Complete measurements
Complete portability

DL350
ScopeCorder
The DL350 delivers:

**Portability** – The light weight, battery operation and compact size makes the DL350 the all-round instrument-of-choice in the vehicle and in the field.

**Functionality** – The built-in memory provides long term recording and transient capture. An SD card provides long term storage. Advanced triggering ensures that the data is captured during the most critical of tests.

**Operability** – Use it like a recorder or an oscilloscope. The touch screen and choice of operating modes mean that the DL350 is as useful for simple maintenance tasks as it is for advanced measurement and analysis needs.

Superior noise and vibration-proof Flexible recording in a single portable tool
- Choose from 18 types of input module, which are compatible other ScopeCorders.
- Vibration-resistant design
- Superior immunity
- Secure reliable data recording in harsh environment

Ease of use in the field
- Intuitive operation using 8.4-inch touch screen
- A choice of two operating modes provides greater flexibility
- “DL350 assistant software” helps to configure settings and to back-up data on-the-spot

Maximum 8-CH high-speed isolated recording in a battery-operated compact chassis
- A4-sized compact chassis
- Simultaneous isolated inputs maximum 8-ch (1 MS/s) or 4-ch (100 MS/s)
- Scanning inputs maximum 32-ch (10 kS/s) or 16 channels (20 kS/s)
- AC/DC/Battery operated

High-speed and long-term recording using large memory and direct recording onto an SD card
- Up to 100 Mpoints per module memory
- Up to 50 days continuous recording onto SD card

A stringent measurement condition requires a high performance and flexible solution. This is the design philosophy of the DL350 ScopeCorder. With the ability to use the same 18 types of plug-in module as other ScopeCorders, the battery portable DL350 is easier to carry and easier to use in confined spaces.

Offering channel counts up to 8 analog and 16 digital, sample rates up to 100 MS/s, isolation up to 1 KV and resolution up to 16-bit, the range of modules enables the DL350 to be configured for a multitude of long and short term measurement applications.

Rechargeable battery operation can be used for testing in remote areas or as a UPS when combined with mains power.
More than a test tool

The DL350 ScopeCorder combines in one compact instrument all the measurement and recording capabilities you need when you are away from your office or lab. High-speed signals or long-term recording, ‘quick and simple’ or sophisticated operation, the DL350 provides the flexibility you need when you need it.

Complete self-contained signal conditioning

Whether it is straightforward high precision voltage measurements or a blend of signals coming from such things as current probes, temperature sensors, strain gauges, accelerometers and serial buses, the DL350 can handle them all without extra boxes or cables.

This extraordinary input capability is achieved by providing 2 slots, which can be populated with any of 18 different types of user swappable input modules. This means, for example, that user-swappable 4 isolated 16-bit voltage inputs can be measured at 1 MS/s, alongside 16 temperatures or 2 separate CAN or LIN buses each containing 30 signals. Swap a module and measure at 100 MS/s with 12-bit and 1 kV of isolation. Meanwhile there are 16 built-in logic inputs; swap in a digital input module to add even more. Make AC measurements like a DMM with an RMS module in real-time or use a math channel after the recording is finished.

Examples of complex measurements

<table>
<thead>
<tr>
<th>Field</th>
<th>Application purpose</th>
<th>Measurement item</th>
<th>User advantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>EV (electric vehicle)</td>
<td>Evaluation of battery voltage fluctuation while driving</td>
<td>Battery voltage</td>
<td>Small size, battery drive, synchronization with GPS* position and time data</td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAN communication data</td>
<td></td>
</tr>
<tr>
<td>Power tool</td>
<td>Evaluation of practical behavior</td>
<td>Battery voltage, motor rotation pulse</td>
<td>Small size, battery drive, complex measurement of voltage and vibration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tool vibration</td>
<td></td>
</tr>
<tr>
<td>Field device</td>
<td>Maintenance of ultrasonic-type vortex flow meter</td>
<td>Sensor receiving wave, receiving pulse</td>
<td>Small size, 2-way power source, long-term monitoring with long memory</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gate signal</td>
<td></td>
</tr>
<tr>
<td>Factory/plant</td>
<td>Power quality monitoring</td>
<td>AC power, voltage, current</td>
<td>Small, portable, window trigger (instantaneous power failure, sag detection)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Auxiliary power source monitor</td>
<td></td>
</tr>
<tr>
<td>Steel making</td>
<td>Rolling process monitoring</td>
<td>Thickness gauge monitor</td>
<td>High noise immunity, external clock (roller) synchronization</td>
</tr>
<tr>
<td>Paper making</td>
<td></td>
<td>Temperature</td>
<td></td>
</tr>
</tbody>
</table>

*Release pending in the EU and Korea. Contact your local sales office for further details.
Measurement examples to built-in memory

**Scope mode**

<table>
<thead>
<tr>
<th>Sample Rate</th>
<th>For 1 ch</th>
<th>For 4 ch</th>
<th>For 8 ch</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 MS/s</td>
<td>1 sec.</td>
<td>0.5 sec.</td>
<td>—</td>
</tr>
<tr>
<td>10 MS/s</td>
<td>10 sec.</td>
<td>5 sec.</td>
<td>—</td>
</tr>
<tr>
<td>1 MS/s</td>
<td>1 min. 40 sec.</td>
<td>50 sec.</td>
<td>20 sec.</td>
</tr>
<tr>
<td>100 kS/s</td>
<td>10 min.</td>
<td>5 min.</td>
<td>3 min. 20 sec.</td>
</tr>
<tr>
<td>10 kS/s</td>
<td>2 hours</td>
<td>1 hour</td>
<td>40 min.</td>
</tr>
<tr>
<td>1 kS/s</td>
<td>20 hours</td>
<td>10 hours</td>
<td>5 hours</td>
</tr>
<tr>
<td>100 S/s</td>
<td>10 days</td>
<td>5 days</td>
<td>60 hours</td>
</tr>
</tbody>
</table>

Measurement examples to SD memory card

**Scope mode**

<table>
<thead>
<tr>
<th>Sample Rate</th>
<th>For 1 ch</th>
<th>For 4 ch</th>
<th>For 8 ch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MS/s</td>
<td>60 min.</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>100 kS/s</td>
<td>10 hours</td>
<td>5 hours</td>
<td>2 hours</td>
</tr>
<tr>
<td>10 kS/s</td>
<td>120 hours</td>
<td>50 hours</td>
<td>20 hours</td>
</tr>
<tr>
<td>1 kS/s</td>
<td>50 days</td>
<td>20 days</td>
<td>10 days</td>
</tr>
<tr>
<td>100 S/s</td>
<td>50 days</td>
<td>50 days</td>
<td>50 days</td>
</tr>
<tr>
<td>10 S/s</td>
<td>50 days</td>
<td>50 days</td>
<td>50 days</td>
</tr>
<tr>
<td>5 S/s</td>
<td>50 days</td>
<td>50 days</td>
<td>50 days</td>
</tr>
</tbody>
</table>

**Recorder mode**

**Sampling interval**

<table>
<thead>
<tr>
<th>For 1 ch</th>
<th>For 4 ch</th>
<th>For 8 ch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 µs</td>
<td>20 sec.</td>
<td>20 sec.</td>
</tr>
<tr>
<td>10 µs</td>
<td>3 min. 20 sec.</td>
<td>3 min. 20 sec.</td>
</tr>
<tr>
<td>100 µs</td>
<td>40 min.</td>
<td>40 min.</td>
</tr>
<tr>
<td>1 ms</td>
<td>5 hours</td>
<td>5 hours</td>
</tr>
<tr>
<td>10 ms</td>
<td>60 hours</td>
<td>60 hours</td>
</tr>
<tr>
<td>100 ms</td>
<td>20 days</td>
<td>20 days</td>
</tr>
<tr>
<td>200 ms</td>
<td>20 days</td>
<td>20 days</td>
</tr>
</tbody>
</table>

**Recorder mode**

**Sampling interval**

<table>
<thead>
<tr>
<th>For 1 ch</th>
<th>For 4 ch</th>
<th>For 8 ch</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 µs</td>
<td>10 min.</td>
<td>—</td>
</tr>
<tr>
<td>10 µs</td>
<td>20 hours</td>
<td>20 hours</td>
</tr>
<tr>
<td>100 µs</td>
<td>10 days</td>
<td>10 days</td>
</tr>
<tr>
<td>1 ms</td>
<td>10 days</td>
<td>10 days</td>
</tr>
<tr>
<td>10 ms</td>
<td>50 days</td>
<td>50 days</td>
</tr>
<tr>
<td>100 ms</td>
<td>50 days</td>
<td>50 days</td>
</tr>
<tr>
<td>200 ms</td>
<td>50 days</td>
<td>50 days</td>
</tr>
</tbody>
</table>

*1: When using one module of 720211  *2: When using two modules of 720211  *3: When using two modules of 720254
Comprehensive testing made easy

**Full recording flexibility**

For users who are more familiar with chart recorders than with long memory oscilloscopes, the DL350 offers a choice of operating modes. Recorder mode is suitable for long-term continuous recording for a specific duration and where the sampling interval is specified. A setup wizard can be used in this mode to quickly guide the operator through the entire setup process.

Scope mode enables the DL350 to be used just like an oscilloscope with all the associated benefits, like comprehensive triggering and flexible memory use. Using the history memory enables up to 1000 separate triggered acquisitions to be captured to the internal memory and viewed afterwards. Thus the causes and effects of abnormalities can be carefully analyzed as easily as paging through a photo album.

**Intuitive operation**

An 8.4 inch resistive touch screen has been adopted in order to deliver superior noise free performance. In environments with the highest levels of electrical noise such as motors and inverters, measurement precision is maintained whilst enabling the unit to be operated by using (gloved) fingers or stylus.

Even when the backlight is switched off and the touch screen is inactive the user still has access to the START/STOP, manual trigger and data saving keys. For users unfamiliar with state-of-the-art measuring instruments, there is also help at hand via the built-in digital manual.
A wealth of triggers for fault finding

The user has a choice of a simple level trigger or can use enhanced triggers such things as pulse width, waveform period and across multiple channels. For example, the wave window trigger is ideal for AC power line monitoring which enables voltage sags, surges, spikes, phase shifts or drop outs to be easily captured (available for 40 to 1000 Hz waveforms). Leave a DL350 unattended and automatically save the waveform to a file, or send a notification email, if and when it triggers.

Verify power line quality using harmonic, power or FFT analysis

The power in single and 3 phase systems can be evaluated. Additionally for fundamental waveforms of 50 or 60 Hz, up to 40 harmonic orders can be analyzed. Alternatively use the suite of FFT functions to perform full frequency analysis.

External sampling clock and triggers

The DL350 is first and foremost a field tool however it still provides the functionality you expect in a bench instrument. The sampling clock, trigger and start/stop controls are all available as external signals, thus, for example, a rotary angle encoder or degree wheel can be used as the sample clock to analyze engine rotation and performance.
Advanced features to support in-vehicle testing

CAN bus, LIN bus and SENT monitoring

Use the DL350 with /VE option and bus monitor module to decode CAN bus, LIN bus or SENT signals and display information such as engine temperature, vehicle speed and brake pedal position as trend waveforms and compare this with the analog data coming from the actual sensors. This enables automotive engineers to gain an insight into the dynamic behavior of the complete electromechanical system.

Position and global timing using GPS

An optional GPS unit* enables latitude, longitude, altitude, speed and motion direction data to be synchronized with the waveform data, perfect for drive testing, mobile testing, or distributed field recordings.

*Release pending in the EU and Korea. Contact your local sales office for further details.
**Mains, DC or rechargeable battery power**

The built-in rechargeable battery provides 3 hours of continuous operation for mobile measurements or can serve as a backup power supply if the main DC power is disconnected. This makes the DL350 a highly reliable ScopeCorder for tests which are difficult or expensive to repeat.

![Power options](image)

**Operates in freezing temperatures**

Even when used with the rechargeable battery, the DL350 will operate in temperatures from 0 to 45 degrees. The DL350 brings high-quality laboratory measurements into the harsh environments of the field.

![Temperature range](image)

**Vibration resistant**

Instruments used for in-vehicle driving tests or field maintenance must be able to make reliable measurements. The DL350 has an aluminum inner frame and an external rubber bumper and conforms to the Japanese JIS D1601 standard for resisting in-vehicle shock and vibration.

![Rubber bumper](image)
Technology Story

Input modules used in the DL350 ScopeCorder are compatible with the DL850E and DL850EV ScopeCorders, and the SL1000. The DL350 inherits the technological developments of more than 30 years of commitment to the measurement needs of electromechanical systems.

isoPRO™ – pioneering measurement technology

Input modules are powered by YOKOGAWA’s isoPRO™ technology, which offers industry-leading isolation performance at the highest speeds. isoPRO™ core technology, designed with energy-saving applications in mind, delivers the performance needed to develop high-efficiency inverters that operate at high voltages, large currents and high frequency. The use of optical fibers enables the achievement of high speed data transmission and high voltage isolation.

Higher voltage registration and better CMRR

720268 High Voltage Input Module
The new high-Voltage, high-resolution, 1 MS/s 16 bit Isolation Module (model 720268), which is also capable of direct RMS measurements, has an improved sample rate (1 MS/s) and an improved maximum input voltage (1000 Vrms).

Normally, to realize high insulation performance in a small package, it is necessary to raise the input impedance and lower the voltage of the internal circuit. However the increase in input impedance causes a reduction in the common-mode rejection ratio (CMRR) and measurement accuracy.

Thanks to the new digital isolator in this module, high voltage input signals can be acquired without an increase in size. High insulation performance is maintained without compromising the CMRR.
Flexible operation

1. START/STOP key  
   LED indicates the DL350 measuring status.

2. TRIGGER key  
   Used for triggering the DL350 manually

3. SAVE key  
   A pre-programmable button that saves data to SD card or network storage

4. Power switch

5. 8.4-inch touch screen

6. Input module slots (2 slots)

7. Logic input terminals

8. GPS* input terminal

9. EXT I/O  
   Multifunctional port used for external start/stop input, trigger I/O, external clock input and other functions

10. SD memory card slot

11. USB ports for peripherals and storage devices

12. Ethernet (100BASE-TX/10BASE-T)

13. USB port (PC)

14. Battery pack (/EB option)

*Release pending in the EU and Korea. Contact your local sales office for further details.
The application solver

Using different modules and accessories, the DL350 ScopeCorder addresses the complex measurement and analysis needs of widely diverse applications in the field.

Electric vehicle inverter voltage evaluation

The voltage fluctuations of the input and output of the inverter can be measured alongside the trends of speed, acceleration and braking from the data on the CAN bus.

Up to 2.5-hours of continuous data can be directly recorded to the SD card with sample rates up to 200 kS/s.

The optional rechargeable battery pack enables the DL350 to be continuously operated without burdening the in-vehicle power supply.

The optional GPS unit* adds coordinate information to the recording data to enable the measurements to be correlated with the location of the vehicle in a drive test.

<table>
<thead>
<tr>
<th>Recommended modules</th>
<th>Recommended accessory</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-speed isolated module (100 MS/s)</td>
<td>GPS unit*</td>
</tr>
<tr>
<td>CAN bus monitor module (VE option required)</td>
<td></td>
</tr>
</tbody>
</table>

*Release pending in the EU and Korea. Contact your local sales office for further details.
Power line monitoring in plants and factories

By using a wave-window trigger, voltage sags, surges, spikes and dropouts can be detected and captured.

Multi-phase voltages up to 1 kVrms and 1.4 kV peak can be recorded using 720268 high-voltage isolation modules.

In the case of unattended operation, waveforms can be saved, or an e-mail sent, when the DL350 is triggered.

<table>
<thead>
<tr>
<th>Recommended modules</th>
<th>Recommended functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>High-voltage isolated module (1 kVrms)</td>
<td>High-voltage isolated module (1 kVrms)</td>
</tr>
<tr>
<td></td>
<td>Wave-window trigger, Action-on-trigger</td>
</tr>
</tbody>
</table>

Industrial robot maintenance

It is possible to monitor and record the control signals to the servomotors and their speed and torque at the same time.

For condition monitoring, FFT analysis can be used on the vibration signals from accelerometers to help identify potential failures in machines or components.

Remote operation is available using the ‘assistant software’ or the input/output terminals making it potentially safer to use.

<table>
<thead>
<tr>
<th>Recommended modules</th>
<th>Recommended functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-ch input isolated module</td>
<td>Acceleration/Voltage module</td>
</tr>
<tr>
<td></td>
<td>FFT analysis, Remote control</td>
</tr>
</tbody>
</table>
Consistent measurement results in R&D and maintenance

Traditionally different measuring instruments of various sizes and capabilities are used in the R&D lab and in the field. Since the accuracy, noise immunity and other characteristics are not the same, engineers struggle to correlate measurements.

The plug-in modules of the DL350 are common* to those of the DL850E and DL850EV, the higher-end ScopeCorder models. By using common* modules for product design, validation and on-site maintenance, the high quality of the measurements is consistent.

*With some exceptions

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### Extensive line-up: high-speed, high voltage, analog and digital

<table>
<thead>
<tr>
<th>Feature</th>
<th>DL350</th>
<th>DL850E/DL850EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of module slots</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Measurement scenario</td>
<td>Simple, small and light weight</td>
<td>Advanced performance</td>
</tr>
<tr>
<td></td>
<td>Evaluation of finished product, maintenance</td>
<td>R&amp;D, large-scale verification</td>
</tr>
</tbody>
</table>

**Fast Sampling**

- 100 MS/s Input Module 720211
  - 100 MS/s Sampling
  - 12 bit Resolution
  - 1 kV isolated input

**High Voltage**

- High Voltage Input Module 720268
  - Conforms to 1000 Vrms CAT II and 600 Vrms CAT III
  - Great for maintenance of power distribution equipment

**In-vehicle Comm.**

- CAN Bus Monitor Module 720240
  - Decode CAN bus messages and display them as trends on-screen
**Input module lineup for DL350**

<table>
<thead>
<tr>
<th>Module selection</th>
<th>Input No.</th>
<th>Model No.</th>
<th>Sample rate</th>
<th>Resolution</th>
<th>Bandwidth</th>
<th>Number of channels</th>
<th>Isolation</th>
<th>Maximum input voltage</th>
<th>DC accuracy</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analog Voltage</strong></td>
<td>720211</td>
<td>720211</td>
<td>100 MS/s</td>
<td>12-bit</td>
<td>20 MHz</td>
<td>2</td>
<td>Isolated</td>
<td>±1 V, 20 V</td>
<td>±0.5%</td>
<td>High-speed, High-voltage, Isolated</td>
</tr>
<tr>
<td></td>
<td>720250</td>
<td>720250</td>
<td>10 MS/s</td>
<td>12-bit</td>
<td>3 MHz</td>
<td>2</td>
<td>Isolated</td>
<td>±10 V, 20 V</td>
<td>±0.5%</td>
<td>High-voltage, Isolated</td>
</tr>
<tr>
<td></td>
<td>720254</td>
<td>720254</td>
<td>1 MS/s</td>
<td>16-bit</td>
<td>300 kHz</td>
<td>4</td>
<td>Isolated</td>
<td>±10 V</td>
<td>±0.25%</td>
<td>4-CH BNC input, low noise, high noise immunity</td>
</tr>
<tr>
<td></td>
<td>720268</td>
<td>720268</td>
<td>1 MS/s</td>
<td>16-bit</td>
<td>300 kHz</td>
<td>2</td>
<td>Isolated</td>
<td>±100 V (11)</td>
<td>±0.25%</td>
<td>with AAF, RMH, and high noise immunity</td>
</tr>
<tr>
<td></td>
<td>720220</td>
<td>720220</td>
<td>200 kS/s</td>
<td>16-bit</td>
<td>5 kHz</td>
<td>16</td>
<td>Isolated</td>
<td>5 V (input)</td>
<td>±0.3%</td>
<td>16-CH voltage measurement (Scan-type)</td>
</tr>
<tr>
<td><strong>Analog Voltage &amp; Temperature</strong></td>
<td>720211</td>
<td>720211</td>
<td>10 S/s</td>
<td>16-bit</td>
<td>600 Hz</td>
<td>16</td>
<td>Isolated</td>
<td>42 V</td>
<td>±0.15%</td>
<td>16-CH voltage or temperature measurement (scan method)</td>
</tr>
<tr>
<td></td>
<td>720126</td>
<td>720126</td>
<td>100 kS/s (voltage), 500 S/s (temperature)</td>
<td>16-bit (voltage), 0.1°C (temperature)</td>
<td>40 kHz (voltage), 100 kHz (temperature)</td>
<td>2</td>
<td>Isolated</td>
<td>42 V</td>
<td>±0.25%</td>
<td>Thermocouple (K, E, J, T, L, U, N, R, B, W, Au-Fe-chromel)</td>
</tr>
<tr>
<td></td>
<td>720126</td>
<td>720126</td>
<td>100 kS/s (voltage), 500 S/s (temperature)</td>
<td>16-bit (voltage), 0.1°C (temperature)</td>
<td>40 kHz (voltage), 100 kHz (temperature)</td>
<td>2</td>
<td>Isolated</td>
<td>42 V</td>
<td>±0.25%</td>
<td>Thermocouple (K, E, J, T, L, U, N, R, B, W, iron-doped gold/chromel), with AAF</td>
</tr>
<tr>
<td></td>
<td>720268</td>
<td>720268</td>
<td>125 S/s (voltage), 25 S/s (temperature)</td>
<td>16-bit (voltage), 0.1°C (temperature)</td>
<td>15 Hz</td>
<td>2</td>
<td>Isolated</td>
<td>42 V</td>
<td>±0.08 (V)</td>
<td>Thermocouple (K, E, J, T, L, U, N, R, B, W, iron-doped gold/chromel), with AAF</td>
</tr>
<tr>
<td><strong>Strain</strong></td>
<td>701275</td>
<td>701275</td>
<td>100 kS/s</td>
<td>16-bit</td>
<td>20 kHz</td>
<td>2</td>
<td>Isolated</td>
<td>10 V</td>
<td>±0.5% (Strain)</td>
<td>Supports strain NDE, 2, 5, 10 V built-in bridge power supply.</td>
</tr>
<tr>
<td></td>
<td>701271</td>
<td>701271</td>
<td>100 kS/s</td>
<td>16-bit</td>
<td>20 kHz</td>
<td>2</td>
<td>Isolated</td>
<td>10 V</td>
<td>±0.5% (Strain)</td>
<td>Supports strain DEL5, 2, 5, 10 V built-in bridge power supply, and shut CAL</td>
</tr>
<tr>
<td><strong>Analog Voltage, Acceleration</strong></td>
<td>701275</td>
<td>701275</td>
<td>100 kS/s</td>
<td>16-bit</td>
<td>40 kHz</td>
<td>2</td>
<td>Isolated</td>
<td>42 V</td>
<td>±0.25% (V)</td>
<td>Built-in anti-sliding filter, Supports built-in analog type acceleration sensors (4 mA/22V)</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>720281</td>
<td>720281</td>
<td>1 MS/s</td>
<td>16-bit</td>
<td>resolution 625 ps</td>
<td>2</td>
<td>Isolated</td>
<td>420 V, 42 V (1)</td>
<td>±0.1% (Frequency)</td>
<td>Measurement frequency: 0.01 Hz to 500 kHz. Measured parameters (frequency, range, period, duty, power supply frequency, distances, speed).</td>
</tr>
<tr>
<td><strong>Logic</strong></td>
<td>720230</td>
<td>720230</td>
<td>10 MS/s</td>
<td>—</td>
<td>—</td>
<td>8-bit + 2 ports</td>
<td>Isolated</td>
<td>10 V</td>
<td>—</td>
<td>(8-bit/2 port) 2, compatible with four-type of logic probe (sold separately)</td>
</tr>
<tr>
<td><strong>CAN</strong></td>
<td>720240</td>
<td>720240</td>
<td>100 kS/s</td>
<td>—</td>
<td>—</td>
<td>60 signals + 2 port</td>
<td>Isolated</td>
<td>10 V</td>
<td>—</td>
<td>CAN Data of maximum 32-bit allowable. It is available for DL580EV and DL530 YE option. In the DL658EV, maximum two (2) modules can be installed in a main unit.</td>
</tr>
<tr>
<td><strong>CAN, LIN</strong></td>
<td>720241</td>
<td>720241</td>
<td>100 kS/s</td>
<td>—</td>
<td>—</td>
<td>60 signals + 2 port</td>
<td>Isolated</td>
<td>10 V (CAN port)</td>
<td>—</td>
<td>CAN port + 1, LIN port + 1. Available for DL580EV and DL530 YE option. In the DL658EV, maximum two (2) modules can be installed in a main unit. 2, 5.</td>
</tr>
<tr>
<td><strong>SENT</strong></td>
<td>720243</td>
<td>720243</td>
<td>100 kS/s</td>
<td>—</td>
<td>—</td>
<td>11 data + 2 ports</td>
<td>Isolated</td>
<td>42 V</td>
<td>—</td>
<td>Supported protocol: SAE J2702. Available for DL580EV and DL530 YE option. In the DL658EV, maximum four (4) modules can be installed in a main unit. 2, 5.</td>
</tr>
</tbody>
</table>

1: Probes are not included with any modules. 2: In combination with 700929, 702902 or 701947 probe. 3: Direct input 4: In combination with 10:1 probe model 701940 5: Any other modules can be installed in the remaining slots. 6: In the DL658EV, up to four CAN Bus Monitor Modules (720240), CAN & LIN Bus Monitor Modules (720241) or SENT Monitor Module (720243) in total can be used on a single main unit. In the DL580EV, for the CAN Bus Monitor Modules (720240) and CAN & LIN Bus Monitor Modules (720241), up to two in total can be used on a single main unit. 7: The 16-CH Scanner Box (701953) is required for measurement. 8: Class 1 Laser Product, IC606325-1.2007 9: In combination with 758933 and 701954 or 701904 and 701954. 10: See bulletin DL585E-01EN for voltage-axis sensitivity setting and measurement range. 11: 1300 Vrms (1000 VDC or 1414 Vpeak maximum) However, when using with DL585EYE and SL1000, 850V (DC + Ac peak)
Accessories and software

PC data and setup file management

**DL350 Assistant software —Free Software—**
Data files or setup configuration files stored in the DL350 SD card can be backed up with the press of a button. Remote setting, start-stop control and setup file editing can also be easily done on the connected PC.

**Remote waveform monitoring and instrument control**

**Xwirepuller —Free Software—**
Remote control and waveform display monitoring of a DL350 via USB or Ethernet.

**Display and analysis of recorded waveforms**

**Xviewer LITE —Free Software—**
Load waveforms captured by the DL350 and display, zoom, and export the data to the popular CSV format.

**Xviewer —Advanced Software—**
In addition to the features of Xviewer LITE, parameter measurement, statistical analysis, FFT and filtering on downloaded DL350 Data can be performed.

**Free Xviewer trial**
Get the free 30 day trial version of Xviewer at tmi.yokogawa.com.

**Software Control**

<table>
<thead>
<tr>
<th>Software</th>
<th>Free Software</th>
<th>Advanced Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-line waveform display and analysis</td>
<td><strong>XviewerLITE</strong> —Basic check— Zoom, V-cursor, conversion to CSV format</td>
<td><strong>Xviewer</strong> —Advanced Analysis— Advanced and useful functions are supported. Good for precise, off-line waveform analysis.</td>
</tr>
<tr>
<td>Waveform monitoring on a PC</td>
<td><strong>DataPlugin</strong> ¹ ²</td>
<td>Waveform observation and analysis</td>
</tr>
<tr>
<td>Data transfer to a PC</td>
<td><strong>LabVIEW</strong></td>
<td>Cursor, Parameteric Measure</td>
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<tr>
<td>Command control Custom software development</td>
<td><strong>Control library “TMCTL”</strong> For Visual Studio</td>
<td>Statistical Analysis</td>
</tr>
<tr>
<td></td>
<td><strong>LabVIEW instrument driver</strong> ²</td>
<td>Multiple file display</td>
</tr>
<tr>
<td></td>
<td><strong>DL350 Assistant Software</strong></td>
<td>Advanced waveform operations</td>
</tr>
</tbody>
</table>

Trial version available

¹: The DataPlugin software can be downloaded from the National Instruments (NI) web site.
²: Coming soon. Refer to our web site.
DL350

Accessories and software/Specifications (Main unit)

**Specifications (Main unit)**

For the plug-in module specifications, see the "Bulletin DL850E-01EN".

### Main Specifications (Main Unit)

- **Type**: Plug-in input unit
- **Number of slots**: 2

#### Waveform acquisition and display

- **Recording for a specified time**: Recording data for a specified time until a trigger.
- **Continuous recording**: Records data for a specified time until a trigger.
- **Finish with trigger**: Records data for a specified time until a trigger.

#### Acquisition mode

- **Normal**: Normal waveform acquisition
- **Envelope**: The peak values are held at the maximum sample rate regardless of the time axis setting.

- **Recording time**: 10 seconds to 50 days
- **Sampling interval**: 1 µs to 200 ms (1-2-5 system)

**Action when recording is finished**

- Saves display image data, saves waveform data, sounds a notification buzzer and transfers an e-mail.

**Real-time SD card recording**

- **Binary format**: Binary format
- **Sampling interval**: Depends on the number of channels being used.
- **Maximum number of recording points**: 1 Gpoint (up to 500 Gpoints)

**Operation overview**

- **Storing data**: Stores data in the binary format when acquisition occurs.
- **Reading data**: Reads data from the binary format at specified intervals.

- **ASCII format**: ASCII format
- **Recording interval**: 1, 2, 5, 10, 15, 20, 30 sec, 1, 2, 5, 10, 15, 20, 30, 60 min.

**Capacity**

- **2 GByte**

**Event recording**

- **Able to record up to 100 events through the event input terminal.**

### Vertical Axis

- **Vertical axis setting**: Vertical axis can be set in the measurement range.
- **Channel on/off**: Chn, Chn_m and MATHn can be turned on and off.
- **Vertical axis zooming**: Vertical axis can be set to ±1%/±5%/±10% of the range.

**Triggering Section**

- **Select narrow trigger level range**
- **Manual trigger**: Dedicated key operation
- **Trigger source**: Chn, Chn_m (select an input channel and specify bit for logic), external trigger
- **Trigger type**: Edge, Rising, falling, or rising or falling. (Rising or falling is unavailable for logic.)
- **OR**: OR the DL350 triggers on the OR of multiple trigger source edges (including a Windows trigger)
- **AND**: The DL350 triggers on the AND of multiple state conditions (including a Windows trigger)

### Analysis

- **Cursors**: T-Y waveform Horizontal, Vertical, H&V, Marker and Degrease
- **X-Y waveform** Horizontal, Vertical, H&V and Marker
- **FFT waveform** Horizontal and Marker

**Automated measurement of waveform parameters**

- **Parameters**: Analogue waveform and Math
- **Variables**: P-P, Amp, Max, Min, High, Low, Avg, Mid, Rms, Stddev, + Over, −Over, Rise, Fall, Period, +Width, −Width, Duty, Pulse, Burst1, Burst2, AvgFreq, AvgPeriod, Int1TY, Int2TY, Int1XY, Int2XY, Delay

**Statistical processing**

- **Statistics items**: Max, Min, Avg, Stddev, and Cnt
- **Maximum number of cycles**: 10000
- **Maximum measurement range**: 100 Mpoint

**Cyclic statistical processing**

- **The DL350 automatically measures the waveform parameters of the data and performs statistical processing on the parameters once per period.**

**Waveform computation**

- **Operators**: +, -, *, /, binary computation, Frequency, period, moving average (10 points) and RMS
- **Computation length**: up to 2 Mpoint (when 1 waveform is used).
Specifications (Main unit)

**Harmonic analysis**
- Maximum number of simultaneous analysis: Line: 8 channels, power: 1 system
  - Fundamental wave: 50 Hz, 60 Hz or auto setting
  - FFT points: 2048
  - Analysis order: Fundamental wave to 40th
  - Window width: 10 periods for (50 Hz), 12 periods for (60 Hz) or 8 periods (auto)
  - Types of harmonic analysis: Harmonic RMS value, percentage of content, phase angle, distortion factor (IEC or CSA) and total RMS value
  - Power analysis: It can be selected from 1P2W (single-phase, two-wire), 1P3W (single-phase, three-wire) or 3P3W (three-phase, three-wire)
  - Analysis result display: Displays one item selected from the 8 channels and 1 power system
  - Display format: List or bar graph

**Analysis result recording**
- All analysis results can be stored in a media.
- *1 Sometimes 10 μs or more can be stored depending on the capacity of the SD card.
- *2 Only during real-time recording

**Scope Mode Function**

**Waveform Acquisition and Display**
- **Acquisition mode**
  - Normal: Normal waveform acquisition
  - Envelope: The peak values are held at the maximum sample rate regardless of time axis setting.
- **Record length**
  - 10 k, 25 k, 50 k, 100 k, 250 k, 500 k, 1 M, 2.5 M, 5 M, 10 M, 25 M, 50 M, 100 M
- **Selectable time scale range**
  - 1 μs/div to 1 s/div (in 1-2-5 steps), 2 s/div, 3 s/div, 4 s/div, 5 s/div, 6 s/div, 8 s/div, 10 s/div, 20 s/div, 30 s/div
  - 1 min to 6 min (in 1 min steps), 8 min, 10 min, 12 min, 12 min, 30 min, 1 hour to 6 hour (in 1 hour steps), 8 hour, 10 hour, 12 hour, 24 hour (in 24-hour time system)
- **Action when recording is finished**
  - Saves display image data, saves waveform data, sound a notification buzzer and transmits an e-mail.
- **Real-time SD card recording**
  - **(binary format)**
    - Sampling interval: Depends on the number of channels being used.
    - Maximum: 100 k/s (when 10 channels are used) *1
    - Operation overview: Stores data in the binary format when acquisition occurs.
  - **Event recording**
    - Data to record up to 100 events through the event input terminal.
  - **Zoom**
    - 2 windows
  - **Display format**
    - 1, 2, 4, 5, 6, 8, 12, 16 TY display windows
  - **Maximum number of displayed trace**
    - 32 (standard logic: 16 bit, including Math)
  - **X-Y display**
    - The X and Y axes can be selected from analog input waveforms and MATH waveforms (up to 2 traces and 1 window).
  - **History feature**
    - Up to 1000 histories
  - **Accumulation**
    - Waveform overlay (The number of times is limitless.)

**Vertical and Horizontal Control**
- **Vertical axis setting**
  - Scaled/div.
- **Channel offset**
  - CHn, CHn_m and Mat in are turned on and off separately.
- **Vertical axis zooming**
  - ±1 to 100 (depend on the module)
- **Vertical position setting**
  - Depends on the number of channels being used.
  - Maximum: 100 k/s (when 10 channels are used) *2
  - Operation overview: Stores data in the binary format when acquisition occurs.
- **Roll mode display**
  - Roll mode is enabled when the trigger mode is set to Auto, Single, or On Start, and the time axis setting is greater than or equal to 100 μ/div.

**Triggering Section**
- **Trigger mode**
  - Auto, Normal (repeat), Single (one-shot), or On Start
- **Selectable trigger level range**
  - 0 to 10 div
- **Trigger hysteresis**
  - When measuring voltage: Select from ±0.1 div, ±0.5 div and ±1 div.
  - When measuring temperature: Select from ±0.02, ±0.02°C and ±0.02°C.
  - When measuring strain: Select from ±2.5%, ±12.5% and ±25%.
  - When measuring acceleration: Select from ±0.1 div, ±0.5 div and ±1 div.
  - When measuring frequency: Select from ±0.01 div, ±0.05 div and ±1 div.
  - CAN/UN/SENT: Select from ±0.01 div, ±0.05 div and ±1 div of the span width.
- **Selectable trigger position range**
  - 0 to 100% (for the display record length: resolution 0.1%)
- **Manual trigger**
  - Dedicated key operation
- **Simple trigger**
  - OR and CHn_m (select an input channel and specify bit for logic), OR, AND, Time
  - Trigger stop: Rising, falling, or rising and falling. (Rising or falling is unavailable for logic.)
- **Enhanced trigger**
  - OR and CHn_m (select an input channel and specify bit for logic), EXT

**Analysis**
- **Cursors**
  - T-Y waveform Horizontal, Vertical, H/W, Marker and Degree
  - X-Y waveform Horizontal, Vertical, H/W and Marker
- **FFT waveform**
  - Marker and Peak
- **Automated measurement of waveform parameters**
  - Parameters: Analysis waveform and Math
  - Types of harmonic analysis: Harmonic RMS value, percentage of content, phase angle, distortion factor (IEC or CSA) and total RMS value
  - Power analysis: It can be selected from 1P2W (single-phase, two-wire), 1P3W (single-phase, three-wire) or 3P3W (three-phase, three-wire)
  - Analysis result display: Displays one item selected from the 8 channels and 1 power system
  - Display format: List or bar graph
- **Statistical processing**
  - Statistical items: Max, Min, Avg, Stdev and Count
  - Maximum number of cycles: 1000
  - Maximum measurement range: There is no restriction on the data in this memory. For SD recording waveforms, up to 100 Mpoints.
- **Continuous statistical processing**
  - Statistical processing is performed while waveforms are acquired.
- **History statistical processing**
  - The DL350 automatically measures the waveform parameters of each history waveform and performs statistical processing on the parameters.
- **Cyclic statistical processing**
  - The DL350 automatically measures the waveform parameters of the data and performs statistical processing on the parameters once per period.

**Waveform computation**
- **Operations**:
  - +, -, ×, ÷, binary computation, shift, frequency, period, moving average (10 points) and RMS
- **Computation length**:
  - Up to 2 Mpoints (when 1 waveform is used).
- **FFT**
  - Type: LS, RS, PS, PSD
  - Time windows: Hanning, Hamming, FlatTop, and Rectangle
  - **Time axes**
    - Average: Time axis and frequency axis
  - **DDINO-GSD definition**
    - Specified actions are performed on acquired waveforms.
  - **Zone determination**
    - Detection zone: The number of target waveforms: up to 8, AND or OR determination.
  - **Parameter determination**
    - Determines by the combination of parameters (waveform parameters or harmonic analysis results) up to 8.
    - Action at the time of determination:
      - Saves display image data, saves waveform data, sound a notification buzzer and transmits an e-mail.
  - **Harmonic analysis**
    - Maximum number of simultaneous analysis: Line: 8 channels, power: 1 system
  - **Waveform computation**
    - Operators: +, -, ×, ÷, binary computation, shift, frequency, period, moving average (10 points) and RMS
    - Computation length: Up to 2 Mpoints (when 1 waveform is used).
  - **FFT points**: 2048
  - **Analysis order**: Fundamental wave to 40th
  - **Window width**: 10 periods for (50 Hz), 12 periods for (60 Hz) or 8 periods (auto)
  - **Types of harmonic analysis**: Harmonic RMS value, percentage of content, phase angle, distortion factor (IEC or CSA) and total RMS value
  - **Power analysis**: It can be selected from 1P2W (single-phase, two-wire), 1P3W (single-phase, three-wire) or 3P3W (three-phase, three-wire)
  - **Analysis result display**: Displays one item selected from the 8 channels and 1 power system
  - **Display format**: List or bar graph

**Analysis result recording**
- All analysis results can be stored in a media.
  - *1 Sometimes only 100 μs/div or less can be stored depending on the capacity of the SD card.

**Time Axes**
- **Time accuracy**: ±0.001 %
- **External clock input**
  - Clock input is available through the external-clock input terminal.

**Display**
- **Display**
  - 8.4-inch color TFT LCD (resistive touch panel)
  - Display resolution: 800 (horizontal) × 600 (vertical)
- **Display format**
  - TIFF up to 16 divisions with zoom feature, X/Y, FFT and harmonic analysis
- **Defective pixels**
  - Within 10 ppm over the total number of pixels including RGB

**Main Unit Standard Logic Input**
- **Input format**
  - Non-isolated (common to main unit GND)
  - Dedicated probes required (automatic detection)
- **Compatible probes**: 700986, 700987, 702911, 702912
- **Maximum sample rate**: 10 Ms/s
- **Number of inputs**: 8 bit × 2
- **Chatter suppression**: Off, 5 ms, 10 ms, 20 ms, 50 ms, 100 ms

**Data Storage**
- **Data Storage**
  - Type of storage data: Measurement data, analysis results, setting values, display images
  - **Storage format of measurement data**: Binary format (WHB), MATLAB format (MAT) and last format (CSV)
  - **Maximum file size**: (MAT and CSV formats): 2 GByte
  - **Storage destination**: SD card, USB storage and network drive

**Display Image Storage**
- **Storage format of image data**: PNG, JPEG, BMP, monochrome or color
- **Storage destination**: SD card, USB storage and network drive

**Storage**
- **SD Memory Card**
  - Number of slots: 1
  - **Maximum capacity**: 32 GB
  - **Supported cards**: SD and SDHC compliant memory cards
USB Storage
Compatible USB storage devices: Mass storage devices that are compliant with USB Mass Storage Class Ver. 1.1
Available space: Up to 2 TB
Power supply: 5 V, 500 mA (total of the 2 ports)

USB Ports for Peripherals
Connector type: USB type A (receptacle)
Electrical and mechanical specifications: USB Rev. 2.0 compliant

Supported transfer mode
- HIS (High Speed: 480 Mbps), FS (Full Speed: 12 Mbps), LS (Low Speed: 1.5 Mbps)
- Mass storage devices that are compliant with USB Mass Storage Class Ver. 1.1
- 104 or 109 keyboards that are compliant with USB HD Class Ver. 1.1
- Mouse devices that are compliant with USB HD Class Ver. 1.1
- HP inkjet printers or Brother PocketJet printers that are compliant with USB Printer Class Ver. 1.0

Compatible devices
- Mass storage devices that are compliant with USB Mass Storage Class Ver. 1.1
- 104 or 109 keyboards that are compliant with USB HD Class Ver. 1.1
- Mouse devices that are compliant with USB HD Class Ver. 1.1
- HP inkjet printers or Brother PocketJet printers that are compliant with USB Printer Class Ver. 1.0

Number of ports: 2
Power supply: 5 V, 500 mA (total of the 2 ports)

External Printer Output
Compatible models: Mobile printer PocketJet 300 dpi of Brother Industries, Ltd.
Connector type: Screwless terminal block

Output format: Screen hard copy, Detailed waveform print

Auxiliary I/O Section
External Clock Input Terminal
Connector type: Screwless terminal block
Maximum voltage to the ground: Non-isolated (common to main unit GND)
Input level: TTL (0 to 5 V)
Input signal frequency: 1 kHz ±1%

Trigger Input Terminal
Connector type: Screwless terminal block
Maximum voltage to the ground: Non-isolated (common to main unit GND)
Input level: TTL (0 to 5 V)
Input signal frequency: 1 kHz ±1%

Trigger Output Terminal
Connector type: Screwless terminal block
Maximum voltage to the ground: Non-isolated (common to main unit GND)
Output level: 5 V CMOS

Output formats
- Normal format: Logic Low when a trigger occurs and high after acquisition is completed.
  - Output delay: Within 1 µs ± 1 sample period
  - Output hold time: 1 µs
- Sample pulse format: Logic Transmits pulses at a given frequency during waveform acquisition
  - Frequency range: 5 Hz to 200 kHz (1-2-5 steps)

Start/Stop
Logic High level output during waveform acquisition

GO/NO-GO Determination I/O
Connector type: Screwless terminal block
Maximum voltage to the ground: Non-isolated (common to main unit GND)
Output level: 5 V CMOS

External Start/Stop Input
Connector type: Screwless terminal block
Maximum voltage to the ground: Non-isolated (common to main unit GND)
Input level: TTL (0 to 5 V) or contact
Event Input
Connector type: Screwless terminal block
Maximum voltage to the ground: Non-isolated (common to main unit GND)
Input level: TTL (0 to 5 V) or contact

COMP Output (Probe-compensation-signal output terminal)
Output signal frequency: 1 kHz ±1%
Output amplitude: 1 Vp ± 10% of 1 Vp

GPS Interface
Input connector: Mini DIN 9 pin
Compatible GPS unit: B803YA optional accessories (sold separately)

Computer Interface
USB-PC Connection
Connector type: USB type B (mini)
Electrical and mechanical specifications: USB Rev. 2.0 compliant
Supported transfer mode: HIS (High Speed: 480 Mbps) and FS (Full Speed: 12 Mbps)
Supported protocols: USB-MIC/USB488 (USB Test and Measurement Class Ver. 1.1) and Windows 7, 8, 10

Ethernet
Connector type: RJ-45 modular jack
Ports: 1
Electrical and mechanical specifications: IEEE802.3
Transmission system: Ethernet (10BASE-T, 10BASE-T, 100BASE-TX, 100BASE-T)
Communication protocol: TCP/IP
Supported services: DHCP, DNS, SMTP client, SNMP client, FTP client, VIXI-11, and Web server

*1: A separate driver is required.

General Specifications
Standard operating conditions
- Temperature: 0 to 45˚C
- Humidity: 20 to 85% RH (no condensation)
- Altitude: 2000 m or less

Storage environment
- Temperature: –20 to 60˚C
- Humidity: 20 to 85% RH (no condensation)

Power supply
- The DL350 operates on the AC adapter (720921), DC power input (720922) or the battery pack (739883).
- AC adapter (720921)
  - Rated supply voltage: 100 to 240 VAC
  - Permitted supply voltage range: 90 to 264 VAC
  - Rated supply frequency: 50 or 60 Hz
  - Permitted supply voltage frequency range: 47 to 63 Hz
- DC power input (720922)
  - Rated supply voltage: 10 to 30 VDC at the DL350 connector end
  - Maximum power consumption: 45 W
- Battery pack (739883)
  - Type: Lithium-ion
  - Operation time: Approx. 3 hours
  - Charge time: Approx. 6 hours (When the DL350 is turned off.)

Installation position
- Vertical orientation installation, horizontal orientation installation or inclined installation
- Internal dimensions: Approx. 305 mm (W) × 240 mm (H) × 85 mm (D)

Environmental standard
- Electromagnetic interference: EN61326-1 (for use in commercial and industrial locations)
- Emissions: IEC61000-6-3
- Immunity: EN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11, EN61000-4-11

Safety standard
- Compliant standards: EN61010-1, EN61010-2-303, EN61010-3, EN61095-1
- Pollution degree: 2
- Measurement category: See the specifications of each module.

Battery backup
- The settings and clock are backed up with an internal lithium battery.
- Lithium-ion: Approx. 5 years (at an ambient temperature of 23˚C)

GPLS unit (8089Y91 Specifications)
- Function: GPS data acquisition (latitude, longitude, altitude, speed, moving direction and GPS information)
- DL350 time synchronization
- Measurement accuracy
  - Horizontal position: 10 m or less GPS information (SV/Off-PDOC=0)
  - Speed: 1 m/s GPS information (SV/Off-PDOC=0)
  - Power: 0.01 km/h or less
- Measurement resolution
  - Latitude and longitude: 1 µ°
  - Altitude: 0.1 m, 1 m
  - Speed: 0.01 km/h, 0.1 km/h
  - Direction: 0.01°

*1: The specification values may not be attained depending on the measurement location, environment and measurement time.
Plug-in module model numbers

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>720211</td>
<td>High-speed 100 MS/s/512-bit Isolation Module (2 ch)</td>
</tr>
<tr>
<td>720250</td>
<td>High-speed 10 MS/s/128-bit Isolation Module (2 ch)</td>
</tr>
<tr>
<td>720254</td>
<td>4-CH 1 MS/s 16-bit Isolation Module</td>
</tr>
<tr>
<td>720268</td>
<td>High-Voltage 1 MS/s 16-bit Isolation Module (with AAF, RMS)</td>
</tr>
<tr>
<td>720220</td>
<td>Voltage Input Module (16 ch)</td>
</tr>
<tr>
<td>701262</td>
<td>Universal Module (2 ch)</td>
</tr>
<tr>
<td>701262</td>
<td>Universal Module with Anti-Ailasing Filter, 2 ch</td>
</tr>
<tr>
<td>701265</td>
<td>Temperature/High-Precision Voltage Module (2 ch)</td>
</tr>
<tr>
<td>702021</td>
<td>16-CH temperature/Voltage Input Module</td>
</tr>
<tr>
<td>701935-L1</td>
<td>16-CH Scanner Box (provided with 1 m cable)</td>
</tr>
<tr>
<td>701935-L3</td>
<td>16-CH Scanner Box (provided with 3 m cable)</td>
</tr>
<tr>
<td>701271</td>
<td>SFIN Module (NLSB, 2 ch)</td>
</tr>
<tr>
<td>701271</td>
<td>SFIN Module (GB, 2 ch)</td>
</tr>
<tr>
<td>701271</td>
<td>SFIN Module (GB, 3 ch)</td>
</tr>
</tbody>
</table>

Plug-in module model codes

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-GP1</td>
<td>Xvierview Standard Edition (1 license)</td>
</tr>
</tbody>
</table>

AC adapter, DC power cable and Battery Pack (Not included in DL350. Please order separately.)

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>720921</td>
<td>60 W AC Adapter</td>
</tr>
<tr>
<td>720930</td>
<td>Clamp-on probe AC 50 A</td>
</tr>
<tr>
<td>701955</td>
<td>Bridge head (NLSB, 120 Ω) with 5 m cable</td>
</tr>
<tr>
<td>701956</td>
<td>Bridge head (NLSB, 350 Ω) with 5 m cable</td>
</tr>
<tr>
<td>701957</td>
<td>Bridge head (DSUB, 120 Ω) Shunt-CAL with 5 m cable</td>
</tr>
<tr>
<td>758924</td>
<td>Safety BNC/banana adaptor 500 Vrms-CAT III</td>
</tr>
<tr>
<td>720911</td>
<td>Logic probe 6-bit, non-isolated, TLEVEL, Contact Input</td>
</tr>
<tr>
<td>700888</td>
<td>High-speed logic probe 8-bit, non-isolated, response speed 1 µs (typ.)</td>
</tr>
<tr>
<td>700897</td>
<td>Isolated logic probe 8-bit, each channel isolated</td>
</tr>
<tr>
<td>758911</td>
<td>Measurement lead set Battery Pack Cover (for isolated BNC input) Alligator-Clip is required separately.</td>
</tr>
<tr>
<td>758933</td>
<td>Measurement lead set 1000 V/10 A, 1 m length Alligator-Clip is required separately.</td>
</tr>
<tr>
<td>701902</td>
<td>Safety BNC/banana cable (1 m) 1000 V (DC+ACpeak) II (BNC-BNC)</td>
</tr>
<tr>
<td>701902</td>
<td>Safety BNC-banana cable (2 m) 1000 V (DC+ACpeak) II (BNC-BNC)</td>
</tr>
<tr>
<td>70033A</td>
<td>GPS unit for DL350</td>
</tr>
<tr>
<td>701948</td>
<td>Plug-on clip For 702902, 703929, and 701947</td>
</tr>
<tr>
<td>701906</td>
<td>Long test clip For 701901 and 701904</td>
</tr>
<tr>
<td>705926</td>
<td>Connecting cable For 701953 (1 m)</td>
</tr>
<tr>
<td>705927</td>
<td>Connecting cable For 701953 (5 m)</td>
</tr>
<tr>
<td>9350</td>
<td>Carrying Case</td>
</tr>
</tbody>
</table>

Probe cables, cores, and converters

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>702902</td>
<td>1/1 Probe (for isolated BNC (input)</td>
</tr>
<tr>
<td>701947</td>
<td>1/1 Probe (for isolated BNC (input) 1000 V (DC+ACpeak) CAT II</td>
</tr>
<tr>
<td>700929</td>
<td>1/1 Probe (for isolated BNC (input) 1000 V (DC+ACpeak) CAT II, length 1.5 m</td>
</tr>
<tr>
<td>701901</td>
<td>1/1 Safety BNC adapter lead 1000 Vrms-CAT II</td>
</tr>
<tr>
<td>701904</td>
<td>1/1 Safety Adaptor Lead (combination with followings)</td>
</tr>
<tr>
<td>758932</td>
<td>Safety mini-clip (hook type) 1000 Vrms-CAT III black</td>
</tr>
<tr>
<td>758931</td>
<td>Safety mini-clip (hook type) 1000 Vrms-CAT III red</td>
</tr>
<tr>
<td>701954</td>
<td>Large alligator-clip (Dolphin type) 1000 Vrms-CAT II, 1 set each of red and black</td>
</tr>
<tr>
<td>758929</td>
<td>Alligator clip adapter set (Rated voltage 1000 V) 1000 Vrms-CAT II, 1 set each of red and black</td>
</tr>
<tr>
<td>758922</td>
<td>Alligator clip adapter set (Rated voltage 300 V) 300 Vrms-CAT II, 1 set each of red and black</td>
</tr>
<tr>
<td>758921</td>
<td>Fork terminal adapter set 1000 Vrms-CAT II, 1 set each of red and black</td>
</tr>
</tbody>
</table>

**NOTICE**

- Before operating the product, read the user’s manual thoroughly for proper and safe operation.

Yokogawa’s approach to preserving the global environment

- Yokogawa’s electrical products are developed and produced in facilities that have received ISO14001 approval.
- In order to protect the global environment, Yokogawa’s electrical products are designed in accordance with Yokogawa’s Environmentally Friendly Product Design Guidelines and Product Design Assessment Criteria.

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