# GR5 — 5 DIGITAL DUAL INPUT MICRO-PROCESS RPM / LINE-SPEED / FREQUENCY METER with 1 ALARM — MANUAL

**✱ Please understand key indicators & functions at the first operation.**

## FRONT PANEL & KEY FUNCTIONS



- Alarm 1 Indicator — AI1
- Alarm 2 Indicator — AI2
- Function Indicator — F.KY
- Count Down Indicator — DWN
- RPM — Display of RPM
- M/S — Display of Line Speed
- HZ — Display of Frequency
- CNT — Display of Count Value

Keys: F (Function Key), Enter Key & Save Key, Shift Key & Alarm Setting Key, Up Key & Display Value Adjusting Key, Down Key
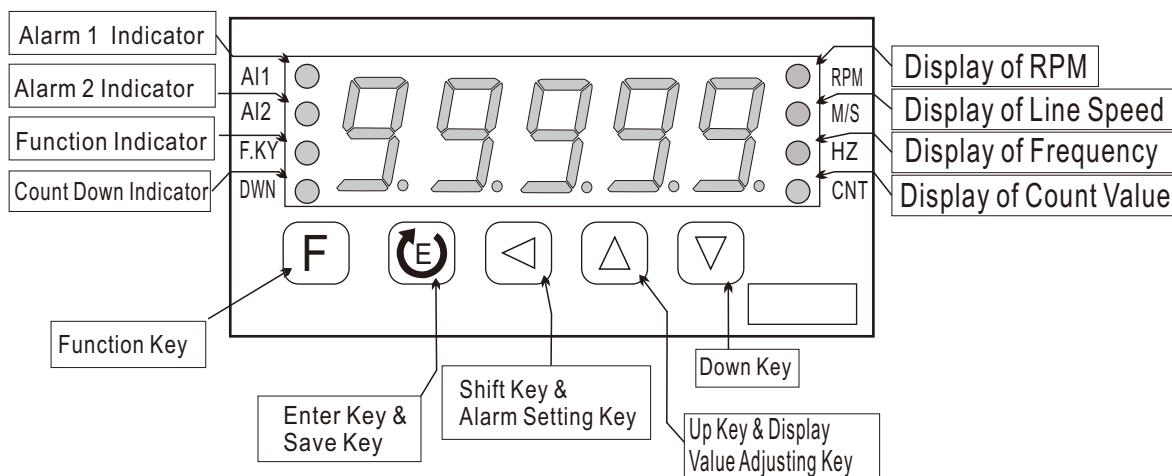
| Key Name | Symbol | Descriptions |
|---|---|---|
| Function Key Zero Function | F | 1. In the measuring status, press this key can open the function set in FKEY page. |
| Enter Key & Save Key | E | 1. In the measuring status, press this key can enter to parameter pages. <br> 2. In the parameter setting, press this key can save the value & go to next parameter. |
| Shift Key & Alarm Setting Key | ◁ | 1. In the measuring status, press this key for 3 sec can enter to alarm setting page. <br> 2. In the parameter setting , press this key can move the cursor left. |
| Up Key & Display Scaling Adjusting Key | △ | 1. In the measuring status, press this key for 3 sec can enter to display value adjustment. <br> 2. In the parameter setting, press this key can increase the digits. |
| Down Key | ▽ | 1. In the measuring status, press this key for 3 sec to change the display value. <br> 2. In the parameter setting , press this key can decrease the digits. |
| UP Down Key | △ + ▽ | 1. In the parameter setting , press this key combination can exit the setting. |

## GENERAL MODE OPERATING PROCEDURES

| Block Charts | Display | Descriptions | Default |
|---|---|---|---|
| | | **Alarm Setpoint** | |
| 1000.0 | Measuring Status | Present value for measurement. | |
| AL 1 <br> Press ◁ for 3 sec | Alarm 1 Setpoint (AL1) | When display value reach this set point, the relay out of alarm will be actived. Setting range: -19999~99999 | 00000 |
| AL 2 <br> Press E | Alarm 2 Setpoint (AL1) | | |
| | | **Display Value Adjustment - RPM** | |
| 1000.0 | Measuring Status | | |
| rPm <br> Press △ for 3 sec | Display Setting Adjustment (rPm) | Press △ for 3 sec to enter display value setting page. Press ◁ to select the RPM setting page. | |
| r.dP <br> Press E | Decimal Point Setting (r.dP) | Select decimal point. Setting range: 0, 1, 2, 3, 4. The decimal point setting to 2 and the value will show "0.00". | 00000 |
| r.SCAL <br> Press E | Scale Coefficient Adjustment (r.SCAL) | Modify scale coefficient. Setting range: 0.0001 ~9.9999. | 1.0000 |

# GENERAL MODE OPERATING PROCEDURES

## Display Value Adjustment - Line Speed
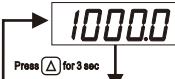
| Display | Label | Description | Value |
|---|---|---|---|
| 1000.0 | Measuring Status | | |
| LinE (Press △ for 3 sec) | Display Setting Adjustment (LinE) | Press △ for 3 sec to enter display value setting page. Press ◁ to select the line speed setting page. | |
| L.dP (Press ◒) | Decimal Point Setting (L.dP) | Select decimal point. Setting range: 0, 1, 2, 3, 4. The decimal point setting to 2 and the value will show "0.00". | 00000 |
| Unit (Press ◒) | Unit Adjustment (L.Unit) | Modify display unit. Setting range: Meter(MEtEr), Foot(Foot), Yard(YArD) | nEtEr |
| r.SCAL (Press ◒) | Scale Coefficient Adjustment (L.SCAL) | Modify scale coefficient. Setting range: 0.0001 ~9.9999. | 1.0000 |
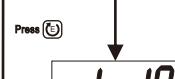
## Display Value Adjustment - Frequency
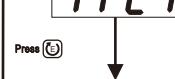
| Display | Label | Description | Value |
|---|---|---|---|
| 1000.0 | Measuring Status | | |
| FrEq (Press △ for 3 sec) | Display Setting Adjustment (FrEq) | Press △ for 3 sec to enter display value setting page. Press ◁ to select the frequency setting page. | |
| F.dP (Press ◒) | Decimal Point Setting (F.dP) | Select decimal point. Setting range: 0, 1, 2, 3, 4. The decimal point setting to 2 and the value will show "0.00". | 00000 |
| F.SCAL (Press ◒) | Scale Coefficient Adjustment (F.SCAL) | Modify scale coefficient. Setting range: 0.0001 ~9.9999. | 1.0000 |

## Display Value Adjustment - Count
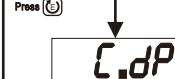
| Display | Label | Description | Value |
|---|---|---|---|
| 1000.0 | Measuring Status | | |
| CoUn (Press △ for 3 sec) | Display Setting Adjustment (CoUn) | Press △ for 3 sec to enter display value setting page. Press ◁ to select the count setting page. | |
| C.dP (Press ◒) | Decimal Point Setting (C.dP) | Select decimal point. Setting range: 0, 1, 2, 3, 4. The decimal point setting to 2 and the value will show "0.00". | 00000 |
| C.SCAL (Press ◒) | Scale Coefficient Adjustment (C.SCAL) | Modify scale coefficient. Setting range: 0.0001 ~9.9999. | 1.0000 |
| div (Press ◒) | Divisor Adjustment (div) | Modify divisor of counting value. Setting range: 1 ~9999. | 00001 |
| ACtiv (Press ◒) | Counting direction Setting (ACtiv) | Select the counting direction . Setting range: UP(count up), Down(count down). | UP |
| rSt.v (Press ◒) | Start Point Adjustment (rSt.v) | Modify the counting start point. Setting range: -19999 ~99999. When reset the count value, the start point will be rSt.v. | 00000 |
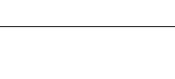
## Display Value Change

1000.0 / rPm → (Press ▽ for 3 sec) → 1000.0 / LinE → (Press ▽ for 3 sec) → 1000.0 / FrEq → (Press ▽ for 3 sec) → 1000.0 / CoUn → (Press ▽ for 3 sec) → 1000.0 / rPm
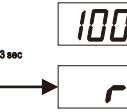
# PROGRAMMING MODE OPERATING PROCEDURES

| | Display | Descriptions | Default |
|---|---|---|---|
| `1000.0` | Measuring Status | | |
| `P.Cod` | Pass Code Page | Press pass code to enter the setting page. | `00000` |
| `SYS` | SYS Page | | |
| `PPr` | Pulse per Round Setting (PPr) | Modify pulse per round. Setting range: 1~9999. | `00001` |
| `t.bASE` | Time Base Setting (t.bASE) | Modify sampling time base. Setting range: 0.1~999.9s. | `00020` |
| `LCUt` | Lowcut Setting (LCUt) | Modify the display lowcut value. Setting range: 0~99. | `00000` |
| `AuG` | Average Times Setting (AvG) | Modify the average times. Setting range: 1~99. | `00001` |
| `FKEY` | Function Key Setting (FKEy) | Select function of function key. Setting range: tESt(LED testing), rSt (resetting display value),ACtiV(changing counting direction),GAtE(counting pause),HD(holding display value), MAX(holding max value) | `tESt` |
| `FiLt` | Filter Setting (FiLt) | Select filter value. Setting range: OFF, 4, 40, 400, 4000 (Hz) | `OFF` |
| `CodE` | Pass Code Setting (CodE) | Modify pass code. Setting range: 0000~9999 | `00000` |
| `LoCK` | Lock Setting (LoCK) | Modify lock status. Setting range: no(un-lock), yES(lock). When set to lock, the setting page only can view the setting value. | `no` |
| `.roP` | **Alarm Setting Group Procedures** | | |
| `A1.SEL` `A2.SEL` | Alarm Setting(AX.SEL) | Select the corresponding value of alarm. Setting range: RPM(rPm), Line(LinE), Frequency(FrEq), Count(CoUn). | `rPm` |
| `ACt1` `ACt2` | Action Direction Setting (ACtX) | Select the action direction of alarm. Setting range: Hi, Lo Hi: Alarm actions at display value higher than or equal alarm point. Hi: Alarm actions at display value lower than alarm point. | `Hi` |
| `oP.mod` | Operation Mode Setting(oP.Mod) | Select the operation mode of alarm output. Setting range: n(manually), r(recovery), C(continuous), SA(Semiautomatic), CP(Comparative). | `n` |
| `HYS1` `HYS2` | Hysteresis Setting(HYSX) | Modify the hysteresis value. Setting range: 0~999. The display value must exceed this value and alarm point, then reset the alarm. | `00000` |
| `dEL1` `dEL2` | Action Delay Setting (dELX) | Modify the action delay time. Setting range: 0~99s. The display value must exceed alarm point for this time, then alarm action. | `00000` |
| `Sb` | Start Band Setting(Sb) | Modify alarm start band, Setting range: -99~99. The display value must exceed this value, then start to process the alarm action. | `00000` |
| `Sdt` | Start Band Time Setting (Sdt) | Modify time of alarm start band. Setting range:0~99s. The display value must exceed sb value for this time, then start to process the alarm action. | `00000` |

*(Left navigation flow: Press ⊙ arrows connecting each display step; "Wrong Code", "Code Pass", "Press ◁" labels shown)*

## Error Code of Self-Diagnosis

| Display | Descriptions | Remark |
|---|---|---|
| `1 oFL` | Input signal is over input range (0~100KHz). | **Please check the wiring connection is correct first, if the problem still exist, please return the meter to the factory. |
| `doFL` | Input signal is over display range (99999). | |
| `E-00` | EEPROM reading/writing suffers the interference (about 1 million times) | |

# Wiring Connection

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|----|----|----|----|

EXC+   IN     COM    C   A    B    C   A    B    +    -

AL1      AL2     AUX. POWER
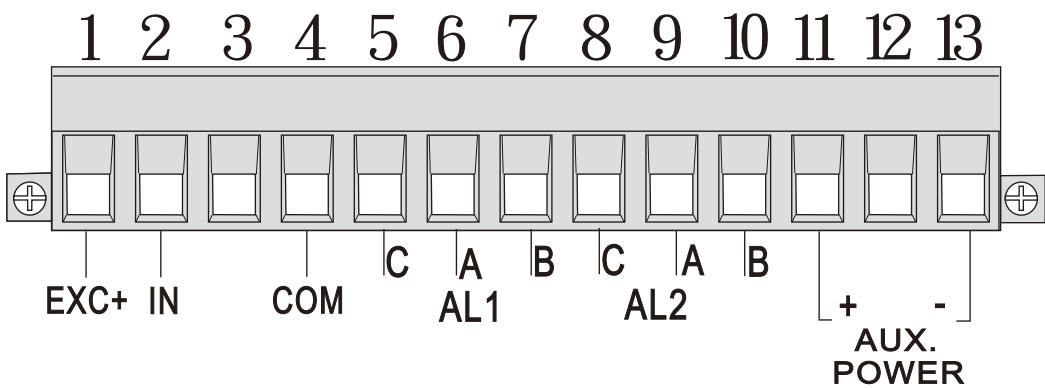
# Input Signal Modification

| Screen |
|---|
| Top View of Main Board |
| SW1 |
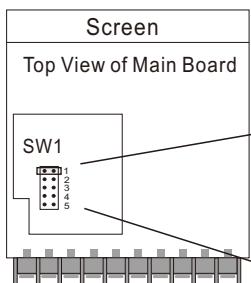
**To Select the pin to modify the input signal for different sensors.
PS: In dual input type, excitation power must be the same.

| SW1 | JUMPER | DEFINITION |
|---|---|---|
| | 1 | Open: 12V; Close: 5V |
| | 2 | Open: 5V; Close: 12V |
| | 3 | Open:10KHz; Close: 400Hz |
| | 4 | Open: NPN; Close: PNP |
| | 5 | Open: PNP; Close: NPN |

**Connection:

| 1 | 2 | 3 | 4 |
|---|---|---|---|

EXC+   IN     COM

NPN or PNP Sensor
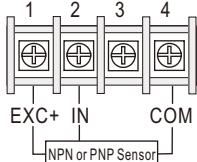
### NPN (5V): 0~400 Hz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### NPN (5V): 0~10 KHz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### NPN (12V): 0~400 Hz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### NPN (12V): 0~10 KHz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### PNP (5V): 0~400 Hz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### PNP (5V): 0~10 KHz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### PNP (12V): 0~400 Hz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

### PNP (12V): 0~10 KHz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

**Connection:

| 1 | 2 | 3 | 4 |
|---|---|---|---|

EXC+   INB     COM
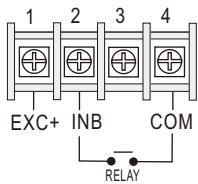
RELAY

### Relay Contact: NPN 0~400 Hz

| JUMPER | SW1/SW2 |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

**For relay input type, please select NPN 0~400 Hz.