High performance industrial-grade data acquisition systems with wide-ranging application support
High-speed, high-withstand-voltage, high-reliability multi-channel data acquisition system

MX100
PC-Based Real Time Data Acquisition System

MW100
Web-enabled Data Acquisition/Data Logging System

Designed to perform under severe measurement conditions

High-speed, multi-channel measurement
(Ideal for test lab and process applications)

High withstand voltage rating
(600 VACrms (50/60Hz) continuous)

High noise immunity
(4 channel isolated A/D circuitry)

Multi-interval function
(Measure and record at different intervals)

Scalable architecture to match your size requirements
(1 to 6 slots/unit, max. 1200 ch for 20 units)
**MX100 Guide Line**

**Single Unit Data Logging**

- **High speed**
  - 24 channel@10 ms
  - 60 channel@100 ms (Tachometer connected)

- **High withstand voltage**
  - 1500 VAC/1000 VDC (continuous)
  - 3700 Vrms (1 minute)

**Multi Unit Data Logging**

- **Max. 1200 ch/system**
  - (connect 60 ch/20 units)

**Multi Interval Data Logging**

- Data acquisition intervals set independently by measurement group

**Waveform Pattern Output & Data Logging**

- Enables setting of up to 4 waveform output patterns, waveform data output, and measured data output on a single unit

**Web-Enabled Data Acquisition/Data Logging System**

**MW100 Guide Line**

**On-Demand, Remote Measuring System**

- **Web browser monitoring & setting changes**
  - Using Explore with Java VML-less script required

**Multi-User & Multi-Access**

- Max. 60 ch/unit (widely-distributed system)

**Long Duration Memory & File Transmission**

- **CompactFlash:** 2 GB @ 60 channel 10 ms: approximately 1.5 days, 100 channel 100 ms: approximately 3 months

**Wide Operating Temperature Range**

- 12 to 28 V DC power supply
- In-vehicle measurement
- With expanded high and low operating temperatures, the MW can support a wide range of applications regardless of where it is installed

**Combined Web Browser Monitoring and Data Logging of Plant and Equipment Data**

With your web browser, access any number of MW100s, within a plant or installed on equipment to see real-time site conditions and equipment operating statistics. The functionality of the Web browser allows you to share information from multiple locations, and construct highly-distributed remote monitoring data acquisitions systems that are ideal for facilities management and equipment monitoring.

**Stand-alone data logging**

MW100 archives data to CF media

**EtherNet/IP, Modbus/TCP, Modbus/RTU**

- Supported protocols
- MW100 standard module

**User customized web pages**

Customized web pages for web browser monitoring and configuration
**Custom Measurement Capability for Wide Ranging Application Support**

**High speed, high withstand voltage 10 ms/10 channel multi-gage!**

- Superior cost performance
- High speed, 100 ms/10 channel general purpose measurement module
- Data acquisition
- High withstand voltage data acquisition
- Universal input
- DC voltage, DC, bridge, contact
- Current-equipped with terminal plate with built-in surge resistance
- High withstand voltage (reinforced insulation) 600 VACrms (50/60 Hz) continuous, 3700 VACrms (1 minute)
- Universal input
- DC voltage, DC, RTD, contact
- Noise rejection
- Each channel has an integrating AD converter and digital filter
- High withstand voltage (reinforced insulation) 600 VACrms (50/60 Hz) continuous, 3700 VACrms (1 minute)
- Removable terminal block
- Removable terminal block (772954)
- Wiring easier

**Features multi-channel AD converters!**

- Superior noise rejection performance 10 ms/4 channel high speed measurement module
- High definition data acquisition
- High speed (up to 10 ms), high withstand voltage data acquisition
- Universal input
- DC voltage, DC, RTD, contact
- Noise rejection
- Each channel has an integrating AD converter and digital filter
- High withstand voltage (reinforced insulation) 600 VACrms (50/60 Hz) continuous, 3700 VACrms (1 minute)
- Removable terminal block
- Removable terminal block (772954)
- Wiring easier

**Noise rejection performance for temperature measurement**

- Digital home appliance high density LSI heat dissipation measurement
- Development task: Countermeasures against heat dissipation from LSI's due to increased micro-processing
- Solution: High density LSI heat dissipation measurement using high precision temperature measurement with 600 VACrms (50/60 Hz) continuous, 3700 VACrms (1 minute) withstand voltage against safety
- Removable terminal block
- Removable terminal block (772954)
- Wiring easier

**Multi-channel measurement of 24 V logic signals**

- High performance 10 ms/10 channel contact input module
- High speed data acquisition
- Acquisition of 24 V logic signal data at up to 10 ms
- 24 V logic input
- Level (24 V logic)
- OFF at 0 V or less and ON at 24 V or more
- Removable terminal block
- Plate with MS screw terminals (772960)
- Removable terminal plate
- Wiring made easier with removable terminal plate

**Multiple contact input signal measurements**

- High performance 10 ms/10 channel contact input module
- High speed data acquisition
- Acquisition of high speed contact signal data at 10 ms
- Digital input
- Non-voltage contact or open collector
- 100 Ω load:
  - OFF at 5 V or more
  - OFF at 1V or less and ON at 3 V or greater
- Removable terminal block
- Plate with MS screw terminals (772960)
- Removable terminal plate
- Wiring made easier with removable terminal plate

**Measurement systems for R&D and testing equipment**

- Remote measurement for function and equipment management
- Signal conditioning systems
- Calibration systems
- Digital and analog standards
- Temperature calibration systems
- Humidity calibration systems
- Temperature/humidity test systems
- Load cell calibration systems
- Flange calibration systems

**NDT-type strain connectors for direct 10 channel measurement!**

- For strain gauge type sensors
- 100 ms/4 channel measurement module
- Data acquisition
- Acquire signal from 100 ms strain gauge type sensor data
- Strain gauge type sensors
- You can connect various kinds of strain gauge type sensors with NDT type connectors and use them by connecting the scale
- External bridge head
- When using the strain gauge in combination with a bridge head, use the external bridge head (MTS01/10/20/40/90/300).
- Removable terminal block
- Use a conversion cable (DIN14) when using sensors without terminal sensing.

**Direct connection with 120 °Ω strain gauge!**

- 100 ms/4 channel measurement module with built-in 120 °Ω bridge resistance
- Data acquisition
- Acquisition of 120 °Ω strain data at up to 100 ms
- Direct strain gauge input
- 100 °Ω bridge resistance
- Strain gauge connection
- Select strain gauge connection type on each channel with a DIP switch
- Removable terminal plate
- Wiring made easier with removable terminal plate (772964)

**Measure 4 wire RTD and resistance values in 100 ms!**

- Realize highly precise measurement
- 6 ch/4 wire RTD resistance measurement module
- Data acquisition
- Data acquisition at high speed (up to 100 ms), high withstand voltage
- Input types
- Resistance, 4 wire RTD, DC voltage, contact
- Resistance ranges
- 230 Ω, 1000 Ω
- PT100 ( PT100, PT1000, PT500, Pt200, Ctdi, and others)
- Removable terminal block
- Wiring made easier with removable terminal plate (772063)

**Direct connection with 350 °Ω strain gauge!**

- 100 ms/4 channel measurement module with built-in 350 °Ω bridge resistance
- Data acquisition
- Acquisition of 350 °Ω strain data at up to 100 ms
- Direct strain gauge input
- Built-in bridge resistance of 350 °Ω
- Strain gauge connection
- Select strain gauge connection type on each channel with a DIP switch
- Removable terminal plate
- Wiring made easier with removable terminal plate (772964)

**Multi-channel data acquisition of 24 V logic signals in manufacturing systems**

- High performance 10 ms/10 channel contact input module
- High speed data acquisition
- Acquisition of 24 V logic signal data at up to 10 ms
- 24 V logic input
- Level (24 V logic)
- OFF at 0 V or less and ON at 24 V or more
- Removable terminal block
- Plate with MS screw terminals (772960)
- Removable terminal plate
- Wiring made easier with removable terminal plate

**Component and structural safety standards testing**

- Durability testing of parts/metal plates
- Cement block durability testing

**Automotive, rail, and aviation safety standards testing**

- Railcar/rail Durability Testing
- In-vehicle fuel cell and durability testing
- FC stack

**Civil engineering, construction, and building safety standards testing**

- Durability testing and maintenance of tunnel materials
- Weighted load
- Strain gauge
- Aircraft wing durability test
- Durability test for highway construction

**Inverter circuit temperature measurement**

- Development task: Evaluation of products with inverter circuit or inverter control components
- Evaluation of high precision temperature measurement at high precision temperature measurement equipment
- Solution: 4 wire high-precision temperature measurement equipment
- Solution: 4 wire high-precision temperature measurement equipment
- Solution: 4 wire high-precision temperature measurement equipment
- Solution: 4 wire high-precision temperature measurement equipment
**System Configuration**

*Analog output re-transmission and pattern generator*
- Output patterns can be edited with software.
  - 100 ms/8 ch, analog output module
  - Analog output: Output a 0–10 V voltage range (0–5 mA current on each channel)
  - Arbitrarily edit four waveform output patterns
    - M1100: Edit with ML-DIOGGER PC software
    - M1800: Specify the MATH option (M1) for user editing
  - Provides synchronized or unsynchronized output of 4 waveforms
  - Assigns up to 4 waveform patterns for analog output transmission
    - Re-applies a wide range of measured input signals such as temperature, voltage, and strain
  - Removable connector terminals
    - Wiring made easier with removable connector terminals (772006)
    - Also provides a control output (inputs are external 24 V power supply)
    - No external power supply required for voltage output

**Test systems using analog output modules**
- Analog output: Output a 0–10 V voltage range (0–5 mA current on each channel)
- Arbitrarily edit four waveform output patterns
- M1100: Edit with ML-DIOGGER PC software
- M1800: Specify the MATH option (M1) for user editing
- Provides synchronized or unsynchronized output of 4 waveforms
- Assigns up to 4 waveform patterns for analog output transmission
- Re-applies a wide range of measured input signals such as temperature, voltage, and strain
- Removable connector terminals
  - Wiring made easier with removable connector terminals (772006)
  - Also provides a control output (inputs are external 24 V power supply)
  - No external power supply required for voltage output

**PWM pattern waveform analog output**
- Output patterns can be edited with software.
  - 100 ms/8 ch, PWM output module
  - PWM output: Requires a 4–20 V external power supply

**Alarm relay outputs**
- 100 ms/10 ch contact output module
  - Relay contact output
    - Arise an alarm relay output when an input signal level is reached
  - Form A relay contacts
    - Can be used as alarm relay output
  - Form C relay contacts
    - 232 VDC O1, 232 VDC A, 232 VDC B (Relay load)
  - Removable connector terminals
    - Wiring made easier with removable connector terminals (772006)

**Alarm monitoring system using contact output modules**
- PC measurement
  - Lamp
  - Electric furnace
  - Voltage
- Web measurement
  - Lamp
  - Electric furnace

**Removable terminal plate/connector**
- Inputs/outputs module's terminal plate can be removed, making wiring easier
  - **PWM only:** including M1100-20M/M5C

**3 Reporting option for MW100**
- Create hourly, daily, weekly, and monthly reports synchronized to recording start and stop.
- De-recording stops a report file is saved to the MW100-20P module.
- A report status display is provided in the web browser monitor mode.
- Report data is saved to the file compatible with common software applications.
- Up to 64 report channels reporting data from assigned measure or math channels
- Report channel data:
  - MN, MIN, MAX, average, summation, and instantaneous values
  - 8-bit digital display and graph for data channel
  - File format:
    - Report multi-interval: up to 100 ms
    - Email messaging: An email message is sent at the report creation time
    - File transmitter:
      - Email message can be transferred to an FTP server at the report creation time

**DxAvanced / M1800 Automatic Assignment Function (M1C Option)**
- The DX2000 and DX3000 can use MW100 system hardware as additional external input channels.
- They can automatically recognize MW100 as a network and perform automatic assignment of the MW100 input channels to build a large multi-point data acquisition system quickly and easily with no PC requirement.
- System requirements: M1C external input option and M1C channel option.

**Reduced cost per channel for high input capacity systems**
- Excellent measurement and cost performance
  - 30 ch general purpose input module with 500 ms scan speed
  - Up to 500 ms scan speed
  - Input Types
  - High withstand voltage
  - Input range: ±5000 V (500 ms conversion, 2.0 kV Ac (1 minute))
  - Input terminals
    - Standard clamp terminals or M20 connections when Hi-L is specified in the model code.
    - Input terminals are key-removable

**Pulse width modulation output**
- Pulse width modulation output
  - Pulse interval by: Set between 1 ms–30 s, and output
  - Arbitrarily edit four waveform output patterns
  - M1100: Edit with ML-DIOGGER PC software
  - M1800: Specify the MATH option (M1) for user editing
  - Provides synchronized or unsynchronized output of 4 waveforms
  - Assigns up to 4 waveform patterns for PWM output
  - Analog transmission output of vertical input signals such as temperature, voltage, and strain
  - Removable connector terminals
    - Wiring made easier with removable connector terminals (773006)

**Thyristor test systems using PWM output modules**
- Inrush/overload protection
- SCR SCR SCR SCR

**Alarm relay outputs**
- 100 ms/10 ch contact output module
  - Relay contact output
    - Arise an alarm relay output when an input signal level is reached
  - Form A relay contacts
    - Can be used as alarm relay output
  - Form C relay contacts
    - 232 VDC O1, 232 VDC A, 232 VDC B (Relay load)
  - Removable connector terminals
    - Wiring made easier with removable connector terminals (772006)

**MW100 pulse integration input module**
- (10,000 sample/sec integration speed)
- Dedicated MW100-10 channel pulse input module

- Data acquisition:
  - Up to 100 ms up to 10,000 pulse counts per channel
- Pulse Input:
  - Non-voltage contact Open collector
  - 
  - Data format:
    - LEVEL (5 V input)
  - Output range:
    - Max. speed: 10,000 pulses/sec (773005 pulse/measuring interval)

**MW100 can now measure and scale pulse rate inputs from numerous field devices**
- Analogue and pulse inputs
  - Plant facilities
  - Water and sewage
  - Power converter
  - Flowmeter

**DXAvanced/ M1800 Automatic Assignment Function (M1C Option)**
- The DX2000 and DX3000 can use MW100 system hardware as additional external input channels.
- They can automatically recognize MW100 as a network and perform automatic assignment of the MW100 input channels to build a large multi-point data acquisition system quickly and easily with no PC requirement.
- System requirements: M1C external input option and M1C channel option.
- See the product specification and general specifications for details.

**DXAvanced**

**DxAvanced / M1800 Automatic Assignment Function (M1C Option)**
Data Acquisition Software Package DAQWORX

MX LOGGER for Microsoft Windows 2000/XP/Vista?

Data Logging Software for MX100 (dedicated)
Incorporates a multitude of data logging and monitoring functions in a low cost and easy to use package.

High speed (10 ms) signal measurement group
Medium speed (100 ms) signal measurement group
Low speed (1 sec) signal measurement group
Computation result measurement group

Equipped with software MATH functions
Comes with a diverse range of MATH functions suited to PC software, including arithmetic, logic operators, and statistical calculations.

KXLLOGGER: 240 ch. MXStandard: 60 ch

Concentration of PC-Based Data Acquisition Technology
- High speed (200 ms)/1200 ch max (20 units) network data acquisition
- Enables highly precise network data acquisition as fast as 10 ms and up to 24 ch
- Multi-interval data acquisition possible with up to 3 measuring intervals on 3 groups
- W recording (data backup) on the PC & MX100 CompactFlash
- Automatically convert created data files to Excel, Lotus, or ASCII and save

Easily edit analog and PWM output module patterns using drag and drop method
- Arbitrarily edit up to 4 waveform output patterns
- Specify patterns for transmission output and output to multiple channels
- Adjust output level arbitrarily with variable range
- Synchronized or unsynchronized output of 4 waveform patterns

Custom Graphic Monitor conveys information powerfully and effectively
- GateEye: Connects with Web cameras
- Sample of a Custom Graphic Monitor

Add Observer for Microsoft Windows 2000/XP/Vista?
Combine "AddObserver" Add-on Software with MXLOGGER to create your own, original monitor screens.
- Easy to operate Builder function lets you construct monitor screens with no technical expertise required
- Full set of objects (trend graphs, assorted meters, thermometers, numerical displays, controllers, diagrams, etc.)
- Connect up to 16 run-time monitors to the network to create a remote monitoring system

DAQ LOGGER for Microsoft Windows 2000/XP/Vista?
Supports a wide range of recorders, data loggers, controllers, and measuring instruments.
Data acquisition systems comprising diverse models can be set up without programming.
- Data acquisition and recording on up to 1600 channels at 1 second intervals (shortest)
- Real time monitoring of up to 50 groups of 32 channels
- Data acquisition systems allowing connections with up to 32 units of differing models
- Saved data can be redisplayed, printed, converted to other formats, and appended with comments

MX100 API for Software Development
Use the API to create custom data acquisition software for the MX100.
The API comprises a set of functions for communication with the MX100 that are available as DLLs (dynamic link libraries).

LabVIEW Drivers
The driver software required to connect the MX100/MV100 with the LabVIEW measuring system software by National Instruments is available for download at our Web site: http://www.yokogawa.com/ns/

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