Plug-in Signal Conditioners MX-UNIT

COMPUTER BACKUP STATION

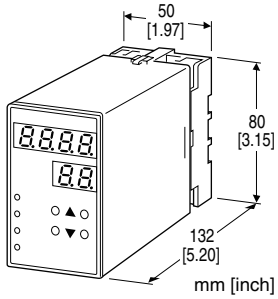
(front configurable)

Functions & Features

• Manipulates/holds analog signals via contact input from a computer
• Manual control available by the 'Soft-Terminal' indicator/controller (model: ST/STL).
• Restarts at the last stored value before power failure

Typical Applications

• Computer and DCS backup applications
• Used as manual controller
• Valve/damper control with ON-OFF signals



MODEL: MXCB–[1]–[2][3]

ORDERING INFORMATION

• Code number: MXCB-[1]-[2][3]
Specify a code from below for each of [1] through [3].
(e.g. MXCB-V1-M2/Q)
• Specify the specification for option code /Q
(e.g. /C0/S01/SET)

[1] OUTPUT

Current
Z1: Range 0 – 20 mA DC (Load resistance 600Ω max.)
Voltage
V1: Range -1 – +1 V DC (Load resistance 1000Ω min.)
V2: Range -10 – +10 V DC (Load resistance 10kΩ min.)

[2] POWER INPUT

AC Power
M2: 100 – 240 V AC (Operational voltage range 85 – 264 V, 47 – 66 Hz)
DC Power
R3: 12 – 24 V DC
(Operational voltage range 10.8 - 26.4 V, ripple 10 %p-p max.)
P: 110 V DC
(Operational voltage range 85 – 150 V, ripple 10 %p-p max.)

[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-1745)

RELATED PRODUCTS

• Soft-Terminal (model: ST/STL)

GENERAL SPECIFICATIONS

Construction: Plug-in
Connection: M3.5 screw terminals
Screw terminal: Chromated steel (standard) or stainless steel
Housing material: Flame-resistant resin (black)
Isolation: Input to output to power
Programming: Via front keys
• Scaled range
• Response time
• Trace back mode
• Initial value, Hi, Lo
• etc.
Refer to the instruction manual for detailed information.
■ **DISPLAY**
LED: 8 mm (.31") 7 segment, red
Number of display digits: 4 digits for DATA display; 2 digits for ITEM display
Scaling: -9999 to 9999
MV indication: Output signal in engineering unit
Overrange indication: LEDs blinking
Power saving mode: Displays turn off if the keys are untouched for a preset time period
LEDs: Red; the PL1 turns on with negative polarity, the PL2 turns on at MANUAL mode, the PL3 turns on when UP signal on at MANUAL mode, the PL4 turns on when DOWN signal on at MANUAL mode.

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INPUT SPECIFICATIONS

■ **Contact Input**: TTL level (5V-CMOS level) or open collector/dry contact (detecting voltage: approx. 5 V, saturation voltage: ≤ 1 V, sink current: 0.5 mA)

• **UP/DOWN/STOP signals (input from the computer)**

UP/DOWN signal: Increases/decreases the analog output.

STOP signal: Switches AUTO/MAN modes.

• **UP/DOWN signals (input from the Soft-Terminal)**: Controls the analog output in MAN mode.

OUTPUT SPECIFICATIONS

■ **DC Current**: 0.0 – 20.0 mA DC

Operational range: 0.0 – 24.0 mA DC

Minimum increment: 0.1 mA

Default setting: 4.0 – 20.0 mA DC

■ **DC Voltage**

Code V1: -1.00 – +1.00 V DC

Operational range: -1.15 – +1.15 V DC

Minimum increment: 10 mV

Code V2: -10.0 – +10.0 V DC

Operational range: -11.5 – +11.5 V DC

Minimum increment: 100 mV

Note: Set to the 100 % output with a larger value than the 0 % output value.

Default setting:

Code V1: -1.00 – +1.00 V DC

Code V2: -10.0 – +10.0 V DC

INSTALLATION

Power consumption

•**AC**: Approx. 10 VA

•**DC**: Approx. 3.5 W (150 mA at 24 V)

Operating temperature: -5 to +55°C (23 to 131°F)

Operating humidity: 30 to 90 %RH (non-condensing)

Mounting: Surface or DIN rail

Weight: 450 g (0.99 lb)

PERFORMANCE in percentage of max. span

Accuracy: ±0.1 %

Min. span required to ensure the accuracy: 20 % of the nominal output range

Display accuracy: Accuracy ±1 digit (with 0.0 – 100.0 scaling)

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F)

Response time: Approx. 1 – 999 sec. variable (0 – 100 %)

Output memory at power OFF: E^2PROM (non-volatile memory)

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 output to power to ground)

STANDARDS & APPROVALS

EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

Low Voltage Directive

EN 61010-1

Installation Category II

Pollution Degree 2

Input to output to power: Basic insulation (300 V)

RoHS Directive

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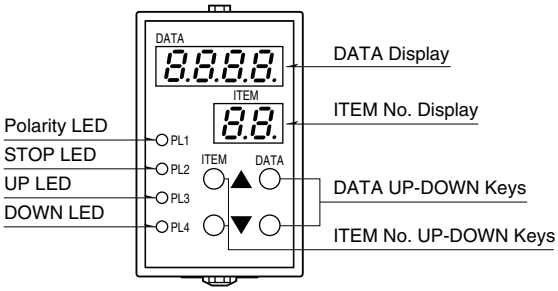
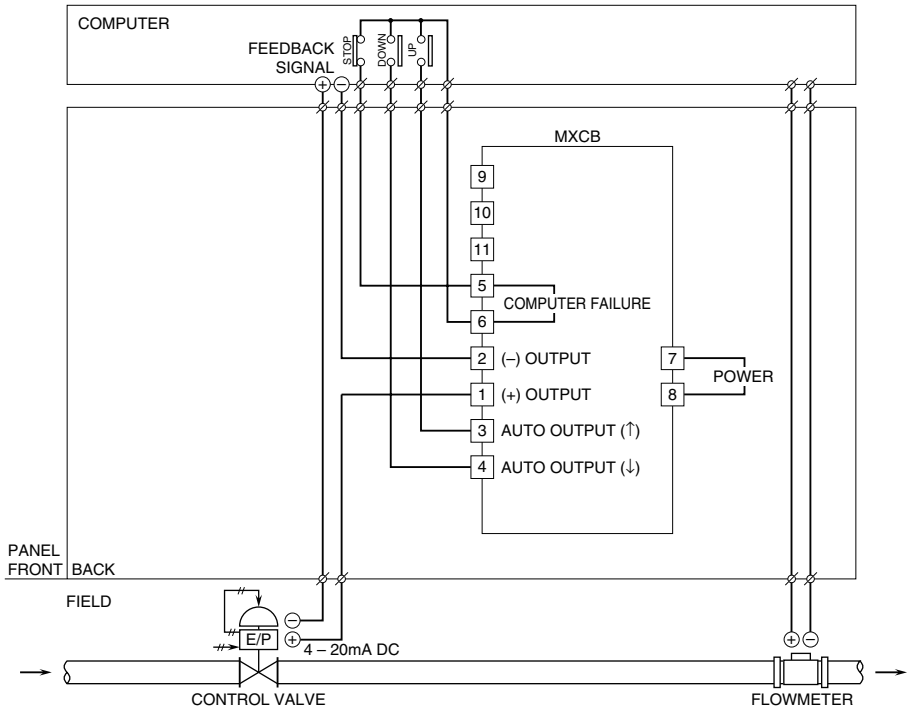
EXTERNAL VIEW



Refer to the instruction manual for detailed procedures.

CONNECTION EXAMPLES

■ Used Independently



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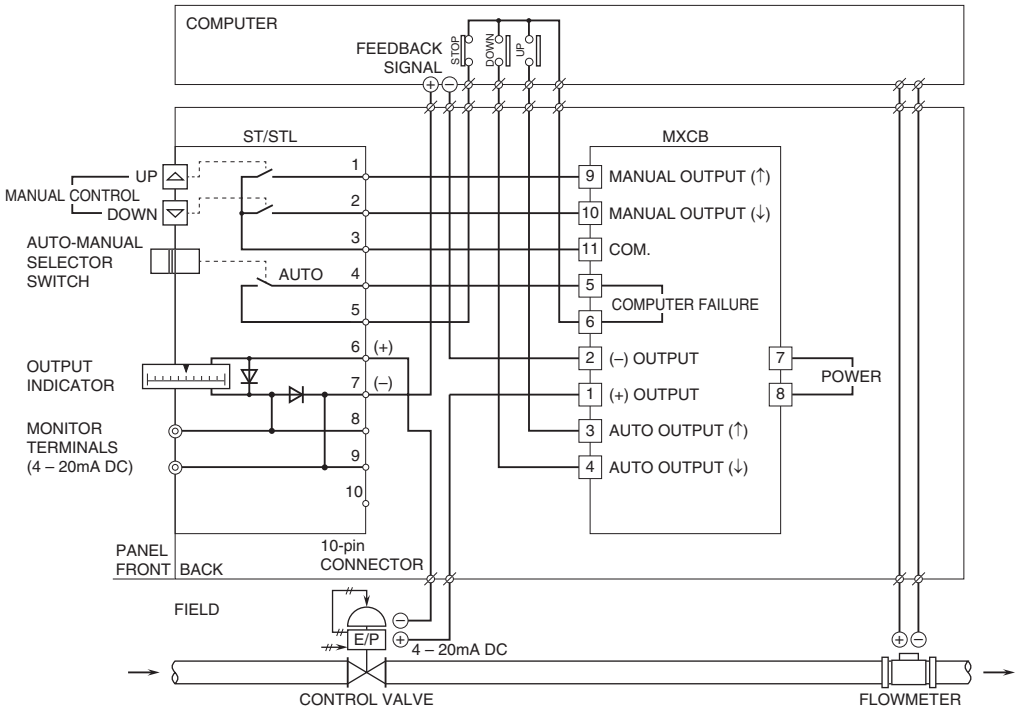
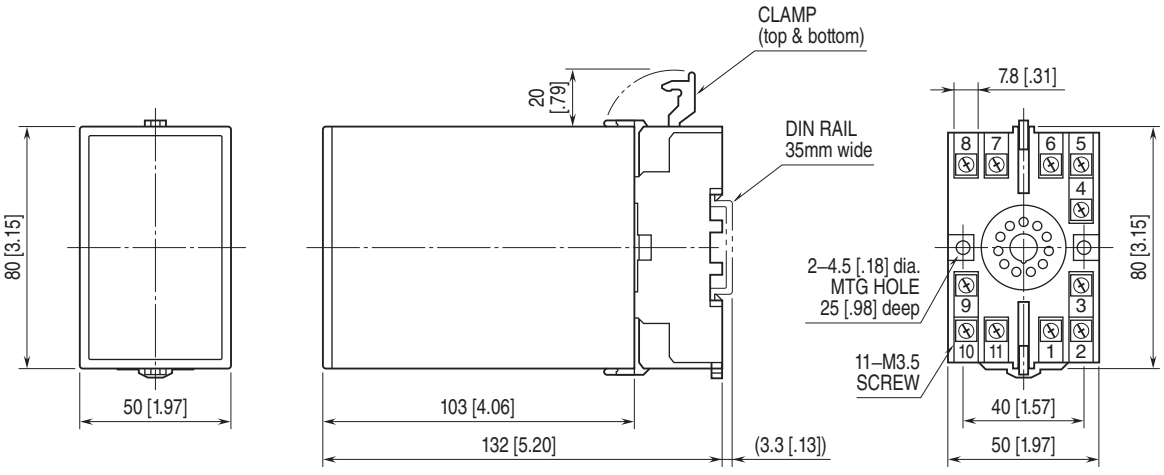
■ Used in Combination with ST/STL



EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



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

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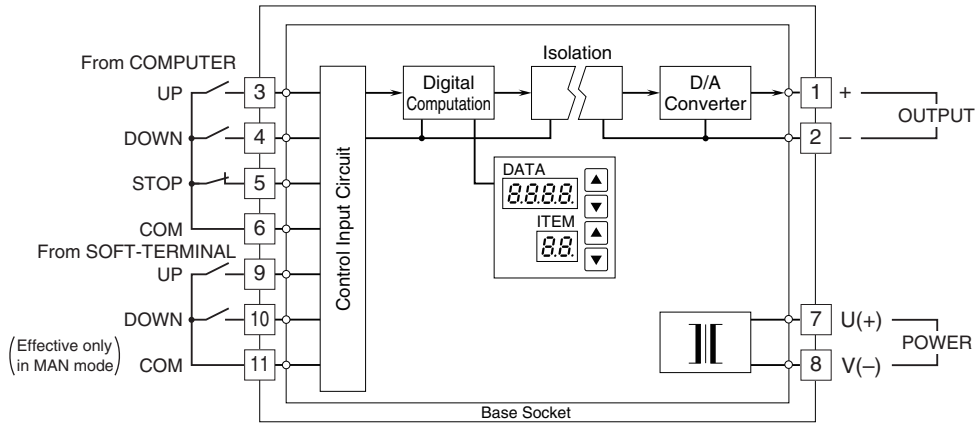
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



FUNCTIONS

■ **DEFAULT SETTING**

• MXCB Used Independently

In normal operating mode, the MXCB responds to UP/DOWN signals from the computer in the preset ramp rate. If the computer fails, this will be detected as a "STOP" command and output will be held at the value prior to the breakdown. You can increase the output signal by closing across the terminals 9 – 11, and decrease it by closing 10 – 11. The output responds in the preset ramp rate.

• MXCB Used in Combination with ST/STL

In normal operating mode, the MXCB responds to UP/DOWN signals from the computer in the preset ramp rate. If the computer fails, the "STOP" command will override computer output and put the unit in the manual operation mode by the ST/STL. Using the top-mounted UP or DOWN key, output can be increased or decreased in the preset ramp rate. Output signal value can be read on the top-mounted indicator.
For more precise control, use the monitor terminals. Also the computer input can be overridden with the AUTO/MANUAL selector on the Soft-Terminal. This is useful when you need to change the output quickly during automatic operation by the computer control.

COMMAND		TERM.	SIGNAL STATUS
Computer	UP	3 – 6	1 0 0 1 – – – –
	DOWN	4 – 6	0 1 0 1 – – – –
	STOP	5 – 6	1 1 1 1 0 0 0 0
ST/STL	UP	9 – 11	– – – – 1 0 0 1
	DOWN	10 – 11	– – – – 0 1 0 1
Output of the MXCB		1 – 2	↑ ↓ H H ↑ ↓ H H

[Keys] 1 : ON 0 : OFF – : ON or OFF
H : Hold ↑ : Increase ↓ : Decrease

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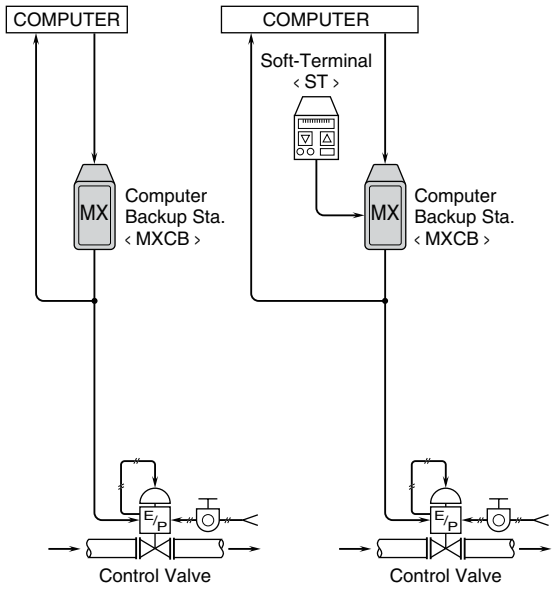
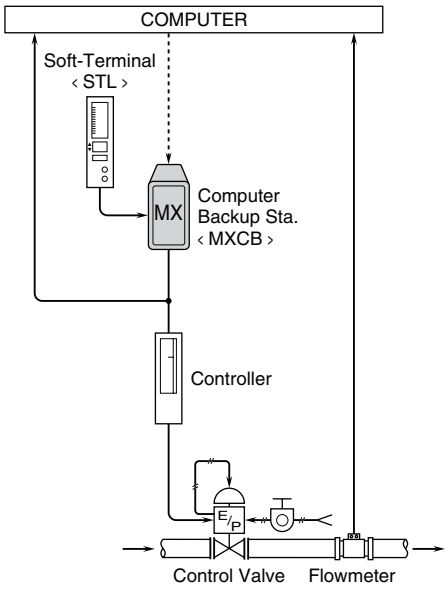
SYSTEM CONFIGURATION EXAMPLES

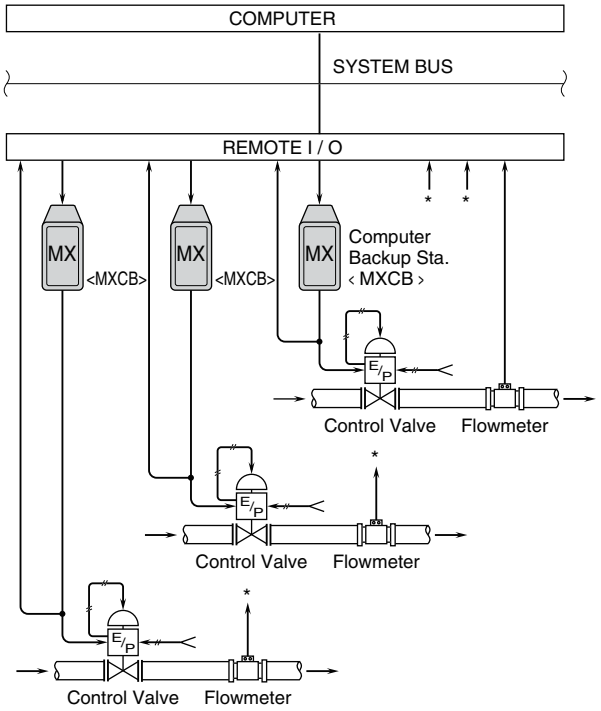
■ Analog Control Using Contact Closure Outputs from a Computer
• MXCB Independently • MXCB – ST/STL Combination



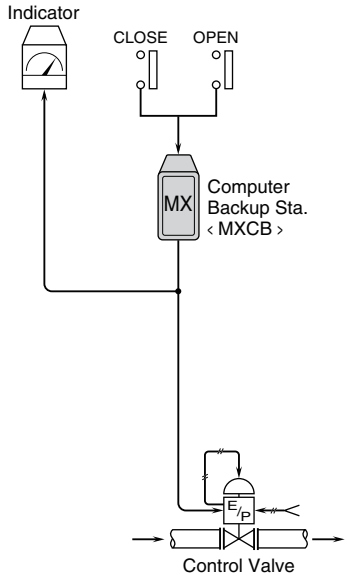
■ Employing an Analog Controller in a DDC Control Loop
• MXCB – ST/STL Combination



■ Control Loop with Multiplex Transmission



■ Remote Control of an I/O Positioner with Switches



⚠ Specifications are subject to change without notice.

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