

DISPLAY DPY351

Monitor and Control Panel for ADELBus Network

Instruction Manual



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1 Product Description

The DPY351 is a robust and versatile multifunction display that allows monitoring, configuring and managing of ADELSystem connected devices in an ADELBus network. It is equipped with a high-brightness and wide viewing-angle 3.5" TFT screen which guarantees an optimum visibility in any operating condition. The user interface is clear, intuitive and allows configuring and managing ADELBus network through its Ethernet interface by remotely monitoring connected devices, using the SNMP and Modbus TCP protocols. The configuration of the Ethernet connection is very straightforward and can be done by means of the embedded webserver or the intuitive user interface. The device IP addressing can be static or dynamic using the DHCP protocol. This makes the connection of a DPY351 to a LAN very easy. It is possible to connect several devices in chain together, up to 50.

1.1 Features

ADELBus network manages all ADELsystem connected devices.

1.2 Monitoring

It is possible the monitoring of input and output data, peak current, peak voltage, all battery parameters such as temperature, State of Charge, etc....

1.3 Configuration

With the DPY351, it is possible to modify the parameters of any ADELsystem device connected: DC-Ups, Power Supply and Battery Charger.

1.4 Alarms management

All the alarms present on the single device are immediately reported.

1.5 History

The history parameters are recorded inside each device. The DPY351 allows inspecting all the historical parameters of each single device.

1.6 Event

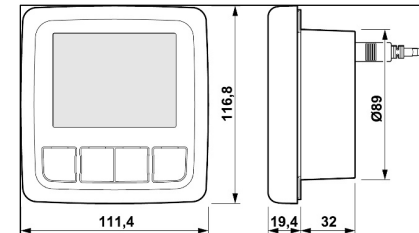
Actions that are coordinated among the devices connected can be programmed, thus automating the system.

2 How to Install

2.1 Mains Technical Data

Type	DPY351
Weight	0.25 kg; 0.55 lbs.
Dimension	112 x 116 x 53 mm 4,41 x 4,57 x 2,09 inches
Dimension Display	90 mm; 3,5 inches
Languages	EN
IP Degree	Front: IP65 Back: IP20
Power Supply	PowerBus/ 12/24/48 Vdc input
Power Consumption	Steep 0,06 W Normal Mode: 3,6 W

2.2 Dimensions



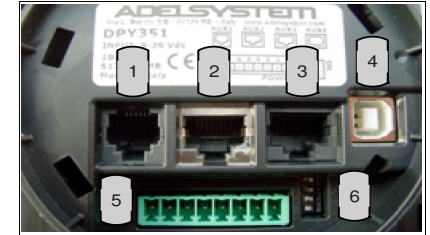
2.3 Panel Mounting

It is possible to mount DPY351 through a 90mm hole on the Panel and fix them by 4 2.9 x 16. No limit for the Panel thickness. You can use the Mounting Template at the end of this instruction manual.

2.4 How to Supply DPY351

The DPY351 can be powered from the ADELBus network. There must be ADELBus (AUX3) powering devices available to provide sufficient power to the network. If there is no ADELBus powering device or the available power is not sufficient, the DPY351 must be connected to a 12/24/48 V battery or Output Load via the supplied connector (AUX5).

2.5 Connection Layout (Fig.1)



Reference	Description
1	Temperature Probe (AUX1)
2	Ethernet (AUX2)
3	ADELBus: Canbus, ModBus (AUX3)
4	USB (AUX4)
5	Auxiliary Power, I/O port (AUX5)
6	Dip-switches (Hardware Config.)

2.5.1 Auxiliary temperature sensor (AUX1)

Auxiliary temperature sensor connection (R/Temp accessory probe) to measure the temperature environment in custom situations.

2.5.2 Ethernet Connection (AUX2)

"HUB" Collector function of the connected devices to the ADELBus network, to transport via Ethernet. The available protocols are the Modbus TCP / IP, the SNMP protocol and the MQTT.

2.5.3 PowerBus Connection (AUX3)

Automated RJ45 cable connection for Modbus and Canbus protocols. The Display must be powered via the Aux5 connector if the power is not enough.

2.5.4 USB Connection (AUX4)

USB Connection for Software Updates via PC.

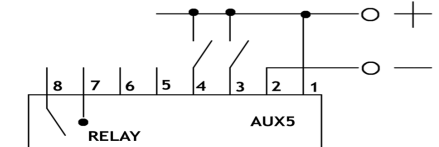
2.5.5 Auxiliary Input Power (AUX5)

Connect the positive wire to terminal 1, the negative wire to terminal 2 of the connector.

Use a 3mm flat blade screw driver to push in the Spring Connector.

Note:

To Supply CBI Size3, it is necessary to connect the Output Load + and – to Aux 5.



2.5.6 Wire size (AUX5)

Use appropriate wire size to connect the AUX power supply to the battery.

- Wire diameter Ø 1 mm (18AWG) 2.5 mm (13AWG)
- Fuse: Insert a 1A fuse in the positive battery line.

2.5.7 Automatic Power On Display (Ref.6)

The device power ON in manual Condition from Push Button power On, otherwise can start up in Automatic Power On. For this function set Switch 4 in position On



2.5.8 Input/Output State Terminal 3,4,7,8 (AUX5)

The device is equipped with N*2 digital Input (terminal 3,4) suitable to reading conditions. They can be used for the most various checks. For example: the control of opening doors, presence of Earth, verification of presence Light, gas, pressure, etc....

The Output relay (terminal 7,8) could be derived in dependency of input state by "Event" function.

- Output Relay Free Switch Contact (NO)

Max. current can be switched (EN60947.4.1):
 Max. DC1: 30 Vdc 1 A; AC1: 60 Vac 1A
 Min. 1mA at 5 Vdc (Min Resistive load)

2.6 Hot to connect Shunt in CBI Size 3

To display current on CBI "SIZE 3" it is necessary to add Shunt device, as explained in fig.6. Consequently, it is possible to add this parameter on the Dashboard.

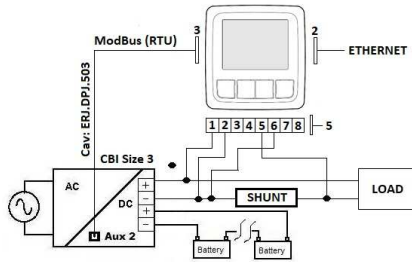


Fig. 6 – External Shunt connection for CBI Size 3

2.7 Keyboard

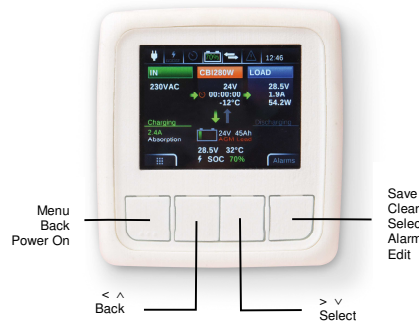


Fig. 5 – Keyboard Display

3 ADEBus Connections

ADEBus is the ADESystem network to interconnect devices via Modbus and Canbus protocols. ADEBus is used as power management system for all connected equipment, such as the DC-Ups, Battery Charger, Power Supply. Every compatible device with ADEBus is equipped with one or two data ports. The devices are simply chained together, forming a local data network. Monitoring panels such as the DPY351 can be used for monitoring and control all connected ADEBus equipment.

CAUTION: Never connect a non ADEBus device to the ADEBus network directly! This will void warranty of all ADEBus devices connected.

3.1 Event based commands

With ADEBus, a device can be programmed to initiate an action at another connected device. This is done by means of event-based commands.

3.2 How to set up an ADEBus network

Connections between the devices are made by standard straight ADEBus cables. ADESystem can supply these cables. These (CAT5) cables are also commonly available at computer supply stores. For the Can Connection in some devices it is usual use twisted pair cable with shield.

Up to 50 ADEBus devices can be connected together.

The electric power for the network comes from the connected devices. Otherwise, if it is not enough, it is necessary to connect the device by + and - connector AUX5.

ADEBus needs a terminating impedance on both ends of the network, for that it is present a switch termination on the Device.

3.3 How to set an ADEBus network with more than one DPY351 (View Mode)

In a Modbus network there is only one master. Normally the DPY351 is the master, it polls the network and it receives information from other ADESystem devices, which are the slaves. If it is necessary to connect N DPY351 in the same ADEBus network, then N-1 displays shall be

configured in View Mode. In this case only one DPY351 is a master and it polls the devices, the other DPY351s receive the data from the Bus and they consider the information only if these parameters go from a device in their list, in other case they ignore the information.

View Mode is useful also when the master of the network is an external device as a PC.

To configure the DPY351 in View Mode it is necessary to go in:

Menu>Menu Config>Other Settings>Modbus View Mode.

3.4 Ethernet Configuration

Configuration of the Ethernet interface by HTTP server via Web browser:

3.4.1 Connect HTTP server for the first time

To connect DPY351 to a network a standard CAT5e or higher LAN cable must be connected to the AUX2 connector (RJ45, shielded) on the back of the unit, as shown in Fig.1. The DPY351 is configured to obtain an IP address from a DHCP server and to reply at the standard HTTP port (number 80) by default. The first access to the DPY351 internal webserver must be done by means of a browser at the IP address allocated to the DPY351. Said address can be read on the display at the page:

Menu>Display Configurations>Information.

Type the IP address of the DPY351 into any browser's address bar (as an example "192.168.1.100"). If a DHCP server is not available or if static addressing is preferred, the DPY351 can be configured to operate with a static IP address from the pages at Menu>Display Configurations>Network.

Configure IP mode to Static and select the desired IP address from the Static IP address page. Reboot the device after any modification to the IP configuration.

At the login page, the following details must be used:

Username: admin

Password: admin

3.4.2 Customizing the ethernet interface and services

In the setup page, the following groups of parameters are displayed:

- Account
- TCP/IP Configuration
- SNMP v2c
- MQTT
- Modbus TCP

Account:

The Account group (Fig. 2) allows the customization of the data for the HTTP server login page.

Account	
User Name:	admin
Password:	*****
Confirm Password:	*****
	<input type="checkbox"/> Show Password

Fig. 2 – Account settings

TCP/IP Configuration

Fig. 3 shows the TCP/IP Configuration group of parameter default values. They allow unique identification of the unit in the network.

TCP/IP Configuration	
Dynamic (DHCP)	<input type="checkbox"/>
Static	<input checked="" type="checkbox"/>
System IP:	192.168.1.100
Subnet Mask:	255.255.255.0
Gateway:	192.168.1.1
HTTP Port	+
HTTP Port:	80
VLAN ID	+
VLAN ID:	1
MAC address:	01:23:45:67:89:AB

Fig. 3 – IP settings

If "Dynamic (DHCP)" is selected, the IP address is automatically assigned by a DHCP server, that must be active on the network, and the System IP, Subnet Mask and Gateway textboxes are not available.

HTTP Port allows redirecting the HTTP traffic to a port different than the TCP port 80, which is the one devoted to HTTP. In the case "HTTP Port" checkbox is not selected, the HTTP protocol will be run on port 80 and the "HTTP Port" textbox will be hidden. If "HTTP Port" checkbox is selected, then the "HTTP Port" textbox should be populated with the TCP

port number the HTTP traffic must be redirected to. In such a case, access to the HTTP server from a browser must be made according to the following syntax: <http://ipaddress:portnumber>.

As an example, if the IP address is 192.168.1.100 and the selected HTTP port is 5678 then the following IP string should be entered in the browser <http://192.168.1.100:5678>

The DPY351 supports access using the Virtual LAN protocol. In the case "VLAN ID" checkbox is not selected the "VLAN ID" textbox will be hidden and DPY351 will not operate in the VLAN. If "VLAN ID" checkbox is selected then the "VLAN ID" textbox should be populated with the ID. The VLAN ID can be set in the range 1 thru 4094 and it must match that of the VLAN the unit is operating in.

SNMP v2c

The DPY351 can act as a gateway between an ADESystem power device (such as the CBI Size 3 and 4) and a SNMP manager. An ADESystem MIB table is provided which consists of a list of parameters of the connected power device that can be remotely read, or read-written through the SNMP. Each parameter, (OID), is mapped one-to-one to a Modbus RTU holding register. Refer to the document CBIxxW_Modbus_SNMP_MAP_Rev_x.pdf for the description of each RTU holding register and the corresponding OID.

SNMP	
SNMP Version:	v2c
System Name:	sysName
System Description:	sysDescription
System Location:	sysLocation
System Contact:	sysContact
Read-only community:	*****
Read-write community:	*****
	<input type="checkbox"/> Show Password

Fig. 4 – SNMP settings

All the fields in the SNMP group of settings allow a maximum of 32 characters, except "System Description" and "System Location", which allow 255 characters maximum. The "Read-only community" and "Read-write community" values must match those of the SNMP environment the unit operates in.

3.4.3 Enabling / disabling the MQTT

MQTT communication allows the DPY351 to connect to the ADEView System Cloud for the remote monitoring of the power devices connected to the DPY using Modbus or CAN bus. It can be enabled or disabled by respectively checking or unchecking the MQTT radio button. Communication using the MQTT protocol is enabled by default.

3.4.4 Saving / resetting the customized ethernet parameters

To save the changes into the DPY351 non volatile memory press the "Apply" button at the top or at the bottom of the page. Changes will take effect at the following DPY351 power up.

To clear all the ethernet parameters press the "Reset" button, then re-enter the data.

Modbus TCP

DPY351 parameters can be remotely controlled via Modbus TCP on Modbus address 247. DPY351 works as a gateway for the other devices connected to ADEBus. Refer to the Parameters table of every device for more information.

4 Functional Use

4.1 Video Link:

<https://www.youtube.com/watch?v=hy4V7s5XCQg>

5 Welcome Page

5.1 Notification / Alarm

(Link to Video Explanation)

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=10s>

5.2 Display Configuration "Homepage"

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=193s>

5.3 Customize Dashboard

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=207s>

5.4 Customize "Six Values"

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=245s>

5.5 Customize "Two Values"

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=296s>

5.6 Customize "Single Value"

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=323s>

6 Selection Page

6.1 Monitoring

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=35s>

6.2 History

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=57s>

6.3 Alarms

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=85s>

6.4 Device "Advanced config – Pin insertion"

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=100s>

6.5 Devices "Add new devices"

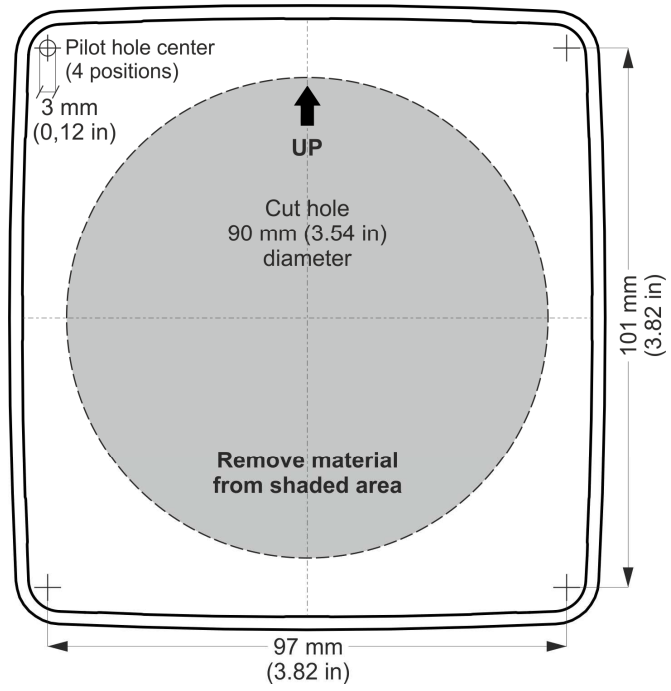
<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=136s>

6.6 Display Configuration "Network menu"

<https://www.youtube.com/watch?v=hy4V7s5XCQg&t=169s>

7 Mounting

7.1 Mounting template:



7 Mounting

7.1 Mounting template:

