

SIGNAL TRANSMITTER (front configurable function module)	MODEL	MXF
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BEFORE USE

Thank you for choosing us. Before use, please check contents of the package you received as outlined below. If you have any problems or questions with the product, please contact our sales office or representatives.

■ PACKAGE INCLUDES:

Signal conditioner (body + base socket).....(1)

■ MODEL NO.

Confirm Model No. marking on the product to be exactly what you ordered.

■ INSTRUCTION MANUAL

This manual describes necessary points of caution when you use this product, including installation, connection and basic maintenance procedures.

POINTS OF CAUTION

■ CONFORMITY WITH EU DIRECTIVES

- This equipment is suitable for Pollution Degree 2 and Installation Category II (transient voltage 2500V). Reinforced insulation (signal input or output to power input: 300V) and basic insulation (signal input to output: 300V) are maintained. Prior to installation, check that the insulation class of this unit satisfies the system requirements.
- Altitude up to 2000 meters.
- The equipment must be mounted inside a panel.
- Insert a noise filter for the power source connected to the unit. TDK-Lambda Noise Filter Model RSAN-2006 or equivalent is recommended.
- The equipment must be installed such that appropriate clearance and creepage distances are maintained to conform to CE requirements. Failure to observe these requirements may invalidate the CE conformance.
- The actual installation environments such as panel configurations, connected devices, connected wires, may affect the protection level of this unit when it is integrated in a panel system. The user may have to review the CE requirements in regard to the whole system and employ additional protective measures to ensure the CE conformity.
- Install lightning surge protectors for those wires connected to remote locations.

■ POWER INPUT RATING & OPERATIONAL RANGE

- Locate the power input rating marked on the product and confirm its operational range as indicated below:
 - 100 – 240V AC rating: 85 – 264V, 47 – 66 Hz,
 - approx. 3VA at 100V
 - approx. 4.5VA at 200V
 - approx. 5.5VA at 264V
 - 24V DC rating: 24V ±10%, approx. 3.5W
 - 110V DC rating: 85 – 150V, approx. 3.5W

■ GENERAL PRECAUTIONS

- Before you remove the unit from its base socket or mount it, turn off the power supply and input signal for safety.

■ ENVIRONMENT

- Indoor use.
- When heavy dust or metal particles are present in the air, install the unit inside proper housing with sufficient ventilation.
- Do not install the unit where it is subjected to continuous vibration. Do not subject the unit to physical impact.
- Environmental temperature must be within -5 to +55°C (23 to 131°F) with relative humidity within 30 to 90% RH in order to ensure adequate life span and operation.

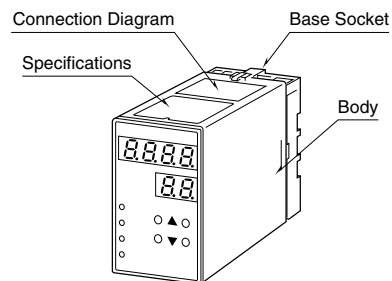
■ WIRING

- Do not install cables close to noise sources (relay drive cable, high frequency line, etc.).
- Do not bind these cables together with those in which noises are present. Do not install them in the same duct.

■ AND

- The unit is designed to function as soon as power is supplied, however, a warm up for 10 minutes is required for satisfying complete performance described in the data sheet.

COMPONENT IDENTIFICATION

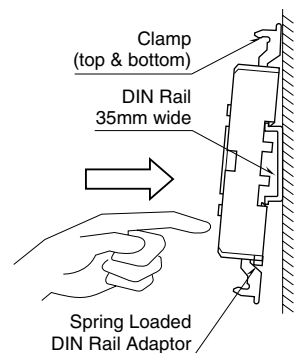


INSTALLATION

Detach the yellow clamps located at the top and bottom of the unit for separate the body from the base socket.

■ DIN RAIL MOUNTING

Set the base socket so that its DIN rail adaptor is at the bottom. Position the upper hook on the DIN rail and push in the lower. When removing the socket, push down the DIN rail adaptor utilizing a minus screwdriver and pull.



■ WALL MOUNTING

Refer to “EXTERNAL DIMENSIONS.”

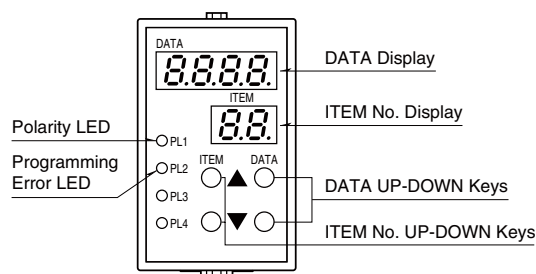
Shape and size of the base socket are slightly different with various socket types.

FRONT VIEW & PROGRAMMING

PROGRAMMING PROCEDURE

- 1) Press ITEM UP or DOWN key until ITEM display indicates "01".
- 2) Press DATA UP or DOWN key and choose "2" on DATA display.
 - 1: Data indication only.
 - 2: All parameters are modifiable.
- 3) Press ITEM UP or DOWN key until ITEM display shows the ITEM No. you need to change.
- 4) Press DATA UP or DOWN key and choose a DATA No. or value you need on DATA display.
- 5) Repeat above 3 and 4. (Entered data is stored 1 sec. after the operation has been complete.)
- 6) Press ITEM UP or DOWN key until ITEM display indicates "01".
- 7) Press DATA UP or DOWN key and choose "1" on the display.
- 8) Press ITEM UP or DOWN key until ITEM display indicates "P".
DATA display shows process input. You can now check data setting by choosing ITEM No.

Note: DO NOT press UP and DOWN keys simultaneously.



ITEM	MDF. CODE	DATA	CONTENTS	DEFAULT
P	N/A	-9999 – 9999	Output display in engineering unit (as set in ITEM 14/15)	---
01		1, 2, 3	Modification code 1: Data indication only. 2: All parameters are modifiable. 3: Only ITEM 24 is modifiable.	1
02	N/A	0 – 99	Status indication ("0" is normally indicated.)	---
03	N/A	0, 1, 2	Input range code 0: S1 (-1 – +1V) 1: S2 (-10 – +10V) 2: S3 (-30 – +30V)	S1: 0 S2: 1 S3: 2
04	N/A	0, 1, 2	Output range code 0: V1 (-1 – +1V) 1: V2 (-10 – +10V) 2: Z1 (0 – 20mA)	V1: 0 V2: 1 Z1: 2
05	N/A	-15.0 – 115.0	Input indicated in % (of the range set in ITEM 19/20)	---
06/L	2	-15.0 – 115.0	Output indicated in % with ITEM 01 DATA 1 (of the range set in ITEM 21/22) Loop test output with ITEM 01 DATA 2 ('L' is indicated as ITEM No.) (Use DATA UP/DOWN key to set the output signal.)	---
07	2	-99.99 – 99.99	Zero adjustment (%) (fine adj. of the value set in ITEM 19)	0.00
08	2	0.000 – 9.999	Gain adjustment (fine adj. of the value set in ITEM 20)	1.000
09		0, 1, 2, 3	Function 0: Proportional $F(X) = X$ 1: Square $F(X) = X^2$ 2: Reciprocal $F(X) = 1/100X$ 3: Square root $F(X) = \sqrt{X}$ *1	0
10	2	-99.99 – 99.99	Output bias (%)	0.00
11	2	0.000 – 9.999	Output gain	1.000
12	2	-15.0 – 115.0	Output low limit (%) (ITEM 12 < ITEM 13)	-15.0
13	2	-15.0 – 115.0	Output high limit (%) (ITEM 12 < ITEM 13)	115.0
14	2	-9999 – 9999	Display range scaling 0% *2	0.0
15	2	-9999 – 9999	Display range scaling 100% *2	100.0
16	2	0, 1, 2, 3	Decimal point position 0: _ _ _ _ 1: _ _ . _ 2: _ . _ _ 3: _ . _ _ _	1
17	2	0, 1, 2, 3, 4	Moving average (sampling cycle: 10 msec.) 0: No 1: 4 samples 2: 8 samples 3: 16 samples 4: 32 samples	0
18	2	0, 1 – 60	Power-saving mode 0: Continuous display 1 – 60: Time before display turned off (minutes)	10
19	2	-1.00 – 1.00	Input code S1 0% input voltage (V) *3 100% input voltage (V) *3	-1.00
20	2	-1.00 – 1.00		1.00
19	2	-10.0 – 10.0	Input code S2 0% input voltage (V) *3 100% input voltage (V) *3	-10.0
20	2	-10.0 – 10.0		10.0
19	2	-30.0 – 30.0	Input code S3 0% input voltage (V) *3 100% input voltage (V) *3	-30.0
20	2	-30.0 – 30.0		30.0
21	2	-1.00 – 1.00	Output code V1 0% output voltage (V) *4 100% output voltage (V) *4	-1.00
22	2	-1.00 – 1.00		1.00

ITEM	MDF. CODE	DATA	CONTENTS	DEFAULT	
21	2	-10.0 – 10.0	Output code V2	0% output voltage (V) *4	-10.0
22	2	-10.0 – 10.0		100% output voltage (V) *4	10.0
21	2	0.0 – 20.0	Output code Z1	0% output current (mA) *4	4.0
22	2	0.0 – 20.0		100% output current (mA) *4	20.0
23	2	0, 1	Output characteristic	0: Positive 1: Negative (inverted output)	0
24	3	0, 1	Reset all settings *5		0
25	N/A	---	ROM version		---

*1. The calculated result with the input ≤ 0.001 is rounded to 0.

*2. Of the range set in ITEM 07/08. ITEM 14 < ITEM 15.

*3. ITEM 19 < ITEM 20.

*4. ITEM 21 < ITEM 22.

*5. Press DATA UP key and choose DATA 1. Double-click DATA DOWN key. The display shows DATA 0 after the initialization is complete.

■ SELECTING INPUT RANGE

[E.G.] -5.0 to 5.0V DC

1) Program Mode

Set ITEM 01 – DATA 2 to turn the unit into Program Mode.

2) 0% Input Voltage

Choose ITEM 19 – DATA -5.0.

3) 100% Input Voltage

Choose ITEM 20 – DATA 5.0.

4) Monitor Mode

Set ITEM 01 – DATA 1 to turn the unit into Monitor Mode.

5) PV Indication

Press ITEM UP or DOWN key until ITEM display indicates “P”.

■ SELECTING OUTPUT RANGE

[E.G.] -10.0 to 0.0V DC

1) Turn the unit into Program Mode.

2) 0% Output Voltage

Choose ITEM 21 – DATA -10.0.

3) 100% Output Voltage

Choose ITEM 22 – DATA 0.0.

4) Turn the unit into Monitor Mode.

5) Set to ITEM P.

■ DISPLAY RANGE SCALING

[E.G.] PV display range -10.0 to 10.0 modified to show -6500 to 350

1) Turn the unit into Program Mode.

2) Decimal Point Position

Choose ITEM 16 – DATA 0.

3) 0% Scaling Value

Choose ITEM 14 – DATA -6500.

(Negative [-] range is identified with the PL1 turned on.)

4) 100% Scaling Value

Choose ITEM 15 – DATA 350.

5) Turn the unit into Monitor Mode.

6) Set to ITEM P.

■ RESET ALL SETTINGS

Returning the unit into the default settings.

1) Turn the unit into Reset Mode.

Set ITEM 01 – DATA 3 to turn the unit into Reset Mode.

2) Call up the Reset menu.

Choose ITEM 24 – DATA 1. (Press DATA UP key.)

3) Resetting Enable

Double-click DATA DOWN key. DATA 0 is displayed after the initialization is complete.

4) Turn the unit into Monitor Mode.

If necessary, go to Moving Average and other adjustments.

Set the unit to Monitor Mode other than for programming.

■ PROGRAMMING ERROR LED, PL2

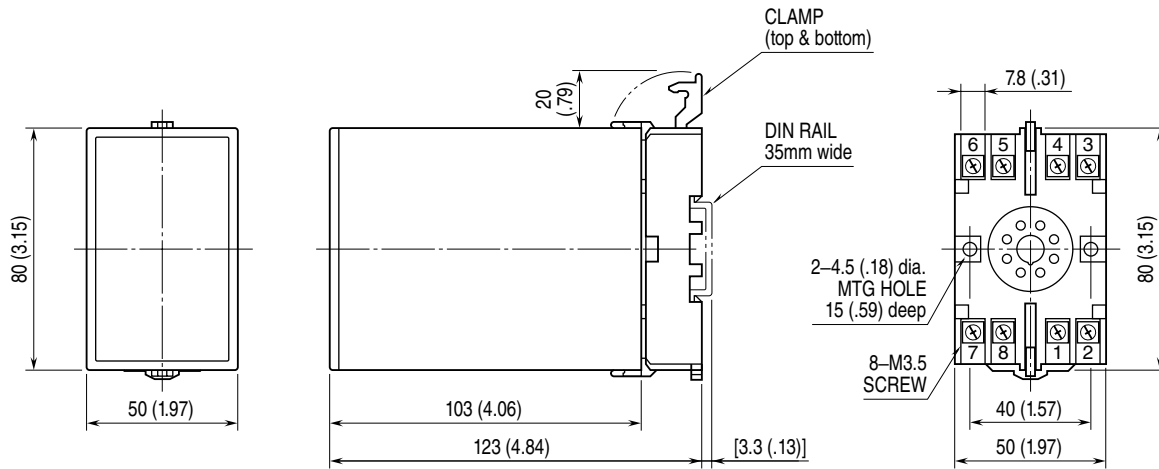
When the PL2 is turned on, identify the cause of error with ITEM 02 (Status Indication).

REF.	ERROR
0	Normal
12	Output Hi/Lo limit setting: Low Limit > High Limit See ITEM 12/13.
14	Display range scaling: 0% Setting > 100% Setting, or Overrange: See ITEM 14 / 15.
19	Input range setting: 0% Setting > 100% Setting See ITEM 19 / 20.
21	Output range setting: 0% Setting > 100% Setting See ITEM 21 / 22.
99	Memory error: Initialize all the settings of the unit by operating ITEM 24 and program the unit again.

TERMINAL CONNECTIONS

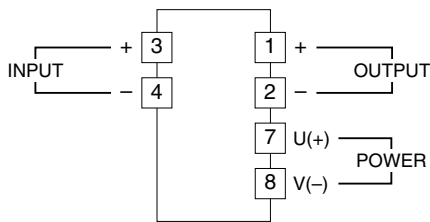
Connect the unit as in the diagram below or refer to the connection diagram on the top of the unit.

EXTERNAL DIMENSIONS unit: mm (inch)



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

CONNECTION DIAGRAM



CHECKING

- 1) Terminal wiring: Check that all cables are correctly connected according to the connection diagram.
- 2) Power input voltage: Check voltage across the terminal 7 – 8 with a multimeter.
- 3) Input: Check that the input signal is within 0 – 100% of the full-scale.
- 4) Output: Check that the load resistance meets the described specifications.

MAINTENANCE

Regular calibration procedure is explained below:

CALIBRATION

Warm up the unit for at least 10 minutes. Apply 0%, 25%, 50%, 75% and 100% input signal. Check that the output signal for the respective input signal remains within accuracy described in the data sheet. When the output is out of tolerance, recalibrate the unit as explained earlier (ITEM 07 and 08).

LIGHTNING SURGE PROTECTION

We offer a series of lightning surge protector for protection against induced lightning surges. Please contact us to choose appropriate models.