MODEL: M2EAXS

Super-mini Signal Conditioners with Display Mini-M M2E Series

SELF-SYNCH ALARM
(PC programmable, dual or quad alarm trip)

Functions & Features
• Provides relay outputs at preset Self-Synch angle
• Quad or dual trip
• Front LCD display indicating values in scaled engineering unit range is used to program the module
• Adjustable deadband (hysteresis)
• ON delay time selectable
• Hi/Lo trip and energized/de-energized coil independently selectable for each setpoint
• Settable with front button
• Enclosed relays
• Relays can be powered by 200 V AC and 100 V DC
• High-density mounting on DIN rail

Typical Applications
• Annunciator
• Various alarm applications

29.5 [1.16]
83 [3.27]
124 [4.88]
mm [inch]

CE
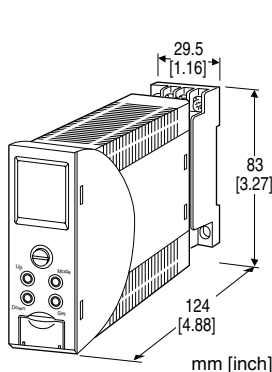
MODEL: M2EAXS–[1]–[2][3]

ORDERING INFORMATION
• Code number: M2EAXS-[1]-[2][3]
Specify a code from below for each of [1] through [3].
  (e.g. M2EAXS-2-K3/Q)
• Specify the specification for option code /Q
  (e.g./C01/S01/SET)

INPUT
Self-synch signal

[1] OUTPUT
2: 4 points; N.O. or make contact
3: 4 points; N.C. or break contact
5: 2 points; SPDT or transfer contact

[2] POWER INPUT
AC Power
K3: 100 – 120V AC
(Operational voltage range 85 - 132 V, 47 - 66 Hz)
L3: 200 – 240V AC
(Operational voltage range 170 - 264 V, 47 - 66 Hz)

[3] OPTIONS
blank: none
/Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q (multiple selections)

COATING (For the detail, refer to our web site.)
/C01: Silicone coating
/C02: Polyurethane coating
/C03: Rubber coating
TERMINAL SCREW MATERIAL
/S01: Stainless steel
EX-FACTORY SETTING
/SET: Preset according to the Ordering Information Sheet
 (No. ESU-5154)
Default setting will be used if not otherwise specified.

RELATED PRODUCTS
• M2EA configurator software (model: M2EACFG)
Downloadable at our web site.
A dedicated cable is required to connect the module to the PC. Please refer to the internet software download site or the users manual (EM-5151) for the M2EA configurator for applicable cable types.

GENERAL SPECIFICATIONS
Construction: Plug-in
Connection: M3 screw terminals (torque 0.8 N·m)
Screw terminal: Chromated steel (standard) or stainless steel
Housing material: Flame-resistant resin (gray)
Isolation: input to L1 or L4 alarm output to L2 or L3 alarm output to power
(for output code 5, L3 alarm output and L4 alarm output is not available)
Configuration: Program with front buttons or Via PC.
Programmable features include: Refer to the parameter list.
Configurator connection: 2.5 dia. miniature jack;
RS-232-C level

DISPLAY

Display functions: Displays and sets measured range, engineering unit
Display size: Approx. 15.6 × 20.8 mm (0.61" × 0.82")
Number of pixels: 68 × 95 (horizontal × vertical)
Character color: Yellow (reversing display of the current value and the alarm setting value when alarm is tripped)
Display life: Approx. 60000 hours
(Expected time for the Display brightness to be reduced to 50 % when the Display is used continuously with brightness setting 2 in 25 ℃)
Display type: OEL display
Display digit: Negative 5 digits, positive 6 digits (-99999 to 999999)
Decimal point position: Selectable

INPUT SPECIFICATIONS

Measurement range: 0 – 359.99° (deg)
Minimum span: 60° (deg)
Input resistance: 1 MΩ min.
Rated input voltage: 30 – 90 V AC

OUTPUT SPECIFICATIONS

■ Quad Alarm
Relay rating: 100 V AC @ 1 A (cos ø = 1)
120 V AC @ 1 A (cos ø = 1)
240 V AC @ 0.5 A (cos ø = 1)
30 V DC @ 1 A (resistive load)
Maximum switching voltage: 250 V AC or 125 V DC
Maximum switching power: 120 VA or 30 W
Minimum load: 5 V DC @ 10 mA
Mechanical life: 5×10^7 cycles
■ DUAL ALARM
Relay rating: 100 V AC @ 4 A (cos ø = 1)
120 V AC @ 4 A (cos ø = 1)
240 V AC @ 2 A (cos ø = 1)
30 V DC @ 4 A (resistive load)
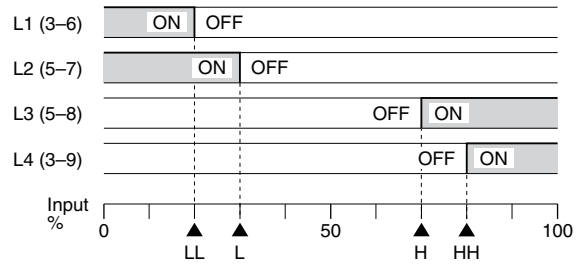**Maximum switching voltage**: 250 V AC or 125 V DC
Maximum switching power: 480 VA or 150 W
Minimum load: 5 V DC @ 10 mA
Mechanical life: 5×10^7 cycles

Alarm Trip Operation   Terminal No. in parentheses
• Example   Quad N.O. contacts (LL, L, H, HH)

Trip operation in power failure
Output code 2 : All relays turn OFF.
Output code 3 : All relays turn ON.
Output code 5 : Terminals 3 – 9, 5 – 8 turn ON.

INSTALLATION

Power Consumption
•**AC**:
≤ 6 VA for 100 – 120 V
≤ 8 VA for 200 – 240 V
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 10 to 85 %RH (non-condensing)
Mounting: Surface or DIN rail
Weight: Approx. 200 g (0.44 lb)

PERFORMANCE in percentage of FS input

Accuracy (display accuracy, setting accuracy):
±0.2 % of span or ±0.5°(whichever is greater) ±1 digit.
See CALCULATION EXAMPLES OF OVERALL ACCURACY.
Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)
Response time (Filter time constant: 0 sec.): ≤ 0.5 sec.
(0 – 100 % at 90 % setpoint)
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 2000 V AC @ 1 minute (input to L1 or L4 alarm output to L2 or L3 alarm output to power to ground) (for output code 5, L3 alarm output and L4 alarm output is not available)

CALCULATION EXAMPLES OF OVERALL ACCURACY

[Example] Input Span 60°
• Accuracy = Input (60°) × Accuracy (0.2 %) = 0.12°
  0.12°< 0.5° thus
  Accuracy = (0.5°) ÷ 60° × 100 = 0.83 % + 1 digit

STANDARDS & APPROVALS

EU conformity:

EMC Directive
  EMI EN 61000-6-4
  EMS EN 61000-6-2
Low Voltage Directive
  EN 61010-1
  Measurement Category II (output)
  Installation Category II (power)
  Pollution Degree 2
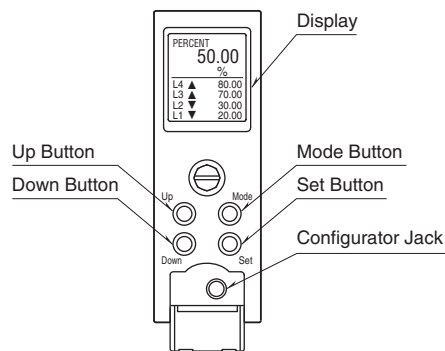 Input or output to power: Reinforced insulation (300 V)
  Input to output: Basic insulation (300 V)
  L1 or L4 alarm output to L2 or L3 alarm output:
  Basic insulation (300 V)
RoHS Directive

EXTERNAL VIEW

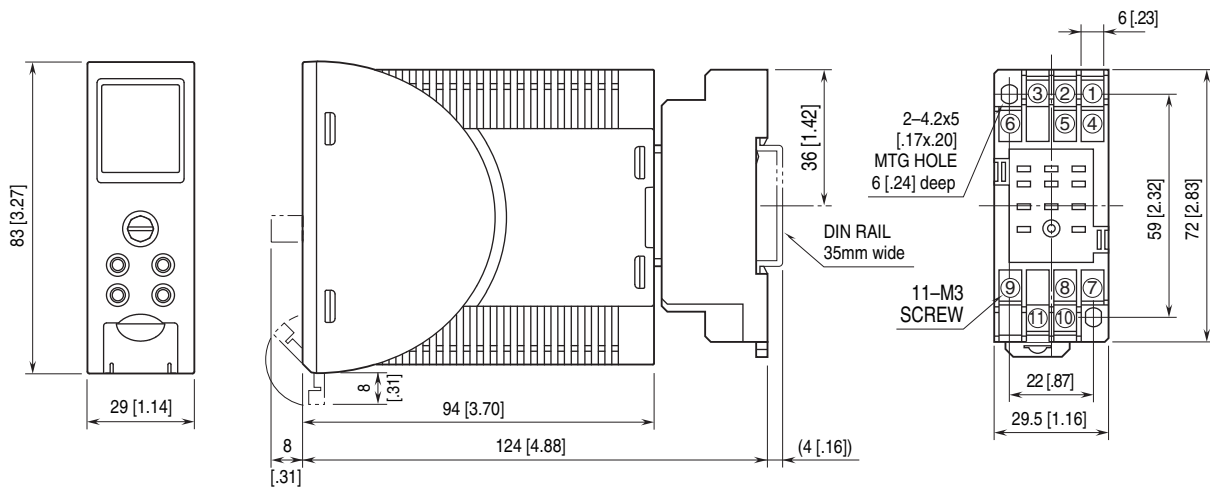| COMPONENT	FUNCTION
Display	Indicates present values, setting values and abnormal information. Two types of present values are displayed respectively at the upper and lower parts according to setting.
Mode button	Shifts from Measuring mode to each setting mode. The destination changes depending on how long the button is held down. Pressing Mode button for ≥ 2 seconds returns to Measuring mode from each setting mode..
Set button	Shifts the setting value of each setting parameter item to a setting changeable state. When at setting changeable state, used to move through the digits of setting value for input scaling and to enter (save) the setting value. Used to release latching alarm in measuring mode (press and hold for 2 sec. or more).
Up button	Shifts through setting parameter items and to increase or select the setting value.
Down button	Shifts through setting parameter items and to decrease or select the setting value.
Configurator Jack	Used to perform configuration with M2EA configurator software (model: M2EACFG). When using the software, set the Lockout setting of the unit to 'Lock'.

Refer to the operating manual (EM-5154-B) for detailed procedures.

MG CO., LTD.
www.mgco.jp

PARAMETER LIST

MODE	ITEM	SETTING PARAMETER	RANGE	UNIT	INITIAL VALUE
Basic setting	01	Lockout setting	Lock / Unlock	—	Lock
	06	Angle offset	—	Deg.	0.00
	07	Angle span	60.00 – 359.99	Deg.	270.00
	08	Rotating direction	CW / CCW	—	CW
	14	0 % input scaling	-99999 – 999999	—	0.00
	15	100 % input scaling	-99999 – 999999	—	100.00
	16	Input decimal point	No decimal point The number of decimal places : 1 – 5	—	2 places of decimals
	17	Unit (INP Scaling)	Choose from 68 types*	—	%
	30	L1 alarm enable	Disable / Enable	—	Enable
	31	L1 alarm setpoint	-99999 – 999999*	—	20.00
	32	L1 trip action	High / Low	—	Low
	33	L1 deadband	0 – 999999*	—	0.01
	34	L1 coil at alarm	Energized / De-energized	—	Energized
	40	L2 alarm enable	Disable / Enable	—	Enable
	41	L2 alarm setpoint	-99999 – 999999*	—	80.00 (2 points alarm) 30.00 (4 points alarm)
	42	L2 trip action	High / Low	—	High (2 points alarm) Low (4 points alarm)
	43	L2 deadband	0 – 999999*	—	0.01
	44	L2 coil at alarm	Energized / De-energized	—	Energized
	50	L3 alarm enable	Disable / Enable	—	Enable
	51	L3 alarm setpoint	-99999 – 999999*	—	70.00
	52	L3 trip action	High / Low	—	High
	53	L3 deadband	0 – 999999*	—	0.01
	54	L3 coil at alarm	Energized / De-energized	—	Energized
	60	L4 alarm enable	Disable / Enable	—	Enable
	61	L4 alarm setpoint	-99999 – 999999*	—	80.00
	62	L4 trip action	High / Low	—	High
	63	L4 deadband	0 – 999999*	—	0.01
	64	L4 coil at alarm	Energized / De-energized	—	Energized
	70	Alarm ON-delay time	0 – 999	sec.	0
	71	Power ON-delay time	0 – 999	sec.	5
	72	Latching alarm	Disable / Enable	—	Disable
	89	Alarm test	—	—	Cancel
Option	79	Filter time constant	0 – 30	sec.	0
	01	Lockout setting	Lock / Unlock	—	Lock
Advanced	91	Display setting	Upper: choose from 3 types* Lower: choose from 5 types*	—	Upper: INPUT (Scaling) Lower: ALARM
	92	Brightness	1 (darkest) – 4 (brightest)	—	4
	93	Display timeout	0 (always on), 1 – 60	min.	10
	94	Reset all settings	OFF / RESET	—	OFF
	95	Version indication	—	—	—
	01	Lockout setting	Lock / Unlock	—	Lock

* For detailed setting, refer to the operating manual (EM-5154-B).

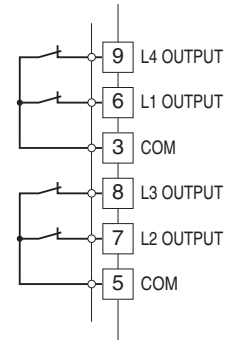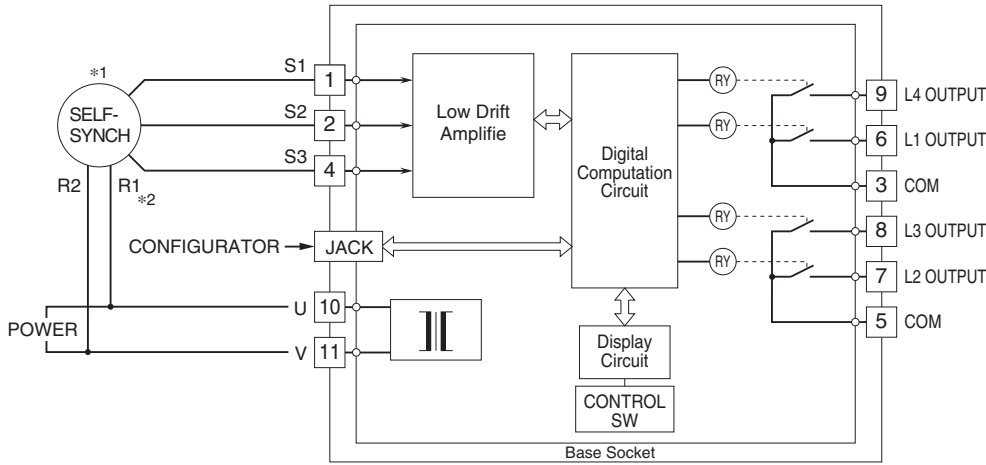## EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS   unit: mm [inch]

83 [3.27]

29 [1.14]

36 [1.42]

6 [.23]

2–4.2x5
[.17x.20]
MTG HOLE
6 [.24] deep

DIN RAIL
35mm wide

11–M3
SCREW

59 [2.32]

72 [2.83]

③ ② ①
⑥ ⑤ ④
⑨ ⑧ ⑦
⑪ ⑩

8
[.31]

94 [3.70]

124 [4.88]

8
[.31]

(4 [.16])

22 [.87]

29.5 [1.16]

• When mounting, no extra space is needed between units.

MG CO., LTD.
www.mgco.jp

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM
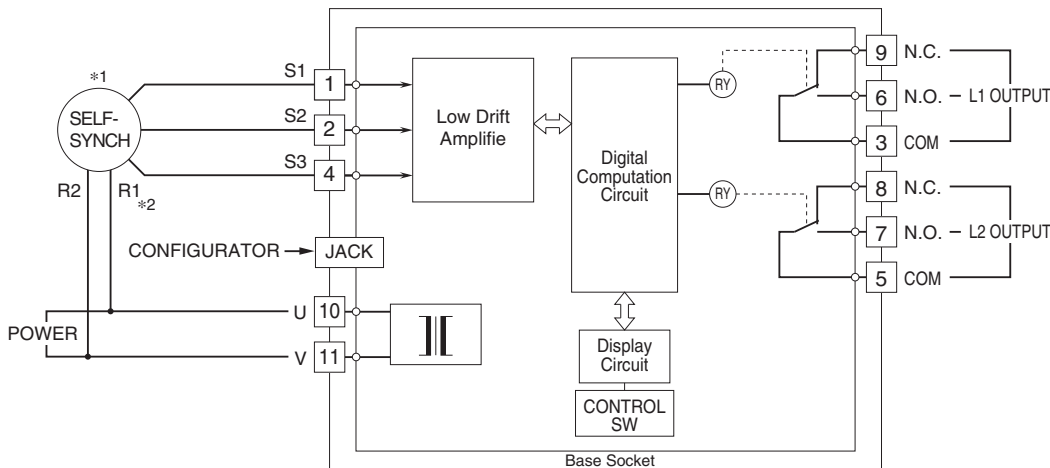
■ **OUTPUT CODE 2: N.O. RELAY**　　　　　　　　　　　　　　■ **OUTPUT CODE 3: N.C. RELAY**

*1. The input engineering unit value increases when the self-synch rotates clockwise. For changing the operation to counterclockwise and increase, set the ITEM 08 'Rotating direction' to CCW.
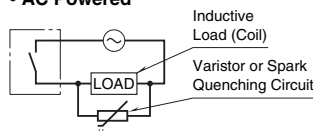*2. The power input of the unit has polarity. Be sure that the connection for R1 and R2 of the self-synch.
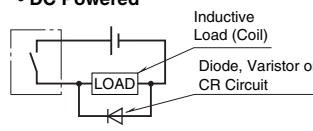
■ **OUTPUT CODE 5: SPDT RELAY**

*1. The input engineering unit value increases when the self-synch rotates clockwise. For changing the operation to counterclockwise and increase, set the ITEM 08 'Rotating direction' to CCW.
*2. The power input of the unit has polarity. Be sure that the connection for R1 and R2 of the self-synch.

■ **Relay Protection**

• **AC Powered**

Inductive Load (Coil)

Varistor or Spark Quenching Circuit

• **DC Powered**

Inductive Load (Coil)

Diode, Varistor or CR Circuit

⚠ Specifications are subject to change without notice.

MG CO., LTD.
www.mgco.jp