5.7.4   Absolute Encoder Setup

Perform the setup operation for the absolute encoder in the following circumstances:

- When starting the machine for the first time.

- When an encoder backup alarm is generated.

- When the encoder loses power, often because of cable disconnection.

The setup operation can be performed by using the hand-held digital operator, the servo amplifier's panel operator, or with personal computer monitor software.

The setup operation procedure shown here uses the digital operator. For more details, refer to *Chapter 7: Using the Digital Operator.*

■   **Setup Using the Hand-held Digital Operator**

1. Press the **MODE/SET** key to select the auxiliary function mode.

$$\boxed{F_{n}\,000}$$

2. Select the user function Fn008. Press the **Left Arrow** ← or **Right Arrow** →
    key to select the digit to set, and then press the **Up Arrow** ↑ or **Down Arrow** ↓
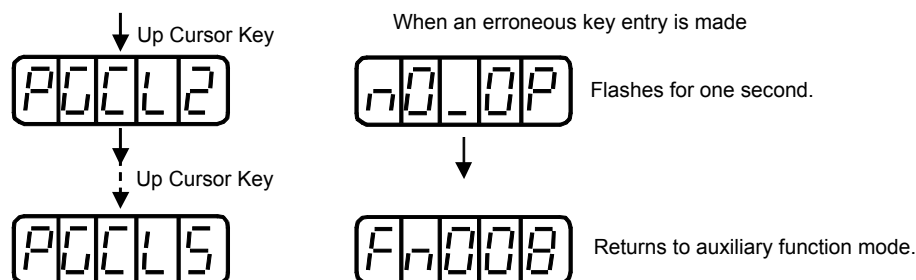   key to change the number.

$$\boxed{F_{n}\,008}$$

3. Press the **DATA/ENTER** key. The following display will appear.
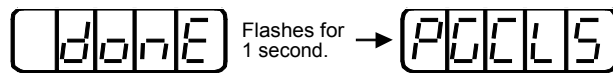
$$\boxed{PGCL\,1}$$

4. Pressing the **Up Arrow** ↑ key will change the display as shown below.
    Continue pressing the **Up Arrow** ↑ key until "PGCL5" is displayed. If an erroneous key entry is made, "nO_OP" will flash for one second and the display will return to the auxiliary function mode. In that case, go back to step 3 above and perform the operation again.
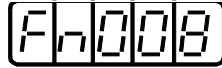

5. When "PGCL5" is displayed, press the **MODE/SET** key. The display will

change as follows, and the absolute encoder's multi-turn data will be cleared.

```
donE  Flashes for 1 second. →  PGCL5
```

6. Press the **DATA/ENTER** key to return to the auxiliary function mode.

```
Fn008
```

This completes the absolute encoder's setup operation. Cycle the power to the servo amplifier.
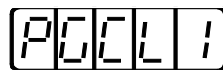
■ Setup Using the Built-in Panel Operator

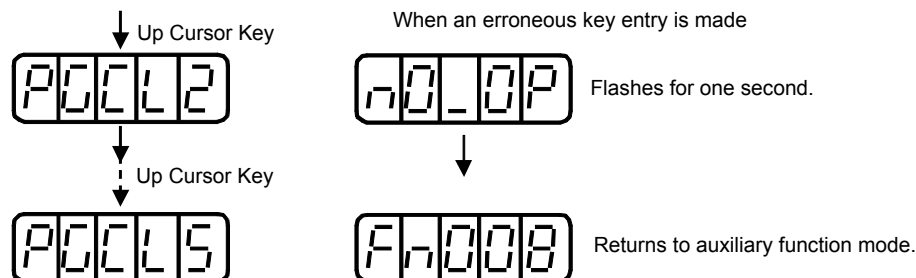**1.** Press the **MODE/SET** key to select the auxiliary function mode.

```
Fn000
```

2. Press the **Up Arrow** ⬆ or **Down Arrow** ⬇ key to select the parameter Fn008.
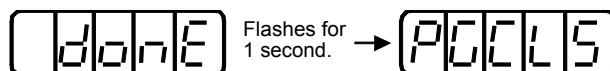
```
Fn008
```

3. Press the **DATA/SHIFT** key, holding it down for at least one second. The following display will appear.

```
PGCL1
```

4. Press the **Up Arrow** ⬆ key, holding it down until "PGCL5" is displayed. If an erroneous key entry is made, "nO_OP" will flash for one second and the display will return to the auxiliary function mode. In that case, go back to step 3 above and perform the operation again.

```
↓ Up Cursor Key              When an erroneous key entry is made
PGCL2              nO_OP   Flashes for one second.
↓ Up Cursor Key               ↓
PGCL5              Fn008   Returns to auxiliary function mode.
```

5. When "PGCL5" is displayed, press the **MODE/SET** key. The display will change as follows, and the absolute encoder's multi-turn data will be cleared.

```
donE  Flashes for 1 second. →  PGCL5
```

6. Press the **DATA/SHIFT** key to return to the auxiliary function mode.

```
Fn008
```

This completes the absolute encoder's setup operation. Cycle the power to the servo amplifier.

Note: If the following absolute encoder alarms are displayed, the alarms must be cleared using the method described above for the setup operation. They cannot be cleared by the servo amplifier's alarm reset (/ARM-RST) input signal.

   •   Encoder backup alarm (A.81)

   •   Encoder check sum alarm (A.82)

In addition, if a monitoring alarm is generated in the encoder, the alarm must be cleared by turning OFF the power.

■   **Multi-turn Setup Using the Hand-held Digital Operator**

1. Press the **MODE/SET** key to select the auxiliary function mode.

```
Fn000
```

2. Select the user function Fn013. Press the **Left Arrow** ← or **Right Arrow** → key to select the digit to set, and then press the **Up Arrow** ↑ or **Down Arrow** ↓ key to change the number.

```
Fn013
```

3. Press the **DATA/ENTER** key. The following display will appear.

```
PGSEt
```

4. Press the **MODE/SET** key. The display will change as follows, and the absolute encoder's multi-turn data will be cleared.

```
donE    Flashes for    →    PGSEt
        1 second.
```
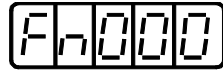
5. Press the **DATA/ENTER** key to return to the auxiliary function mode.

```
Fn013
```

This completes the absolute encoder's multi-turn limit setting operation. Cycle the power.

■   **Multi-turn Setup Using the Built-in Panel Operator**

   1. Press the **MODE/SET** key to select the auxiliary function mode.

$$\boxed{Fn000}$$

   2. Press the **Up Arrow** ⬆ or **Down Arrow** ⬇ key to select the parameter Fn013.

$$\boxed{Fn013}$$

   3. Press the **DATA/SHIFT** key. The following display will appear.

$$\boxed{PGSEt}$$

   4. Press the **MODE/SET** key. The display will change as follows, and the absolute encoder's multi-turn limit setting operation will be performed.

$$\boxed{donE}$$ Flashes for 1 second. → $$\boxed{PGSEt}$$

   5. Press the **DATA/SHIFT** key to return to the auxiliary function mode.

$$\boxed{Fn013}$$

   This completes the absolute encoder's multi-turn limit setting operation. Cycle the power to the servo amplifier.

<div>

⚠ WARNING

• **The multi-turn limit value should be changed only for special applications**.
  Changing it inappropriately or unintentionally can be dangerous.

• **If the Multi-turn Limit Value Disagreement Alarm occurs, check the setting of parameter Pn205 in the servo amplifier to be sure that it is correct. If Fn013 is executed when an incorrect value is set in Pn205, that same incorrect value will be set in the encoder. There will not be an additional alarm, even if an incorrect value is set, but incorrect positions will be detected.**
  This results in a potentially dangerous situation where the machine will move to an unexpected position.

</div>