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TOPIC: 1100 Communications Options

The purpose of this application note is to explain the various communication options that are available for the DiamondPlus 1100 series UPS. The various communications options are explained below along with their primary application and features as each one serves a specific purpose. Applications beyond those stated below should be verified with your factory Applications Engineer to ensure proper application.

The communication options range from simple I/O port interfacing to other equipment to network communications or Modbus communications.

Summary of the UPS I/O options

The DiamondPlus UPS is provided with a standard I/O (IOAU-11, for the 1100A and IOAU-12, for the 1100B) which is preinstalled in the UPS this board offers basic I/O communication and a DB-9 connector for additional communication features. There is also an optional I/O board available (IOAU-17, p/n PCB10318) which offers expanded functionality as well as a DB-9 connector. Please refer to the table below for the specific features of each I/O board.

These I/O boards are installed on the communications tray located inside the UPS unit.

IOAU-17 requires UPS software version   Control (BYP): RK9UC0_BYP, Control (UPS): RK9VC0_UPS, Control (FPGA): RFHRB0, LCD: RK9WC0 or later.

Feature	IOAU-11	IOAU-12	IOAU-17	Comments
Power Supply		X	X	12VDC Max. XXX Amps
DB-9 connector	X	X	X	
Major Fault Summary Alarm contact	X	X		Form C contact
Major Fault Alarm			X	2 contacts (NO and NC)
Output contact for on bypass			X	
Output contact for on inverter			X	
Output contact for on battery			X	
Output contact for converter on-line			X	
Output contact for low battery			X	
Output contact for			X	

Feature	IOAU-11	IOAU-12	IOAU-17	Comments
overload indication				
Summary alarm contact			X	
Remote EPO function	X	X	X	0.5s – 4s single duration
Remote transfer to inverter			X	0.5s – 4s single duration
Remote transfer to bypass			X	0.5s – 4s single duration
Battery Hi-temp to turn off charger			X	0.5s – 4s single duration
Power Demand Function			X	0.5s – 4s single duration

*The I/O contacts are rated for 24VDC maximum current of 1A.
**I/O boards are not interchangeable with one another.
***Unless otherwise noted all contacts are NO

Network Communication (Netcom)

The ability to monitor the UPS remotely via a TCP/IP network can be accomplished by adding a Netcom interface box to the standard I/O board. This option provides the end user with the real time ability to monitor the UPS condition, status of voltages and currents, review error logs, and receive email notifications (often referred to as SNMP traps) of errors as they occur. In addition this option provides the ability to perform remote server shutdowns.

Remote server shutdown licenses can be purchased in blocks of 10, only 1 license is required for each device that the user wishes to power down. The setting can be changed with regard to the amount of battery run-time left in order to provide the proper amount of time for a "soft" shut down. These shutdown licenses are available for use with most of the commonly used operating systems that are widely in use.

The Netcom adapter is installed on the communications tray located inside the UPS unit.

Remote Communications

Modbus (MCUM)

Should the customer wish to communicate with a Building Management System (BMS) via Modbus then a MCUM Modbus adapter can be provided. This adapter will take the information provided by the UPS and translate that into a full set of Modbus registers that the BMS then can handle. A complete listing of available Modbus registers can be found in the MUCM Manual. The communication from the MCUM is provided by any of the following options RS-232, RS485, and RS-422.

The MCUM is provided with an LCD display provide an easier way to configure the MCUM w/o the need for another computer to be hooked to it, and it allows for easier troubleshooting as data flow can be monitored w/o the need for another computer to be hooked up.

The MCUM is installed on the communications tray located inside the UPS unit.

Remote Status Alarm Panel (RASP)

The RASP option allows for the user to install a remote panel with a LED mimic bus of the UPS and see the current operating status of the UPS from another room or area of the facility up to a

maximum distance of 300 feet from the UPS. This option can only be used with the IOAU-17 optional I/O board and is not available with the standard I/O board.   Also, a 120VAC source is required at the location of the RSAP.

Maintenance Panel Interlock

This option provides additional wiring to extend the aux. contact from the bypass contactor to terminal block for use when interfacing with the UPS maintenance panel. This interface would provide an interlock to an electrically operated key interlock system so that the user has a positive indication at the maintenance panel that the UPS has been placed in bypass. This is helpful in preventing the user from putting the inverter and utility on the line at the same time.

Field Retrofit options

Field retrofits due to the number of configurations should be handled by consulting with your Applications Engineer. In the event that the customer wishes to return any of these devices for credit they must be returned in an unopened package, otherwise no credit will be given.

Communication Options Configurations

Communication Options that can be selected from at the time of purchase are listed below:

	IOAU-11 (1100A Only)	IOAU-12 (1100B Only)	IOAU-17 (Optional I/O)
I/O board only	N/A	N/A	UD100299G04
I/O w/Netcom/SKRU	UD100111G01	UD100350G01	UD100299G01
I/O w/MCUM/SKRU	UD100111G02	UD100350G02	UD100299G02
I/O w/SKRU only	UD100111G03	UD100350G03	UD100299G04
RSAP	N/A	N/A	RASP-100

*Either a Netcom or MUCM can be supplied with any IOAU board but not both at the same time.