路图。图中有多个控制模块和接线图，展示了各部分的连接方式。电路图中包括了COM端口和其他控制信号的标识。具体的电路细节和功能需要根据图中的注释进行理解。
(4) M3.0® & M3.0®

- N70 PLC (CPL93024, CPL93034, CPL93484, CPL93584), 20IP® MIL Type

1) PIN ( ), 2) ( ) ( )

1) PIN ( )

<table>
<thead>
<tr>
<th>I/O ASS'Y (PIN )</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CPL8880</td>
<td>20IP®</td>
</tr>
<tr>
<td>1) PIN 20IP®</td>
<td></td>
</tr>
<tr>
<td>2) 3)</td>
<td></td>
</tr>
</tbody>
</table>

2) ( )

- CPL93024/ CPL93034(DC IN 32IP®), CPL93484/ CPL93584(TR OUT 32IP®)

- 20IP® LUG® 20IP® LUG®, 1.5m

<table>
<thead>
<tr>
<th>ASS'Y</th>
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</tr>
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<tbody>
<tr>
<td>CPL8800</td>
<td>DC IN 32IP® (CPL93024/ CPL93034), 1.5m</td>
</tr>
<tr>
<td>CPL8810</td>
<td>TR OUT 32IP® (CPL93484/ CPL93584), 1.5m</td>
</tr>
</tbody>
</table>
1. | 20 |
   | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |
   | X1F | X1E | X1D | X1C | X1B | X1A | X19 | X18 | X17 | X16 | X15 | X14 | X13 | X12 | X11 | X10 | X9  | X8  | X7  |
   | Y1F | Y1E | Y1D | Y1C | Y1B | Y1A | Y19 | Y18 | Y17 | Y16 | Y15 | Y14 | Y13 | Y12 | Y11 | Y10 | Y9  | Y8  | Y7  |
   | COM2 | COM1 | COM1 | COM1 | COM1 | X0 | X1 | X2 | X3 | X4 | X5 | X6 | X7 | X8 | X9 | X10 | X11 | X12 | X13 |
   | CM | CM | CM | CM | CM | Y0 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 |

2. | 20 |
   | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |
   | X1F | X1E | X1D | X1C | X1B | X1A | X19 | X18 | X17 | X16 | X15 | X14 | X13 | X12 | X11 | X10 | X9  | X8  | X7  |
   | Y1F | Y1E | Y1D | Y1C | Y1B | Y1A | Y19 | Y18 | Y17 | Y16 | Y15 | Y14 | Y13 | Y12 | Y11 | Y10 | Y9  | Y8  | Y7  |
   | COM2 | COM1 | COM1 | COM1 | COM1 | X0 | X1 | X2 | X3 | X4 | X5 | X6 | X7 | X8 | X9 | X10 | X11 | X12 | X13 |
   | CM | CM | CM | CM | CM | Y0 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 |

3. | 20 |
   | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |
   | X1F | X1E | X1D | X1C | X1B | X1A | X19 | X18 | X17 | X16 | X15 | X14 | X13 | X12 | X11 | X10 | X9  | X8  | X7  |
   | Y1F | Y1E | Y1D | Y1C | Y1B | Y1A | Y19 | Y18 | Y17 | Y16 | Y15 | Y14 | Y13 | Y12 | Y11 | Y10 | Y9  | Y8  | Y7  |
   | COM2 | COM1 | COM1 | COM1 | COM1 | X0 | X1 | X2 | X3 | X4 | X5 | X6 | X7 | X8 | X9 | X10 | X11 | X12 | X13 |
   | CM | CM | CM | CM | CM | Y0 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 |
6-6. IBM-PC와 PLC间的连接

(1) GPC Tool (GPC Tool)

IBM-PC와 PLC의 연결은 RS-232C (5m) 케이블을 이용합니다.

(2) Handy-Loader

PGM-500(RS-232C/RS-485), PGM-300A(RS-485)와 PLC의 연결

IBM PC와 PLC의 연결은 RS-232 케이블을 이용합니다.
(3) N70plus CPU

<table>
<thead>
<tr>
<th></th>
<th>RS-485</th>
<th>RS-232C</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Rate (max)</td>
<td>1.2M</td>
<td>15m</td>
<td></td>
</tr>
<tr>
<td>Baud Rate</td>
<td>38,400, 19,200, 9,600, 4,800 bps</td>
<td>Dip 1 1 1 1</td>
<td></td>
</tr>
<tr>
<td>Data Format</td>
<td>Half Duplex Asynchronous/Polling</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stop bit</td>
<td>1 Stop bit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Cable</td>
<td>Twisted Pair Cable</td>
<td>Shield Cable</td>
<td></td>
</tr>
<tr>
<td>Protocol</td>
<td>PGM- 300A</td>
<td>IBM- PC (RS-232C)</td>
<td>PGM- 500</td>
</tr>
</tbody>
</table>

* PGM-500: RS232C, RS485

---

- N70/700plus CPU uses SPC protocol.
- RS232C/RS485 cable can be used with CPL5530(2m), CPL5531(5m)

---

For RS232C (25Pin-9Pin):

- RXD 1
- TXD 3
- VCC 5
- GND 7

For RS-232C (9Pin-9Pin):

- RXD 1
- TXD 3
- VCC 5
- GND 7

IBM-PC (25Pin-female) — PLC (9Pin-male)
6-7. EEPROM (N70 plus, N700plus) 备份

(1) EEPROM 备份？
EEPROM (Electric Erase Programmable Read Only Memory) 是一种存储器，它可以在电源关闭时保存数据，使其在断电后仍然有效。PLC 是一种工业控制计算机，用于控制各种工业设备。EEPROM 在 PLC 中的使用可存储和备份数据。

(2) 备份
- EEPROM：N70plus/N700plus A200 有单独的 EEPROM，用于存储额外的数据。
- PLC：N70plus 使用 CPL9215A，N700plus 使用 CPL7203，它们都具有 EEPROM 功能。

(3) 备份程序
- 利用 GPC5 或 WinGPC 进行 EEPROM 备份，例如：AM29F200BT。
1) GPC5
- Download: GPC5 => PLC
- Online SYSTEM CONTROL PLC
- EEPROM Backup
- EEPROM Back-Up Success, RAM EEPROM

2) WinGPC
- Online
- Download: WinGPC => PLC
- EEPROM (E)

3) PGM-500
- PLC Backup
- PROG Backup
7-1. ..............................
7-2. ..............................
7-3. ..............................
7-4. ..............................
### 7-1. PLCの基本知識

PLCは、電気制御システムにおいて重要な役割を果たしています。以下の項目について説明します。

#### 入力出力インタフェース

<table>
<thead>
<tr>
<th>号</th>
<th>問題</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CPUのタイプを選択する絶対的な意義？</td>
</tr>
<tr>
<td>2</td>
<td>CPUのタイプを選択する絶対的な意義？</td>
</tr>
</tbody>
</table>

#### PLCの選択

<table>
<thead>
<tr>
<th>号</th>
<th>問題</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PLCの選択に際しての選択の意義？</td>
</tr>
</tbody>
</table>

#### アダプター

<table>
<thead>
<tr>
<th>号</th>
<th>問題</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AC110V（AC90~132V）</td>
</tr>
<tr>
<td>2</td>
<td>AC220V（AC180~264V）</td>
</tr>
</tbody>
</table>

#### 電圧選択

<table>
<thead>
<tr>
<th>号</th>
<th>問題</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>電圧選択の意義？</td>
</tr>
</tbody>
</table>

#### バージョン

<table>
<thead>
<tr>
<th>号</th>
<th>問題</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>適用するバージョン選択の意義？</td>
</tr>
</tbody>
</table>

---

FA RA PLC N70plus
7-2. FA RA PLC N70plus

PLCは電気制御を担当する重要な部分です。電気制御システムの一部として、次の機能を提供します。

### 電気制御システムの一部としてのPLC

1. GPC（診断プログラム）CPU
2. CPU（診断）CPU
3. HDD（診断）CPU

### 電気制御システムの一部としてのPLC

1. GPC（診断）CPU
2. CPU（診断）CPU
3. HDD（診断）CPU
4. RUN LED（診断）CPU
5. LED（診断）CPU
7-3. 조립 및 사용 방법

(1) 조립 방법 - 조립 시 주의 사항 별로 조립 후에 사용 가능한 모듈을 확인하세요.

![Flowchart Diagram]

- POWER LED 가 켜져 있습니까?
- RUN LED 가 켜져 있습니까?
- ERROR LED 가 켜져 있습니까?
- 입력으로 오류가 있는지 확인합니다.
- CPU의 작동상태를 확인합니다.
- 필요에 따라 조립 또는 사용 방법을 확인합니다.
(2) についての図

"POWER" LED

[図解]

FA RA PLC N70plus
(3) RUN ๑ ๑ ๑ ๑

RUN LED ๑ ๑

CPU ๑ ๑ ๑ ๑ RUN ๑ ๑ ?

RUN ๑ ๑

CPU ๑ ๑ ๑ ๑ RUN ๑ ๑ ?

CPU ๑ ๑ ๑ ๑ ERRROR LED ๑ ๑ ?

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?

CPU ๑ ๑ ๑ ๑ PROC ๑ ๑

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?

CPU ๑ ๑ ๑ ๑ CPU ๑ ๑?
FARA PLC N70plus

(4) の の の の

ERROR LED

F0.0,F0.1,F0.2,
F0.3,F0.4,F0.5,F0.6,F0.7

F0.0=1
F0.1=1
F0.2=1
F0.3=1
F0.4=1
F0.5=1
F0.6=1
F0.7=1

ERR LED

CPU

CPU
(5) 버튼 mã¥٠ 시 시스템이 자동으로 10량만큼 격리시작합니다.
7-4. 이론과 실제

(1) 이론

<table>
<thead>
<tr>
<th></th>
<th>0 1 2 3</th>
<th>0 1 2 3</th>
<th>0 1 2 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER LED</td>
<td>0 0 0</td>
<td>1 1 1</td>
<td>0 0 0</td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>RUN LED</td>
<td>0 0 0</td>
<td>1 1 1</td>
<td>0 0 0</td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>RUN[ ] ON[ ]</td>
<td>0 0 0</td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>I/O 100</td>
<td>0 0 0</td>
<td>1 1 1</td>
<td>0 0 0</td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
</tbody>
</table>

(2) 실제

<table>
<thead>
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<th>0 1 2 3</th>
<th>0 1 2 3</th>
<th>0 1 2 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER LED</td>
<td>0 0 0</td>
<td>1 1 1</td>
<td>0 0 0</td>
</tr>
<tr>
<td>LED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>I/O 100</td>
<td>0 0 0</td>
<td>1 1 1</td>
<td>0 0 0</td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>RUN[ ] ON[ ]</td>
<td>0 0 0</td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>RUN[ ] OFF[ ]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
<tr>
<td>I/O 100</td>
<td>0 0 0</td>
<td>1 1 1</td>
<td>0 0 0</td>
</tr>
<tr>
<td>CPU</td>
<td></td>
<td>CPU</td>
<td></td>
</tr>
</tbody>
</table>

FARA PLC N70plus 7-4 7-4
<table>
<thead>
<tr>
<th>(3)</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ON</td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>I/O</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>LED</td>
<td>ON</td>
<td>ON</td>
<td>OFF</td>
</tr>
</tbody>
</table>
(4) FARA PLC SERIES

<table>
<thead>
<tr>
<th>차수</th>
<th>설명</th>
<th>온도</th>
<th>습도</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>체온 측정을 해서 몸온도를 측정한 후 정면시작</td>
<td>0~55℃</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>습도 측정을 해서 희미도를 측정한 후 정면시작</td>
<td>35~85%RH</td>
<td>45%</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1. 체온 측정을 해서 몸온도를 측정한 후 정면시작.
2. 습도 측정을 해서 희미도를 측정한 후 정면시작.
3. 시간을 측정을 해서 시간이 얼마나 걸리는지 측정.
4. 전력 측정을 해서 전력이 얼마나 소비되는지 측정.
5. 사용 방법을 설명해 보는 내용을 측정.

FARA PLC N70plus 규정 사항
8

8-1. ..............................................................
8-2. ..............................................................
8-1. 8-1.

1. 8-1.

2. 8-1.
3. ³ëÀÌÁî, ³ëÀÌÁî ³ ñúë³ ³åø³ ³ëÀÌÁî.

<table>
<thead>
<tr>
<th>³ëÀÌÁî</th>
<th>³ëÀÌÁî</th>
<th>³ëÀÌÁî</th>
</tr>
</thead>
<tbody>
<tr>
<td>³ëÀÌÁî</td>
<td>³ëÀÌÁî</td>
<td>³ëÀÌÁî</td>
</tr>
</tbody>
</table>

3. ³ëÀÌÁî, ³ëÀÌÁî, ³ëÀÌÁî

<table>
<thead>
<tr>
<th>³ëÀÌÁî</th>
<th>³ëÀÌÁî</th>
<th>³ëÀÌÁî</th>
</tr>
</thead>
<tbody>
<tr>
<td>³ëÀÌÁî</td>
<td>³ëÀÌÁî</td>
<td>³ëÀÌÁî</td>
</tr>
</tbody>
</table>

FARA PLC N70plus ³ëÀÌÁî
8-2. 1. FARA PLC N70plus의 연결

1. (ground)
- 이 연결은 기저를 의미하며, 이 연결은 모든 PLC의 기저에 대한 연결입니다.
- 이 연결은 모든 PLC의 기저를 둡니다.

2. (3) 명
- 이 연결은 400V의 전압을 사용합니다.
- 이 연결은 100Ω의 저항을 사용합니다.

2. 2. 통근 (ground)
- 이 연결은 통근을 의미하며, 이 연결은 모든 PLC의 통근에 대한 연결입니다.
- 이 연결은 모든 PLC의 통근을 둡니다.

3. (3) 명
- 이 연결은 400V의 전압을 사용합니다.
- 이 연결은 100Ω의 저항을 사용합니다.
2. (2)

- [PLC]의 설정을 조정하여 필요에 따라 출력을 조정한다.
- [PLC]의 설정을 조정하여 필요에 따라 출력을 조정한다. 20% 출력을 얻는다.

![Diagram 1](image1)


![Diagram 2](image2)


### 이점

- [isolation]의 설정을 조정하여 필요에 따라 출력을 얻는다.
2. (3)

- - (3)
- - 

| CA5-V32 | 250V, 3A | 220V |
| ZMB2203-11 | 250V, 3A | TDK | 220V |

- 
- 
- 

- (filtering)
- - 
- - 
- - 

- (low pass filter)
- - 
- - 
3. 주의 사항

■ 주의 사항
- 주의 사항을 선택하고 선택할 수 있는 사항은 선택할 수 있습니다.
- 주의 사항을 선택하고 선택할 수 있는 사항은 선택할 수 있습니다.

                                 PLC                                    PLC
                                 AC1  V  AC1  V
                                 100Ω 100Ω

■ 주의 사항
- 주의 사항을 선택하고 선택할 수 있는 사항은 선택할 수 있습니다.
- 주의 사항을 선택하고 선택할 수 있는 사항은 선택할 수 있습니다.

| SVC 471D-20A | 470 V, 400A | 220V | 200V |
| ENC 471D-20A | 470 V, 400A | FUJ | 200V |

- 주의 사항 (surge absorber)
  - 주의 사항을 선택하고 선택할 수 있는 사항은 선택할 수 있습니다.
  - 주의 사항을 선택하고 선택할 수 있는 사항은 선택할 수 있습니다.

- 주의 사항 (clamping)
  - 주의 사항을 선택하고 선택할 수 있는 사항은 선택할 수 있습니다.
  - 주의 사항을 선택하고 선택할 수 있는 사항은 선택할 수 있습니다.
3. ³«·ÚµîÀÚ¿¬Çö»ó¿¡ÀÇÇѳëÀÌÁîÀÇ´ëÃ¥-(2)

- °ü·ÃµÈ¿ë¾î
- ³ëÀÌÁî¿Í´ëÃ¥¼ö¸³

4. ³ëÀÌÁî¿Í´ëÃ¥)-(2)

- ³ëÀÌÁî¿Í´ëÃ¥¼ö¸³
- 50M(PLC)
- ³ëÀÌÁî¿Í´ëÃ¥¼ö¸³

- ³ëÀÌÁî¿Í´ëÃ¥¼ö¸³

- ³ëÀÌÁî¿Í´ëÃ¥¼ö¸³

- ³ëÀÌÁî¿Í´ëÃ¥¼ö¸³

- ³ëÀÌÁî¿Í´ëÃ¥¼ö¸³

- ³ëÀÌÁî¿Í´ëÃ¥¼ö¸³
5. ON, OFF (ON, OFF)에 관한 CPU 전원

<table>
<thead>
<tr>
<th>POWER</th>
<th>CPU</th>
</tr>
</thead>
</table>

- FCC (Federal Communications Comissions, 통신기기 규제), CLASS A(가급형 전자제품), CLASS B(소급형 전자제품) 등이
- VDE (Verband Deutscher Elektrotechniker, 독일 전자공학자협회) 등이
- EMC (전자장, Electromagnetic Compatibility) 등이
6. 

1) DC

- Inductive load
- Flywheel diode
- Stray capacity

2) AC

- Inductive load
- Flywheel diode
- Stray capacity

3) AC

- Inductive load
- Flywheel diode
- Stray capacity

- Inductive load:
  - ON/OFF

- Flywheel diode:
  - OFF

- Stray capacity:
  - ON/OFF
4) 모세 채널 모드 설정

모세 채널 모드 설정을 위해 다음의 조건을 충족해야 합니다.

<table>
<thead>
<tr>
<th>모세 채널 모드</th>
<th>AC입력</th>
<th>DC입력</th>
<th>조건</th>
</tr>
</thead>
<tbody>
<tr>
<td>O</td>
<td>O</td>
<td>-</td>
<td>C.R. 0.5A&lt;br&gt;C=0.25<del>0.5&lt;br&gt;R=100</del>200Ω&lt;br&gt;AC200V&lt;br&gt;(C=0.25<del>0.5)&lt;br&gt;R=100</del>200Ω</td>
</tr>
<tr>
<td>×</td>
<td>O</td>
<td>-</td>
<td>C.R. 0.5A&lt;br&gt;C=0.25<del>0.5&lt;br&gt;R=100</del>200Ω&lt;br&gt;AC250V&lt;br&gt;(C=0.25<del>0.5)&lt;br&gt;R=100</del>200Ω</td>
</tr>
<tr>
<td>O</td>
<td>O</td>
<td>-</td>
<td>C.R. 0.5A&lt;br&gt;C=0.25<del>0.5&lt;br&gt;R=100</del>200Ω&lt;br&gt;AC250V&lt;br&gt;(C=0.25<del>0.5)&lt;br&gt;R=100</del>200Ω</td>
</tr>
</tbody>
</table>

참고:
- C.R. 0.5A
- C=0.25~0.5 λ<br>R=100~200Ω
- AC200V λ<br>AC250V λ
5) 电路图说明

- 电路图示意图

6) SSR 电路图说明

- 电路图示意图
9-1. データ通信 ..........................
9-2. データ通信 ..........................
9-3. CPU と SLAVE と通信 ..................
9-4. データ通信 ..........................
9-5. I/O LINK と通信 ..........................
9-1. Measurement (mm)

<table>
<thead>
<tr>
<th>No.</th>
<th></th>
<th></th>
<th>(A)</th>
<th>(B)</th>
<th>(C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>CPL9502</td>
<td>149.5</td>
<td>129.5</td>
<td>115.5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>CPL9503</td>
<td>185.0</td>
<td>165.0</td>
<td>151.0</td>
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<td>CPL9504</td>
<td>220.5</td>
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<tr>
<td>5</td>
<td>CPL9505</td>
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<tr>
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<td>CPL9506</td>
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<td>271.5</td>
<td>257.5</td>
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</tr>
<tr>
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<td>293.0</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>CPL9508</td>
<td>362.5</td>
<td>342.5</td>
<td>328.5</td>
<td></td>
</tr>
</tbody>
</table>
9-2. FARA PLC N70plus (mm)

9-3. CPU  SLAVE  (mm)
9-4. Occurred Lights (mm)

9-5. I/O Link Occurred Lights (mm)
1. 未定

2. GPC5未定
1-1. N70plus/ N700plus 充电器

1) Half Duplex Asynchronous
2) No Parity
3) Bits: 1
4) Channels: RS232C, RS485
5) Baud Rate: 4800/9600/19200/38400bps
6) Flow Control: None
7) Connection: 64 (RS485: 1:N)
8) Address: 3

1-2. N70plus/ N700plus 协议 (Protocol)

Query

<table>
<thead>
<tr>
<th>Function Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
</tr>
</tbody>
</table>

Query Acknowledge

Response Request

<table>
<thead>
<tr>
<th>Function Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
</tr>
</tbody>
</table>

Response

<table>
<thead>
<tr>
<th>Function Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLC</td>
</tr>
</tbody>
</table>
CPU アドレス設定のためのコマンド：

PLC Q RR の設定において、CPU のアドレスを設定します。CRC、データの設定についてもPLC の設定において、Q RR の設定において、3 個の設定については、CPU のアドレスを設定します。

CPU のアドレス（CPU ID）

N-Plus Series 0-191 を使用します。CPU のアドレスは、N-Plus Series 0-255 を使用します。

CPU のアドレス設定は、CPU のアドレスを設定します。

GCP(GPC5, WGPC) Handy Loader(GPM300A, PGM500) を使用します。

CPU アドレス設定のためのコマンド：

Q R と Q A の設定において、CPU のアドレスを設定します。

SPC- Series(SPC10, 245, 1205, 300, A200) の設定において、Q R と Q A の設定において、4 個の設定については、CPU のアドレスを設定します。

2 型 レベル 2 型の設定において、CPU のアドレスを設定します。

4 個の設定において、SPC- Series(SPC10, 245, 1205, 300, A200) の設定において、Q R と Q A の設定において、4 個の設定については、CPU のアドレスを設定します。
1) アンテナの電圧

(2) 4 つのおために

(1) 2 つのおために

3) ファンクションコードのロゴ
(3) (Query) [Function Code]

- 1-2. Query (Q) R $00$ (Hex) 4-3. Response (R) Hex $00$ (Hex)

<table>
<thead>
<tr>
<th>Function Code</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>$21$</td>
<td>$01$</td>
</tr>
<tr>
<td>$22$</td>
<td>$02$</td>
</tr>
<tr>
<td>$23$</td>
<td>$03$</td>
</tr>
<tr>
<td>$24$</td>
<td>$04$</td>
</tr>
<tr>
<td>$25$</td>
<td>$05$</td>
</tr>
<tr>
<td>$26$</td>
<td>$06$</td>
</tr>
<tr>
<td>$27$</td>
<td>$07$</td>
</tr>
<tr>
<td>$28$</td>
<td>$08$</td>
</tr>
<tr>
<td>$29$</td>
<td>$09$</td>
</tr>
<tr>
<td>$2A$</td>
<td>$0A$</td>
</tr>
<tr>
<td>$2B$</td>
<td>$0B$</td>
</tr>
<tr>
<td>$2C$</td>
<td>$0C$</td>
</tr>
<tr>
<td>$2D$</td>
<td>$0D$</td>
</tr>
<tr>
<td>$2E$</td>
<td>$0E$</td>
</tr>
<tr>
<td>$2F$</td>
<td>$0F$</td>
</tr>
<tr>
<td>$30$</td>
<td>$10$</td>
</tr>
<tr>
<td>NO SERVICE</td>
<td>$00$</td>
</tr>
</tbody>
</table>

- Query? ?
(4) CRC(Cyclic Redundancy Checking, 循环冗余检查)

- CRC Frame (Check Sum Code) and 2's Complement.
- CRC Sum Code 1-16 bits CRC CRC L CRC H 2's Complement.

CRC Table

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>CRC</th>
<th>CRC H</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRC</td>
<td>CRC H</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BASIC Basic CRC-16

```plaintext
CRC_Sum := CRC_Sum XOR Data;
FOR i=1 to 8
BEGIN
    CARRY := CRC_Sum AND 1;
    CRC_Sum := CRC_Sum SHR 1;
    IF CARRY = 1 THEN CRC_Sum := CRC_Sum XOR $A001H;
    ELSE CRC_Sum := CRC_Sum SHR 1;
END;
RETURN
```

PASCAL Pascal CRC-16

```plaintext
Procedure Crc16(Data:Byte);
Var i : Byte;
Begin
    CRC_Sum := CRC_Sum XOR Data;
    FOR i:=0 to 7 do
    Begin
        IF (CRC_Sum and 1)=1 THEN CRC_Sum := (CRC_Sum SHR 1) XOR $A001H;
        ELSE CRC_Sum := CRC_Sum SHR 1;
    End;
End;
```

C C CRC-16

```c
void Crc16(unsigned int Data) {
    unsigned int i;
    Crc=Crc^(Data & 0x00FF);
    for(i=0;i<=7;i++) {
        if((Crc & 0x0001) == 0x0001) Crc=(Crc>>1)^0xA001;
        else Crc=Crc>>1;
    }
}
```
1-3. arranty 

- arranty 2) arranty Q, R Frame 

Q(Query) \( \rightarrow \) R(Response) \( \rightarrow \) QA(Query Acknowledge) \( \rightarrow \) RR(Response Request) \( \rightarrow \) R(Response) 

Error \#1. arranty CPU 
Error \#2. arranty CPU 
Error \#3. arranty CPU 
Error \#4. arranty CPU 
Error \#5. arranty CPU.
(1) 

- (R, L, M, K, F, TC) 를 입력합니다.
- N의 ON/OFF를 입력합니다.

Q(QUERY)

![Diagram of Q(QUERY)]

R(RESPONSE)

![Diagram of R(RESPONSE)]

(2) 

- (R, L, M, K, F, TC)를 입력합니다. ON/OFF를 입력합니다.
- N의 ON/OFF를 입력합니다.

Q(QUERY)

![Diagram of Q(QUERY)]

R(RESPONSE)
### (3) Q(Query)

- \( (R, L, M, K, F, W) \)
- \( N \)

#### Q(Query)

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>$23</th>
<th>$03</th>
<th>BASE L</th>
<th>H</th>
<th>N</th>
<th>CRC L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$23</td>
<td>$03</td>
<td>BASE</td>
<td>N</td>
<td></td>
<td>CRC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L</td>
<td>H</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:**

- \( K = 127 \)
- \( H = $01 \)
- \( BASE = 58F \)

#### R(Response)

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>$A3</th>
<th>L</th>
<th>BASE+0</th>
<th>L</th>
<th>H</th>
<th>. . .</th>
<th>BASE+N-1</th>
<th>L</th>
<th>H</th>
<th>CRC L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$A3</td>
<td>L</td>
<td>BASE</td>
<td>. . .</td>
<td>BASE+N-1</td>
<td>CRC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>L</td>
<td>Base</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:**

- \( L = N^2 \)

### (4) Q(Query)

- \( (R, L, M, K, F, W) \)
- \( N \)

#### Q(Query)

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>$24</th>
<th>L</th>
<th>BASE L</th>
<th>H</th>
<th>BASE+L</th>
<th>H</th>
<th>. . .</th>
<th>BASE+N-1</th>
<th>H</th>
<th>L</th>
<th>CRC L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$24</td>
<td>L</td>
<td>BASE</td>
<td>N</td>
<td>BASE+L</td>
<td>N</td>
<td>. . .</td>
<td>BASE+N-1</td>
<td>N</td>
<td>L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Example:**

- \( L = N^2 + 2 \)

#### R(Response)

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>$A4</th>
<th>$01</th>
<th>$00</th>
<th>CRC L</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$A4</td>
<td>$01</td>
<td>$00</td>
<td>CRC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### (5) Query/Response Message

- **Q (Query)**

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>$25</th>
<th>L</th>
<th>AD</th>
<th>D0</th>
<th>A1</th>
<th>D1</th>
<th>...</th>
<th>An</th>
<th>CRC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### R (Response)

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>$26</th>
<th>L</th>
<th>AD</th>
<th>D0</th>
<th>A1</th>
<th>D1</th>
<th>...</th>
<th>An</th>
<th>CRC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (6) Query/Response Message

- **Q (Query)**

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>$26</th>
<th>L</th>
<th>AD</th>
<th>D0</th>
<th>A1</th>
<th>D1</th>
<th>...</th>
<th>An</th>
<th>CRC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### R (Response)

<table>
<thead>
<tr>
<th>DA</th>
<th>SA</th>
<th>$A6</th>
<th>$01</th>
<th>$00</th>
<th>CRC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$A6</td>
<td>$01</td>
<td>$00</td>
<td></td>
</tr>
</tbody>
</table>
#include<stdio.h>
#include<dos.h>
#include<conio.h>
#definePC_ID0xE2
#defineTimeÇѰè28
#defineÀç½ÃµµÇѰè2
#defineTRUE 1
#defineFALSE 0
#defineÇÏÀ§¹ÙÀÌÆ®(x)(unsignedint)((x)&0x00FF)
#define»óÀ§¹ÙÀÌÆ®(x)(unsignedint)(((x)&0xFF00)>>8)
typedefintBOOL;
unsignedintPORTADD,DIVIS OR,¼Û½ÅÁö¿¬,¼ö½ÅÁö¿¬;
unsignedint¼ö½ÅÇÁ·¹ÀÓ[262],¼ö½ÅÇÁ·¹ÀÓ[262];
unsignedintCrc;
unsignedintÄ«µå,i,ix,iy,smode;
unsignedintÆ÷Æ®¹øÈ£;
unsignedintPlcID,OldID;
BOOL Success;
unsignedintµ¥ÀÌŸ,JobID,Àç½ÃµµC;
unsignedintOld,New,¼ö½ÅIndexÃÖ´ë,¼Û½ÅIndexÃÖ´ë,index,¿öÄ¡µ¶;
unsignedintM[128],K[128];/* ExampleRegister*/
voidRR¹ß»ý(void);
voidTrsÆ÷Æ®(unsignedint);
unsignedintRecÆ÷Æ®(void);
BOOL ¼Û½Å¹ß»ý(void);
BOOL ¼ö½Å¹ß»ý(void);
voidCrc16(unsignedint);
voidJob(void);
unsignedintÅë½Å(void);
voidM ¿öµåÀбâ(void);
voidK ¿öµå¾²±â(void);
voidmain(void)
{
unsignedinti;
/* SelectionofÅë½ÅÆ÷Æ®*/
clrscr();
scanf("%d",&Æ÷Æ®¹øÈ£);
if((Æ÷Æ®¹øÈ£< 1)||(Æ÷Æ®¹øÈ£> 5))Æ÷Æ®¹øÈ£=5;
/* SelectionofBaudrateforSerialÅë½Å*/
¼Û½ÅÁö¿¬=10;
if(Æ÷Æ®¹øÈ£!=5)
{
scanf("%d",&i);
if (((i < 1) || (i > 3)) i=1;
if (i == 3) i=4;
if (i == 2) i=3;
if (i == 1) i=2;
DIVISOR=12 * i;
DIVISOR= i + 1;
}
}
/* Initialization of GPC */
if(Æ÷Æ®¹øÈ£==1) PORTADD=0x3F0;
if(Æ÷Æ®¹øÈ£==2) PORTADD=0x2F0;
if ((Æ÷Æ®¹øÈ£ >= 3) & (Æ÷Æ®¹øÈ£ <=5))
{ 
    PORTADD=0x300; 
    outportb(PORTADD+0x03,0x05); /* PC2=1 of 8255 :DisableIRQ2 */
    outportb(PORTADD+0x01,0xFF); /* PB0=1 of 8255 :EnableRS-485*/
    outportb(PORTADD+0x03,0x01); /* PC0=1 of 8255 :EnableRS-485*/
    if(Æ÷Æ®¹øÈ£==3) outportb(PORTADD+0x03,0x02); /* PC1=0 of 8255 :Select RS-232 */
    if(Æ÷Æ®¹øÈ£==4) outportb(PORTADD+0x03,0x03); /* PC1=1 of 8255 :Select RS-485 */
    if(Æ÷Æ®¹øÈ£==5) outportb(PORTADD+0x03,0x00); /* PC0=0 of 8255 :DisableSerialinput*/
}
else outportb(PORTADD,0x00);/*DisableInterrupt*/
/* Initialization of USART-Chip: 8250*/
if(Æ÷Æ®¹øÈ£!=5)
{ 
    outportb(PORTADD+0x0B,0x80); /* Set of DLAB=1 */
    outportb(PORTADD+0x09,0x00); /* Set of HighByteDIVISOR */
    outportb(PORTADD+0x08,0x00); /* Set of Low ByteDIVISOR */
    outportb(PORTADD+0x0B,0x03); /* AEÐ¸®Æ¼=None/Stop=1/Length=8*/
} 
/* ProcessingÅë½ÅofRead&Write*/
for(;;)
{ 
    printf("----------------
PLC-ID(CPU ID): ");
    scanf("%d",&PlcID);
    M ¿öµåÀбâ();
    K ¿öµå¾²±â();
}
}
void RR¹ß»ý(void)
{ 
    M [2]=0;
    M [3]=1;
    M [4]=0;
}
void TrsÆ÷Æ®(unsignedintµ¥ÀÌŸ)
{ 
    if(Æ÷Æ®¹øÈ£==5) outportb(PORTADD,µ¥ÀÌŸ);
    else outportb(PORTADD+0x08,µ¥ÀÌŸ);
}
unsignedintRecÆ÷Æ®(void)
{ 
    unsignedintdt;
    if (Æ÷Æ®¹øÈ£==5) dt=inportb(PORTADD);
    else dt=inportb(PORTADD+0x08);
    return(dt);
}
BOOL ¼Û½Å¹ß»ý(void)
{ 
    BOOL tf;
    BOOL rf;
    if (Æ÷Æ®¹øÈ£==5) tf=((inportb(PORTADD+0x02)&0x80)==0x80);
    else tf=((inportb(PORTADD+0x0D)&0x01)==0x01);
    return(tf);
}
BOOL ¼ö½Å¹ß»ý(void)
{ 
    BOOL rf;
    if (Æ÷Æ®¹øÈ£==5) rf=((inportb(PORTADD+0x02) & 0x80)==0x80);
    else rf=((inportb(PORTADD+0x0D) & 0x20)==0x20);
    return(rf);
}
void Crc16(unsignedint[][]) 
{ 
    unsignedint i;
    Crc=Crc<<1|0xA001; /* 0x0001 : 0001 */
    if(0x0000) Crc=Crc>>1|0xA001; /* 0x0001 : 0001 */
    else Crc=Crc>>1;
}
void job(void)
{
    /* JobID=0: Change to Q, QA Channel Mode for Serial Frame */
    /* JobID=1: Transmit QA Channel Mode for Serial Frame */
    /* JobID=5: Change to QA Channel Mode for Serial Frame */
    /* JobID=8: Address Polling from CPU */
    /* JobID=9: Receive RES from CPU */
    switch(JobID)
    {
      case 0: case 5:
        if(outputPort(0x301, 0xFF) != 5)
        {
          return 1;
        }
        break;
      case 1:
        jobID = 0;
        index = 0;
        QAIndex = 5;
        CRC = 0xFFFF;
        jobID ++;
        break;
      case 2:
        jobID = 0;
        index = 0;
        QAIndex = 5;
        CRC = 0xFFFF;
        jobID ++;
      case 3:
        jobID = 0;
        index = 0;
        QAIndex = 5;
        CRC = 0xFFFF;
        jobID ++;
        break;
      case 4:
        jobID = 0;
        index = 0;
        QAIndex = 5;
        CRC = 0xFFFF;
        jobID ++;
      case 6:
        jobID = 0;
        index = 0;
        QAIndex = 5;
        CRC = 0xFFFF;
        jobID ++;
      case 7:
        jobID = 0;
        index = 0;
        QAIndex = 5;
        CRC = 0xFFFF;
        jobID ++;
      case 8:
        jobID = 0;
        index = 0;
        QAIndex = 5;
        CRC = 0xFFFF;
        jobID ++;
      case 9:
        jobID = 0;
        index = 0;
        QAIndex = 5;
        CRC = 0xFFFF;
        jobID ++;
      case 10:
        success = TRUE;
    }
}
unsigned int fара (void) {
    struct time t;
    unsigned far *tm;
    int ret;
    Success = FALSE;
    tm = (unsigned far *) 0x046C;
    New = *tm;
    if (tm > Time) {
        tm = (unsigned far *) 0x046C;
        New = *tm;
        if (((Old ^ New) & 0x02) == 0) {
            Old = New;
        }
    }
    while ((t != 0) && (Success == FALSE));
    if (t == 0) ret = 1;
    else ret = 0;
    return (ret);
}

void M (void) {
    /* Example of Read-Register*/
    int i;
    [M's registers and values]
    printf("READ M0000-M0127 OK
    ");
    for (i = 0; i <= 127; i++) M[i] = [M's contents];
    else printf("Åë½Å¿¡·¯
    ");
}

void K (void) {
    /* Example of Write-Register*/
    int i;
    [K's registers and values]
    for (i = 0; i <= 63; i++) {
        [K's contents];
    }
    else printf("WRITEK0000- K0063 OK
    ");
}

unsigned int fара (void) { /* Example of Write-Register*/
    int i;
    [Fara's registers and values]
    for (i = 0; i <= 63; i++) {
        [Fara's contents];
    }
    else printf("WRITEK0064- K0127 OK
    ");
}
2-1. GPC 5

GPC5(Graphic Programming Console) Version 5.xx ¼³Ä¡  GPC V3.xx ¼³Ä¡
PLC ¿î¿µÈ¯°æÀ»°³¼±ÇÑ SOFTWARE, N70 Plus, N700 Plus
PLC ¿î¿µÈ¯°æ DOSÁ¢¼ÓÀº¿µ¹®¸ðµå¿¡¼­°¡´ÉÀ½°ú°°½À´Ï´Ù.

1) HARDWARE ±¹®À¼
- IBM -PC(AT) , SYSTEM MEMORY 512KB ¼­°¡´É
- ONLINEÁ¢¼ÓÀº¿µ¹®¸ðµå¿¡¼­°¡´É
- HARD DISK±ë·®Àº2MB

2) SOFTWARE±¹® (GPC5)
- GPC5.EXE
- GPC5.LOG
- GPC5.OVR
- INSTALL.EXE
- PRT.DRV
- SPC.DRV
- SYM.DRV

3) ±æ
① INSTALLÁ¢¼ÓÁ°²á²á DISKÁ¢¼ÓÀº¿Í¸í·ÉÀ»Ä£´Ù.
② WORKING(ÇÁ·Î±×·¥)°æ·Î¸¦»ðÀÔÇϰí, (C:£ÜGPC5£Üµî)¿ÍÇØ´ç°æ·Î¿¡¼­G PC5¸¦½ÇÇà½ÃŲ´Ù.
③ Online/SYSTEM CONTROL¿¡¼­PLC±âÁ¾ÁöÁ¤(±âÁ¾ÀºSPC-XXX°¡´ÂÁ¢¼ÓÀºÁöÁ¤µÇ¸ç,À̶§´Â.)
④ FileÀÇSetupÀ»ºÒ·¯Åë½Å´ÜÀÚ(COM1,COM2,GPC485µî)¸¦¼±ÅÃÇϰí, Åë½Å¼Óµµ¸¦ÁöÁ¤Çϸç,ÇÁ¸°ÅͱâÁ¾,¸ð´ÏÅÍ Á¾·ùµîÀ»¼±ÅÃÇÑ´Ù.
⑤ Notebook PC ¿î¿µÈ¯°æÀÚ COM1 ¿î¿µÈ¯°æ Enable, COM2 ¿î¿µÈ¯°æ Disable, (Line) Û·³±âÁ¾ÁöÁ¤(±âÁ¾ÀºCOM1,COM2,SPC-485,Line)PLC ¿î¿µÈ¯°æ ÀÚPC ¿î¿µÈ¯°æ ÀÚPC ¿î¿µÈ¯°æÀ»¼÷ÁöÇÏ¿©¾ßÇÕ´Ï´Ù.

Note: ãòëÆ®ºÏÀDZâÁ¾,S/W Á¾·ù¿¡µû¶ó´Ù¸£¹Ç·Î°¢°¢ÀÇ»ç¿ë¼³¸í¼­¸¦ÂüÁ¶ÇϽʽÿÀ.)
2-2. GPC 5

1) MAIN MENU

File  Config  Program  On-line  Monitor  Print  Tools  Help

Art H

Number convert  Print Screen

Ladder  Mnemonic  Label & Comment  X-relance  Aoo Document

Ladder  Register  I/O Module  Time-chart

System Control
GPC==PLC  PLC==GPC  Clear

Ladder  Mnemonic

Program  I/O Address

New  Open  Copy  Rename  Delete  Upgrade  recover  Setup  eXit

FARA PLC N70plus
## 2) PROGRAM MENU

<table>
<thead>
<tr>
<th>File</th>
<th>Comment</th>
<th>Line</th>
<th>Block</th>
<th>Search</th>
<th>Symbol</th>
<th>Display</th>
<th>Tools</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Alt-H**
  - Number convert
  - Print Screen

- **Step........Show**
  - Label $ comment...Show
  - Toggle Mode Ctrl-T
  - Single/Double

- **Symbol Del**
  - Del

- **Branch Edit** Ctrl-F8
  - Branch

- **Insert Box** Ctrl-F6
  - BOX

- **Append Box** Ctrl-F7
  - BOX

- **Delete Box** Ctrl-F8
  - BOX

- **GoTo Line** Ctrl-G

- **Find Setp** Ctrl-F

- **Search** Ctrl-S

- **Replace** Ctrl-P

- **Repeat** Ctrl-R

- **Begin** Ctrl-B

- **End** Ctrl-E

- **Free** Ctrl-U

- **Copy** Ctrl-C

- **Move** Ctrl-V

- **Delete** Ctrl-Y

- **Insert** Ctrl-N

- **Append** Ctrl-A

- **Delete** Ctrl-D

- **Run...Comment...Insert**
  - RUNG

- **Line Comment...Show**
  - Label & Comment

- **Read**

- **Save**

- **Print**

- **Quit** Ctrl-Q

---

*FARA PLC N70plus*
2-3. GPC5 QUICK START

- OFF-LINE [PLC SAVE]

1) Alt- F(File), N(New), T(TESt) (TEST)
2) PLC (N70P) R
3) Alt- R(rogram), L(Ladder) R
4) F1(aÁ¢Á¡), R0, F2(ladder), R1, F5(OUT), R300µî R
5) Alt- F(File) ESC, S(Save)
6) Ctrl- O (ON)
7) Alt- o(On line), G(GPC==PLC)
   ==> GPC==PLC SYSTEM CONTROL R
   Alt- F, S(Setup) R
   Alt- C(Config), P(Program) R
8) Alt- O(Online), GPC== PLC R
9) Alt- M(onitoring ), L(Ladder) R
10) PLC RUN R (R0, R1) WATCH Table R

- Label [Comment]

1) Alt-F(File), N(New), DEMO
2) Alt- O(Online), P(PLC==GPC UPLOAD)
3) Alt- R, L(Ladder) R

- Notebook PC COM1 Enable R
- Line R PLC R
- [S/W] R
2-4. 以及

- GPC V3.xx -> GPC5

1) Compile / Decompile PLC <--- GPC5 (Save Compile PLC -> Decompile)

- GPC V3.xx -> GPC5

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- GPC5

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- PLC CPU ID NO. 0-233, 255
- PLC ID NO. 0-233

- Alt-M, Ctrl-T, Ctrl-S, Del, Shift-F8, Ctrl-E, Ctrl-F, Ctrl(0J)
- Home, End
2-5. 관리자 권한

1) 관리자 권한

[Diagram: Control Panel]

2) 관리자 권한, 시스템 관리

[Diagram: System Management]

3) 관리자 권한

[Diagram: Management]

4) 관리자 권한 (Box Diagram):

[Diagram: Box Diagram]

5) 관리자 권한

[Diagram: Management]

**FARA PLC N70plus 관리자 권한**
2-6. ☞ ☞ ☞

- R0.5
- M0.2
- R5.0 (OUT)

- R0.12

- ABCDEFGH
  - ABCD
  - ABCD

- R0004.0
  - R000.5

- SWITCH11
  - MOTOR 11
  - START

- M11-ON
  - MOTOR 11
  - RUN

- R0.5
  - M0.2

- KO.10
  - M2.0
  - M3.0 (OUT)

- □ □ □ (Line Comment)
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2-7. [Diagram]

1) [Diagram]

2) [Diagram]

3) [Diagram]

4) [Diagram]
5) **Double** (Ctrl-T) (Alt-X) (Alt-M)

6) **(OUT)**

7) MCS, MCR

8) MCS, MCR, GPC, MCR

9) MCS, MCR, GPC, F15

10) GPC, Force Table