General
Display Panel Model QY5000S1000 is the data indicator for ACTIVAL+™ Model FVY516 series. Display Panel displays data measured by Model FVY516 series (flow pressure, flow temperature, flow rate) and valve position.

Features
- Multiple data in a single display:
  You can check flow temperature of AHU inlet/outlet, flow pressure of valve inlet/outlet, and flow rate measured by Model FVY516 series and the valve position at one time.
- Installable 50 m away from Model FVY516_J:
  Display panel is connected to Model FVY516 series with JIS VCTF cable (0.3 mm² x 4 cores), and max. cable length is 50 m.
  * JIS: Japanese Industrial Standards
- Compact and lightweight:
  Small and light body facilitates installation on an AHU panel or inside a control panel cabinet.
- Easy wiring:
  Since Display Panel main unit is connected to the base plate with the connector inside, wiring to Display Panel is complete only by connecting the wires to the base plate.
- Continuous display:
  Display Panel displays data all the time. You can thus check flow conditions and valve position at any time.
Safety Precautions

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual nearby for quick reference.

Restrictions on Use

This product was developed, designed, and manufactured for general air conditioning use.
Do not use the product in a situation where human life may be at risk or for nuclear applications in radiation controlled areas.
If you wish to use the product in a radiation controlled area, please contact Azbil Corporation.
Particularly when the product is used in the following applications where safety is required, implementation of fail-safe design, redundant design, regular maintenance, etc., should be considered in order to use the product safely and reliably.

• Safety devices for protecting the human body
• Start/stop control devices for transportation machines
• Aeronautical/aerospace machines

For system design, application design, instructions for use, or product applications, please contact Azbil Corporation.

Azbil Corporation bears no responsibility for any result, or lack of result, deriving from the customer’s use of the product.

Warnings and Cautions

⚠️ WARNING Alerts users that improper handling may cause death or serious injury.
⚠️ CAUTION Alerts users that improper handling may cause minor injury or material loss.

Signs

⚠️ Alerts users to possible hazardous conditions caused by erroneous operation or erroneous use. The symbol inside △ indicates the specific type of danger. (For example, the sign on the left warns of the risk of electric shock.)
⚠️ Notifies users that specific actions are prohibited to prevent possible danger. The symbol inside ☞ graphically indicates the prohibited action. (For example, the sign on the left means that disassembly is prohibited.)
⚠️ Instructs users to carry out a specific obligatory action to prevent possible danger. The symbol inside ● graphically indicates the actual action to be carried out. (For example, the sign on the left indicates general instructions.)

⚠️ WARNING
⚠️ Before wiring or maintenance, be sure to turn off the power to the product.
Failure to do so might cause electric shock or device failure.

⚠️ CAUTION
⚠️ Install and use the product under the operating conditions requirement (temperature, humidity, power, vibration, shock, mounting direction, atmospheric condition, etc.) as listed in the specifications.
Failure to do so might cause fire or device failure.
⚠️ Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.
⚠️ All wiring must comply with applicable codes and ordinances.
⚠️ Take anti-lightening measures based on regional and building characteristics.
Lightening might cause fire or critical damage to the products without the anti-lightening measures.
⚠️ If more than the rated power voltage is applied to the product, replace the product with new one for your safety.
Failure to do so might cause device failure or overheating.
⚠️ Do not disassemble the product.
Doing so might cause device failure.
⚠️ Dispose of the product as industrial waste in accordance with your local regulations.
Do not reuse all or part of this product.
System Configurations

One Display Panel is connectable to single Model FVY516_J.

For BMS (Building Management System) compatible to SAnet network, please ask our salesperson.

NC-bus (Max. 500 m long but extendable up to 1 km using a repeater, Max. 25 remote units (controllers) connectable.)

- PARAMATRIX™ 4
  Model WY5130P
- PARAMATRIX™ 4
  Model WY5130Q
- Inflex™ ZM
  Model WY5122
- Inflex™ AC
  Model WY5117C
- Inflex™ GD
  Model WY5110
- Inflex™ GC
  Model WY5111
  SAnet*1
- SAnet*2 (Max. 15 addresses*3)

Intelligent Component Series
- ACTIVAL™ Model FVY516_J
- ACTIVAL™ Model VY516_J
- Damper actuator
  Model MY804_A

Display Panel
Temperature sensor for pipe surface

Notes:
*1 Up to two SAnet I/F (interface) module can be connected to one Inflex GC/Inflex GD.
*3 Single Model FVY516_J requires two SAnet addresses. Single Model FVY516_J or single Model MY804_A actuator requires one SAnet address.

Figure 1. System configuration example: SAnet connection in our BMS
Model Number

<table>
<thead>
<tr>
<th>Model number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>QY5000</td>
<td>Base model number of Display Panel for Model FVY516 series</td>
</tr>
<tr>
<td>S1000</td>
<td>Power supplied from Model FVY516 series</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>12 V DC ± 1 V (supplied from Model FVY516 series)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Max. 0.1 VA</td>
</tr>
<tr>
<td>Environmental conditions</td>
<td></td>
</tr>
<tr>
<td>Rated operating conditions</td>
<td>Ambient temperature 0 °C to 50 °C</td>
</tr>
<tr>
<td></td>
<td>Ambient humidity 10 %RH to 85 %RH (non-condensing)</td>
</tr>
<tr>
<td></td>
<td>Vibration 5.9 m/s (10 Hz to 150 Hz)</td>
</tr>
<tr>
<td>Transport/storage conditions</td>
<td>Ambient temperature -20 °C to 70 °C</td>
</tr>
<tr>
<td></td>
<td>Ambient humidity 10 %RH to 85 %RH (non-condensing)</td>
</tr>
<tr>
<td></td>
<td>Vibration (storage) 5.9 m/s (10 Hz to 150 Hz)</td>
</tr>
<tr>
<td></td>
<td>Vibration (transport) 9.8 m/s (10 Hz to 150 Hz)</td>
</tr>
<tr>
<td>Enclosure rating</td>
<td>IEC IP40 (dustproof)</td>
</tr>
<tr>
<td>Display**</td>
<td>Liquid Crystal Display (LCD)</td>
</tr>
<tr>
<td>Items to display</td>
<td></td>
</tr>
<tr>
<td>PVin</td>
<td>Valve inlet pressure (MPa)</td>
</tr>
<tr>
<td>PVout</td>
<td>Valve outlet pressure (MPa)</td>
</tr>
<tr>
<td>Q</td>
<td>Actual flow rate (m³/h or l/min)</td>
</tr>
<tr>
<td>T1</td>
<td>Coil inlet temperature (°C)</td>
</tr>
<tr>
<td>T2</td>
<td>Coil outlet temperature (°C)</td>
</tr>
<tr>
<td>HC</td>
<td>Heat/Cool</td>
</tr>
<tr>
<td>E</td>
<td>Error</td>
</tr>
<tr>
<td>Opening</td>
<td>Actual valve position (% in bar graph)</td>
</tr>
<tr>
<td>Flowrate</td>
<td>Actual flow rate (% in bar graph)</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>Transmission system</td>
<td>AP-bus (RS-485 communication)</td>
</tr>
<tr>
<td>Transmission speed</td>
<td>4800 bps</td>
</tr>
<tr>
<td>Transmission distance</td>
<td>Max. 50 m</td>
</tr>
<tr>
<td>Number of Display Panel connectable</td>
<td>One per single Model FVY516_J</td>
</tr>
<tr>
<td>Materials</td>
<td></td>
</tr>
<tr>
<td>Case</td>
<td>Modified polyphenylene ether (PPE)</td>
</tr>
<tr>
<td>Base plate</td>
<td>Modified polyphenylene ether (PPE)</td>
</tr>
<tr>
<td>Face plate</td>
<td>Polyester (PET)</td>
</tr>
<tr>
<td>Accessory</td>
<td>Two tapping screws (M4) for mounting</td>
</tr>
<tr>
<td>Weight</td>
<td>150 g</td>
</tr>
</tbody>
</table>

Notes:
*1 LCD service life may shorten if Display Panel is used in an environment with high temperature and humidity.
*2 For display accuracy, refer to the specification data of Model FVY516 series.

Recommended Wire Specifications

<table>
<thead>
<tr>
<th>Cable type</th>
<th>Wiring length</th>
</tr>
</thead>
<tbody>
<tr>
<td>JIS VCTF (0.3 mm² x 4)</td>
<td>50 m</td>
</tr>
<tr>
<td>(Cable is not supplied with Display Panel.)</td>
<td></td>
</tr>
</tbody>
</table>

Option

<table>
<thead>
<tr>
<th>Item</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterproof box</td>
<td>Part No. 83170324-001 Required when Display Panel is installed outdoors.</td>
</tr>
</tbody>
</table>
Dimensions

Outside dimensions

Figure 2. Outside dimensions (mm)

Mounting dimensions of the base plate

Figure 3. Mounting dimensions of the base plate (mm)
Parts Identification

![Parts Identification Diagram](image)

**Figure 4. Parts identification**

Items to be Displayed on LCD

![Display LCD Diagram](image)

**Figure 5. Details of the items displayed on LCD**

<table>
<thead>
<tr>
<th>Display area</th>
<th>Description</th>
<th>Display Panel connected to</th>
<th>Range</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pvin: Valve inlet pressure</td>
<td>Model FVY5160</td>
<td>0.000 to 1.100</td>
<td>MPa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Model FVY516E</td>
<td>0.000 to 2.200</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Pvout: Valve outlet pressure</td>
<td>Model FVY5160</td>
<td>0.000 to 1.100</td>
<td>MPa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Model FVY516E</td>
<td>0.000 to 2.200</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Q: Actual flow</td>
<td></td>
<td>0 to 9999</td>
<td>m³/h or l/min *</td>
</tr>
<tr>
<td>4</td>
<td>T1: Coil inlet temperature</td>
<td>-10.0 to 99.9</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>T2: Coil outlet temperature</td>
<td>-10.0 to 99.9</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Valve position in bar graph</td>
<td>0 to 100 (with every 10 % increments)</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flowrate: Flow indicated in a bar graph</td>
<td>0 to 100 (with every 10 % increments)</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E: Error occurred ([E] flashes.)</td>
<td></td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>H C: AHU operation mode ([H]: Heat / [C]: Cool)</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

**Note:**
* The unit of the actual flow is selectable between 'm³/h' and 'l/min' using the engineering tool (Data Setter or PC-MMI). End users cannot set the unit. The selected unit is indicated with '>' mark on the display.
Wiring and Installation

**WARNING**

Before wiring or maintenance, be sure to turn off the power to the product. Failure to do so might cause electric shock or device failure.

**Wiring**

1) Press the hook on the bottom of the base plate and detach the case.

2) Use Φ5.5 to Φ6.0 mm cable (JIS VCTF (0.3 mm² x 4 cores) cable recommended) for connection. Strip 5 to 6 mm sheath of each lead wire. (See Fig. 6.)

3) Refer to the wiring label (attached to the base plate) and insert stripped lead wires to each terminal.

4) Lock each lead wire with lever lock provided on each terminal. Use a tool such as slotted screwdriver to slide the lever lock.

5) Insert the cable into the slit and fix the cable on the base plate with a cable tie.

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<table>
<thead>
<tr>
<th>Terminal number</th>
<th>Type</th>
<th>Lead wire color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12 V DC (+)</td>
<td>Red (RED)</td>
</tr>
<tr>
<td>2</td>
<td>0 V</td>
<td>Black (BLK)</td>
</tr>
<tr>
<td>3</td>
<td>AP-bus (+)</td>
<td>White (WHT)</td>
</tr>
<tr>
<td>4</td>
<td>AP-bus (-)</td>
<td>Green (GRN)</td>
</tr>
</tbody>
</table>

Note:
* Lead wire color shown in the above table is the wire colors of the recommended cable.

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Figure 6. Sheath strip length

Figure 7. Lead wire connection

Figure 8. Cable fixed on the base plate
Installation

IMPORTANT:
• Do not install this product in an atmosphere containing corrosive gas or explosive gas.
• Do not install this product in a location exposed to direct sunlight. Direct sunlight accelerates LCD degradation.
• Waterproof box (optional) is required for the product to be installed outdoors. Ask our sales personnel for the waterproof box.

1) Make two holes for two M4 tapping screws (one for upper and the other for lower sides) on a mounting location, such as an AHU side plate or a panel cabinet. Distance between the centers of upper and lower M4 screws is 66 ± 2 mm.

2) Lead the cable (connected to the base plate terminals) out of the base plate through the base plate conduit (on the bottom right), and mount the base plate on the mounting location with the two M4 tapping screws (accessory of Display Panel).

3) Assemble the case with the base plate by inserting the male insertion guide of the case into the female insertion guide of the base plate. Four insertion guides are provided on the right and left sides. (Two on each side.) Press the case well so that the case is completely assembled with the base plate. The case is connected to the base plate with the internal connector.
4) Arrange the cable connected to the Display Panel.

   Cautions for arranging the cable:
    Do not pull the cable.
    To prevent water from flowing down to Display Panel through the cable, let the cable sag, as Fig. 11 shows.
    When installing Display Panel on an AHU side plate, seal the wiring hole on the AHU side plate, as Fig. 11 shows. Damp or dew condensation may damage the Display Panel, otherwise.

5) Film is attached to the front surface (face plate) of Display Panel for protection before shipment. Remove the film before activating Display Panel.
Wiring to Model FVY516 series

IMPORTANT:
Do not pull the cable connected from the terminals of Display Panel to the terminals of Model FVY516_J.

Display Panel is used in combination with Model FVY516 series. To connect the cable to Model FVY516 series, refer to Specification/Installation of Model FVY516 series as well as the following wiring procedure.

- AB-6880: Intelligent Component Series ACTIVAL ™ Model FVY5160J (JIS 10K/FC200)
- AB-7130: Intelligent Component Series ACTIVAL ™ Model FVY516EJ (JIS 20K/SCPH2)

1) Unscrew the three setscrews (M4 × 10) of Model FVY516 series terminal cover and remove it.

2) Lead the cable connected from Display Panel through the port (for the Display Panel cable) of the actuator. Refer to Fig. 13 for the port location.

3) Unplug the 4-pin connector pre-plugged in the actuator, as shown in Fig. 12, and connect the cable (4 cores) to the 4-pin connector.
   * The lead wire colors described are for the recommended cable (JIS VCTF). If you use a different cable, be sure to match the terminal numbers between the 4-pin connector and the Display Panel.

4) Plug the 4-pin connector into the connector for Display Panel provided on the actuator.

5) Fasten the seal connector. Screw the connector nut well, so that clearance becomes 1 mm or narrower. Cable may be twisted as the connector nut is screwed. In such a case, loosen the connector nut and untwist the cable, then re-screw the connector nut.

6) Attach the terminal cover to the actuator, then organize the cable. To prevent water from flowing down to actuator through the cable, let the cable sag.
**Maintenance**
For replacement of Display Panel, whole unit must be replaced. Display Panel cannot be partially replaced.

**Care for the face plate**
Clean the face plate with dry soft cloth. Do not use detergent or organic solvent to clean the face plate. Otherwise, the face plate will become scratched, discolored, or deformed.
This product complies with the following harmonised standards of the Electromagnetic Compatibility Directive (EMCD) and the Restriction of Hazardous Substances Directive (RoHSD).

EMCD: EN 61326-1 Class A, Table 2 (for use in an industrial electromagnetic environment)
RoHSD: EN 50581

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Building Systems Company

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