

Multi-IQ

Firmware:

(Serial Number / Seriennummer)

RS232-Data Manager for UPS
4 x RS232 / 1 x LAN-Contacts
flash upgradeable

User manual

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Manual English

general properties:

Description:

Multi-IQ is a data manager for controlling and monitoring one ups by multiple computers with RS232-communications, comparable to a multiplexer but with enhanced communications and security functions.

Multi-IQ is connected to the serial port of the ups and reads out all ups parameters about one time a second. Data is requested and transmitted with the ups specific protocol, using the same security options as the ups (i.e. checksums, error messages).

Data is cached in an internal RAM to be able to serve several requests for data simultaneously.

The status information for the LAN-contacts are generated from the cached ups-data.

The LAN-contacts on output 5 can be used to integrate older components or software that does not support RS232-communications. The optocoupler input for ups-shutdown is integrated in the ups-shutdown process of Multi-IQ

The serial outputs 1-4 emulate the communication with a single ups, using the data transmitted from the ups to the Multi-IQ and the protocol supported by the ups.

UPS commands are transmitted to the ups, executed by the Multi-IQ or, in case of critical commands such as „ups off“, transmitted to the ups depending on all active systems' commands.

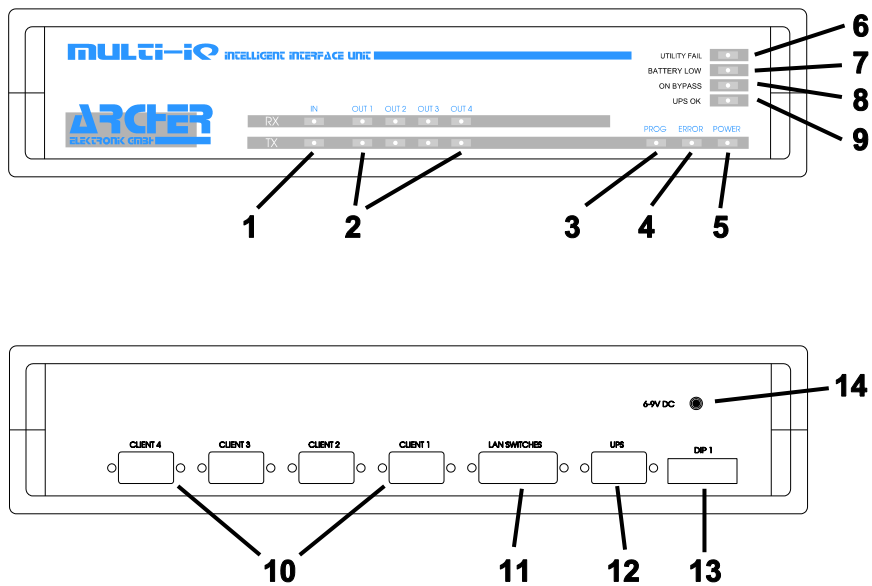
Critical commands have to be given by all active systems and the LAN-contact (if enabled), in order to be transmitted to the ups.

A system is considered „active“ as soon as it has sent one byte with the correct baud rate.

If there is no communication on a port for more than 2 minutes, the system is considered „inactive“ and is not longer integrated in the ups shutdown process.

Additional Multi-IQs can be connected to each serial output to supply more than 4 computer systems with RS232 communications. This way up to 2 generations of Multi-IQs (or up to 64 computers) can be served.

Display / Connections:



- 1 - display communication Multi-IQ / ups
- 2 - display communication Multi-IQ / computer 1-4
- 3 - load default settings
- 4 - communication- / hardware-error
- 5 - power supply
- 6 - LAN-contact closed „Utility Failure“
- 7 - LAN- contact closed „Low Battery“
- 8 - LAN- contact closed „On Bypass“
- 9 - LAN- contact closed „ups O.K.“
- 10 - to computer 1-4
- 11 - LAN-contacts
- 12 - to ups
- 13 - DIP-switches
- 14 - power supply input

connection:

Connect the power supply to a secure socket (UPS) and put the 3,5mm jack plug into the mounting on the back side of Multi-IQ.

Connect the ups serial port and the input of the Multi-IQ. Use the cable that is normally used to connect UPS and computer. Connect output 1 - 4 with the included 1:1-cable to a COM-port of the computers or network interfaces.

The LAN-contacts of output 5 can be connected to either monitoring boards, contact multiplexers or pc's running a software for ups monitoring with dry contacts. A ups shutdown signal can be supported.

configuration:

Multi-IQ input- / output configuration

With the DIP switches on the rear panel different modes for the RS232 communication can be set. You can choose the connect speed, a turbo mode when daisy chaining several Multi-IQ's and activate the UPS shutdown for the LAN contact port.

For the settings see table 1

LAN-contacts configuration:

The DB-15 connector (output5) of the Multi-IQ supplies 7 semiconductor switches to monitor ups status. The 4 standard signals for AS400 applications can be set to „active open“ or „active closed“ by DIP-switches.

The remaining 3 signals are defined as „active closed“.

For functions and pin numbers see table 1.

A shutdown signal is supported by the optocoupler input (3-12 VDC = ups off) and can be integrated in the Multi-IQ shutdown routine by DIP-switch.

For configuration of output 5 see table 2.

tables:

table 1: pinning / functions of LAN-contacts:

| Pin #: | function: | options: |
|--------|---------------------------|-------------------------------------|
| 1 | utility fail 1 | standard function = „active closed“ |
| 2 | low battery 1 | standard function = „active closed“ |
| 3 | on bypass 1 | standard function = „active closed“ |
| 4 | ups O.K. 1 | standard function = „active closed“ |
| 5 | signal ground 1 | for above signals |
| 7 | ups-shutdown + , 3-12 VDC | enable ups shutdown by DIP-switch 2 |
| 8 | ups-shutdown ground | |
| 9 | utility fail 2 | not configurable, „active open“ |
| 10 | low battery 2 | not configurable, „active open“ |
| 11 | ups O.K. 2 | not configurable, „active closed“ |
| 12 | signal ground 2 | for non-configurable signals |

table 2 : DIP-switch functions

| DIP | function: | settings: |
|-----|---|--|
| 1 | programm (for service only) | OFF = normal operation * (don't change) |
| 2 | ups shutdown at output 5 | ON = not active * OFF = active |
| 3 | sets the PC ports to the highest / lowest connect speed supported by the ups software | ON = highest connect speed OFF = lowest connect speed * |
| 4 | 38.400 Baud connection between 2 Multi-IQ | ON = turbo mode for UPS port, OFF = standard speed * |
| 5 | 38.400 Baud connection between 2 Multi-IQ | ON = turbo mode for PC port 1 OFF = standard speed * |
| 6 | 38.400 Baud connection between 2 Multi-IQ | ON = turbo mode for PC port 2 OFF = standard speed * |
| 7 | 38.400 Baud connection between 2 Multi-IQ | ON = turbo mode for PC port 3 OFF = standard speed * |
| 8 | 38.400 Baud connection between 2 Multi-IQ | ON = turbo mode for PC port 4 OFF = standard speed * |

* = default settings

system start:

Connect the Multi-IQ with the power supply. Now the Multi-IQ contacts the ups and starts collecting data. The transmission is monitored with LED's in the front. The status LED's monitor the actual condition of the LAN contacts at output 5.

Start the computers / network interfaces and ups software and choose the right ups model. Configure the COM-port for the baud rate you have chosen for the output of the Multi-IQ. Note: Multi-IQ doesn't support hardware handshake in the current version.

Save the configuration and start the ups software. The software now starts communicating with the Multi-IQ.

The data transmission is monitored with LED's in the front for each output.

Firmware upgrades

The firmware of the Multi-IQ can be upgraded directly via a serial connection on port 1. This may be necessary if there are changes in the existing communication protocols or when new ups protocols are introduced.

The upgrade tool is a small EXE file which runs under Windows or DOS. It is supplied by your dealer or can be downloaded from your dealer's Internet site.

To upgrade Multi-IQ, connect port 1 of the multiplexer to COM2 on any DOS or Windows pc with a 1-1 connected 9-pin cable. Run the EXE file which supports the new firmware version and follow the on screen instructions.

troubleshooting:

If there are errors while starting or running Multi-IQ, check these points:

| symptom: | possible cause: | what to do: |
|---|--|--|
| „ERROR“ blinks, no communication between Multi-IQ and ups | serial port of ups is not configured correctly. | configure ups port |
| | cable not connected correctly. | connect correctly |
| | cable damaged | replace |
| | ups serial port does not communicate (check directly, without Multi-IQ) | contact manufacturer |
| Software reports „no communication with ups“ | cable between computer and Multi-IQ damaged or not connected correctly. | Connect correctly or replace |
| | Interfaces of computer and Multi-IQ work with different baud rates | set equal values for both interfaces |
| | Multi-IQ not connected to power supply | connect |
| | Multi-IQ has no connection to ups („ERROR“ blinks). | Check this point |
| ups shutdown is not executed after computers have shut down | ups shutdown for one or more computers not activated (software settings). | Activate this function. |
| | Shutdown time preset too long. | Set shorter (or shortest possible) time. |
| | Shutdown signal for output 5 enabled though no hardware is installed or doesn't support ups shutdown | disable shutdown at output 5 |

technical details:

| | | |
|-----------------------------|---------------|---|
| ups input: | connector: | DB9, male |
| | protocol: | auto detect |
| serial output 1-4: | connector: | DB9, female |
| | settings: | 1.200 Baud to 38.800 baud |
| | protocol: | Xon/Xoff, 8N1 |
| LAN-Contacts (output 5): | connector: | DB15, female |
| | signals: | - utility failure - low battery - on bypass - ups O.K. |
| | ups shutdown: | high-level, 3-12 VDC (enable / disable via DIP-switch) |
| | | Contacts may be used with up to 48V DC, max 0.25A DC. The max. power is 3W. Example: At 48V is the max. current 62mA ($I = P/U \rightarrow 3VA/48V=62,5mA$) |
| power supply: | | plug-in power supply included |
| | AC-voltage | 110 - 240 VAC / 47 - 63 Hz |
| | DC-voltage: | 7,5 VDC |
| | DC-current: | 2 A |
| mechanical data: | size (HxWxD) | 61x290x203 mm |
| | weight: | ca. 1 kg |
| | temperature: | 0-40°C |

Notes:

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Firmware Upgrade Notes:

| Date / Datum | Upgraded to version / aktualisiert auf Version: |
|--------------|---|
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