



## Applies to...

<i>ID code</i>	<i>Config</i>	<i>family</i>	<i>model</i>
# 1	1	HF Line	HF Line (1 board)
# 1	2	HF Line	HF Line (2 boards)
# 1	3	HF Line	HF Line (3 boards)
# 1	4	HF Line	HF Line (4 boards)
# 2	1	ECO Network	ECO Network 750/1000
# 2	2	ECO Network	ECO Network 1050/1500
# 2	3	ECO Network	ECO Network 1500/2000
# 2	4	ECO Network	ECO Network 1800/2500
# 2	5	ECO Network	ECO Network 2100/3000
# 3	1	ECO 3xx	ECO 308
# 3	2	ECO 3xx	ECO 311
# 4	4	HF Line / 2	HF Line (4 boards) / 2
# 4	5	HF Line / 2	HF Line (5 boards) / 2
# 4	6	HF Line / 2	HF Line (6 boards) / 2
# 4	7	HF Line / 2	HF Line (7 boards) / 2
# 4	8	HF Line / 2	HF Line (8 boards) / 2
# 5	1	HF Millennium	HF 810
# 5	2	HF Millennium	HF 820
# 6	1	HF TOP Line	HF 910
# 6	2	HF TOP Line	HF 920
# 6	3	HF TOP Line	HF 930
# 6	4	HF TOP Line	HF 940
# 7	4	HF TOP Line / 2	HF 940 / 2
# 7	5	HF TOP Line / 2	HF 950 / 2
# 7	6	HF TOP Line / 2	HF 960 / 2
# 7	7	HF TOP Line / 2	HF 970 / 2
# 7	8	HF TOP Line / 2	HF 980 / 2
# 8	1	ECO Network 5xx	ECO 508
# 8	2	ECO Network 5xx	ECO 511
# 8	3	ECO Network 5xx	ECO 516
# 8	4	ECO Network 5xx	ECO 519
# 8	5	ECO Network 5xx	ECO 522
# 9	1	ECO 3xx	ECO 305 / Harviot 530 SX
# 9	2	ECO 3xx	ORDINATORE DUE
# 9	3	ECO 3xx	Harviot 730 SX
# 10	1	ECO Interactive SX	ECO 308 SX / ORDINATORE
# 10	2	ECO Interactive SX	ECO 311 SX
# 11	1	ally HF	ally HF 800
# 11	2	ally HF	ally HF 1600
# 12	1	ally HF	ally HF 1000
# 12	2	ally HF	ally HF 2000
# 13	1	ally HF	ally HF 1250
# 13	2	ally HF	ally HF 2500
# 14	1	Megaline	Megaline 1250
# 14	2	Megaline	Megaline 2500
# 14	3	Megaline	Megaline 3750
# 14	4	Megaline	Megaline 5000
# 15	4	Megaline / 2	Megaline 5000 / 2
# 15	5	Megaline / 2	Megaline 6250 / 2
# 15	6	Megaline / 2	Megaline 7500 / 2
# 15	7	Megaline / 2	Megaline 8750 / 2
# 15	8	Megaline / 2	Megaline 10000 / 2
# 20	1	DHEA	DHEA 1000
# 21	1	DHEA	DHEA 1500

## Common commands

- # 0 UPS info (read):
- Request command:  
byte = 0
- Answer:
- |      |  |  |
|------|--|--|
| byte | Command (replica of the request command)                 |  |
| byte | ID code (family code - see model table)                  |  |
| byte | Config (number and/or type of modules - see model table) |  |
| word | Maximum active power (W)                                 |  |
| byte | Firmware version   |  |
| byte | Firmware subversion                                      |  |
| char | [1 ..12] Serial number                                   |  |
- # 1 Output data (read):
- Request command:  
byte = 1
- Answer:
- |         |  |  |
|---------|--|--|
| byte    | Command (replica of the request command) |  |
| integer | Active power (W)                         | { -1: overrange }<br>{ -2: not available } |
| integer | Voltage (V)                              | { -1: overrange }<br>{ -2: not available } |
| integer | Current (Arms*10)                        | { -1: overrange }<br>{ -2: not available } |
| integer | Peak current (A*10)                      | { -1: overrange }<br>{ -2: not available } |
- # 2 Input data (read):
- Request command:  
byte = 2
- Answer:
- |         |  |  |
|---------|--|--|
| byte    | Command (replica of the request command) |  |
| integer | Active power (W)                         | { -1: overrange }<br>{ -2: not available } |
| integer | Voltage (V)                              | { -1: overrange }<br>{ -2: not available } |
| integer | Current (Arms*10)                        | { -1: overrange }<br>{ -2: not available } |
| integer | Peak current (A*10)                      | { -1: overrange }<br>{ -2: not available } |
- # 3 UPS status (read):
- Request command:  
byte = 3
- Answer:
- |      |   |  |
|------|---|--|
| byte | Command (replica of the request command)  |  |
| byte | Status                                    |  |
|      | 0: Running on mains power                 |  |
|      | 1: Running on battery power               |  |
|      | 2: Battery reserve                        |  |
|      | 3: Bypass engaged                         |  |
|      | 4: Manual bypass engaged                  |  |
| byte | Fault                                     |  |
|      | 0: All right                              |  |
|      | 1: Overload                               |  |
|      | 2: Overheat                               |  |
|      | 3: Hardware Fault                         |  |
|      | 4: Battery charger failure (overcharging) |  |
|      | 5: Replace batteries                      |  |
| byte | UPS Temperature in °C + 128               | { i.e T = n-128 °C }<br>{ 0: not available } |

- # 4 Battery data (read):  
 Request command:  
     byte = 4  
 Answer:  
     byte Command (replica of the request command)  
     word Actual value (V\*10)  
     word Reserve Threshold (V\*10)  
     word Exhaust Threshold (V\*10)
- # 5 History data (read):  
 Request command:  
     byte = 5  
 Answer:  
     byte Command (replica of the request command)  
     longint UPS Total Run Time (s)  
     longint Inverter Total Run Time (s)  
     word Inverter Interventions  
     word Battery Full Discharges  
     integer Stabiliser or Bypass Interventions { -2: not available }  
     integer Overheatings { -2: not available }
- # 6 Scheduling (read):  
 Request command:  
     byte = 6  
 Answer:  
     byte Command (replica of the request command)  
     longint Remaining time to shutdown (s) { -1: no shutdown }  
     longint Programmed time to restart (s) { -1: no restart }
- # 7 Event list (most recent first) (read):  
 Request command:  
     byte = 7  
 Answer:  
     byte Command (replica of the request command)  
     byte Event Absolute Counter (roll over at 256)  
     variable length; 1 byte for each event; the list can be empty  
         1: Odd Turn Off  
         2: Memory Error!  
         3: Battery Limit  
         4: Battery Charger  
         5: Overload  
         6: Long Overload  
         7: Neutral Wrong  
         8: Neutral Wrong while running  
         9: Modules Number  
         10: Programmed battery time expired  
         11: Programmed reserve time expired  
         12: Earth Fault  
         13: Load Waiting  
         14: HV Bus Runaway  
         15: Output DC Level  
         16: Bad Wiring  
         17: Hardware Fault: Unknown  
         18: Hardware Fault: Inverter  
         19: Hardware Fault: P.F.C.  
         20: Hardware Fault: Inverter P.F.C.  
         21: Hardware Fault: Booster  
         22: Hardware Fault: Inverter Booster  
         23: Hardware Fault: P.F.C. Booster  
         24: Hardware Fault: Inverter P.F.C. Booster  
         25: Hardware Fault:  
         26: Hardware Fault: Inverter Overheat  
         27: Hardware Fault: P.F.C. Overheat  
         28: Hardware Fault: Inverter P.F.C. Overheat

29: Hardware Fault: Booster Overheat  
 30: Hardware Fault: Inverter Booster Overheat  
 31: Hardware Fault: P.F.C. Booster Overheat  
 32: Hardware Fault: Inverter P.F.C. Booster Overheat  
 33: Hardware Fault: Battery charger  
 34: Hardware Fault: Overheat & Battery charger  
 35: Output Plug Removed

# 8 Times on battery (read):

Request command:

byte = 8

Answer:

byte Command (replica of the request command)

integer Max time on battery (s) { 0: not purposely limited }  
 { -2: not available }

integer Max time after battery reserve (s) { 0: not purposely limited }  
 { -2: not available }

byte not 0 -> Autorestart after battery depleted enabled

# 9 Neutral sense (read):

Request command:

byte = 9

Answer:

byte Command (replica of the request command)

byte not 0 -> Neutral sense enabled

byte not 0 -> Ignore while running

# 10 Scheduling (set):

Request command:

byte = 10

longint Remaining time to shutdown (s) { -1 = no shutdown }

longint Programmed time to restart (s) { -1 = no restart }

Answer:

byte Command (replica of the request command)

longint Remaining time to shutdown (s) { -1 = no shutdown }

longint Programmed time to restart (s) { -1 = no restart }

*N.B.: If a selected time is longer than the maximum allowed the UPS uses the maximum and reports this in the answer.*

# 11 Neutral sense (set):

Request command:

byte = 11

byte not 0 -> Neutral sense enabled

byte not 0 -> Ignore while running

Answer:

byte Command (replica of the request command)

byte not 0 -> Neutral sense enabled

byte not 0 -> Ignore while running

# 12 Times on battery (set):

Request command:

byte = 12  
word Max time on battery (s) { 0 = not purposely limited }  
word Max time after battery reserve (s) { 0 = not purposely limited }  
byte not 0 -> Autorestart after battery depleted enabled

Answer:

byte Command (replica of the request command)  
word Max time on battery (s) { 0 = not purposely limited }  
{ -2: not available }  
word Max time after battery reserve (s) { 0 = not purposely limited }  
{ -2: not available }  
byte not 0 -> Autorestart after battery depleted enabled

*N.B.: If a selected time is longer than the maximum allowed the UPS uses the maximum and reports this in the answer.*

# 13 Buzzer mute (set):

Request command:

byte = 13  
byte 0 -> not muted  
1 -> muted  
2 -> read current status

Answer:

byte Command (replica of the request command)  
byte 0 -> not muted  
1 -> muted

*N.B.: Buzzer can be disabled only up to the next alarm condition.*

# 14 Battery test (set):

Request command:

byte = 14  
byte 0 -> perform the battery test  
1 -> force the UPS to work on battery power  
2 -> restore the UPS standard mode (on mains power)

Answer (at the end of the battery test if it's required):

byte Command (replica of the request command)  
byte 0 -> Generic ok  
1 -> Battery charge: 20 %  
2 -> Battery charge: 40 %  
3 -> Battery charge: 60 %  
4 -> Battery charge: 80 %  
5 -> Battery charge: 100 %  
254 -> Batteries must be replaced  
255 -> Test impossible

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## **“ECO” specific commands**

### # 19 Stabiliser level (read):

Request command:

byte = 19

Answer:

byte Command (replica of the request command)

byte Stabiliser set level (1..3)

### # 20 Stabiliser level (set):

Request command:

byte = 20

byte Stabiliser set level (1..3)

Answer:

byte Command (replica of the request command)

byte Stabiliser set level (1..3)

*N.B.: If the level is outside the allowed range the UPS keeps the previous level.*

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## “HF” specific commands

### # 21 No load threshold (set):

Request command:

byte = 21  
word No load threshold (W)

Answer:

byte Command (replica of the request command)  
word No load threshold (W)

*N.B.: If the threshold is above or below the allowed range the UPS uses the maximum or minimum value respectively.*

*This will be reported in the answer.*

### # 22 No load threshold (read):

Request command:

byte = 22

Answer:

byte Command (replica of the request command)  
word No load threshold (W)

### # 23 Output voltage control (set):

Request command:

byte = 23  
byte Output set level (V)  
byte not 0 -> Output 60 Hz  
byte not 0 -> PLL inhibited  
byte not 0 -> Extended PLL lock range  
byte Dip detector speed:  
1 -> fast  
2 -> standard  
3 -> slow

Answer:

byte Command (replica of the request command)  
byte Output set level (%) (for internal use only)  
byte not 0 -> Output 60 Hz  
byte not 0 -> PLL inhibited  
byte not 0 -> Extended PLL lock range  
byte Dip detector speed:  
1 -> fast  
2 -> standard  
3 -> slow

*N.B.: If the level is above or below the allowed range, the UPS uses the maximum or minimum value respectively.*

*This will be reported in the answer.*

### # 24 Output voltage control (read):

Request command:

byte = 24

Answer:

byte Command (replica of the request command)  
byte Output set level (%) (for internal use only)  
byte not 0 -> Output 60 Hz  
byte not 0 -> PLL inhibited  
byte not 0 -> Extended PLL lock range  
byte Dip detector speed:  
1 -> fast  
2 -> standard  
3 -> slow



# 25 Bypass (set):

Request command:

byte = 25  
byte not 0 -> Bypass enabled  
byte not 0 -> Bypass is forced  
byte not 0 -> Off-line mode of operation  
byte not 0 -> Load Waiting Mode enabled

Answer:

byte Command (replica of the request command)  
byte not 0 -> Bypass enabled  
byte not 0 -> Bypass is forced  
byte not 0 -> Off-line mode of operation  
byte not 0 -> Load Waiting Mode enabled

*N.B.: Load Waiting Mode, Off-line mode and forced bypass can not be enabled if the bypass is disabled.*

# 26 Bypass (read):

Request command:

byte = 26

Answer:

byte Command (replica of the request command)  
byte not 0 -> Bypass enabled  
byte not 0 -> Bypass is forced  
byte not 0 -> Off-line mode of operation  
byte not 0 -> Load Waiting Mode enabled

# 27 Hardware status report (read):

Request command:

byte = 27

Answer:

byte Command (replica of the request command)  
shortint Number of faulty modules { -2 = not available }  
byte Hardware Fault:  
0: Unknown or none  
1: Inverter  
2: P.F.C.  
3: Inverter P.F.C.  
4: Booster  
5: Inverter Booster  
6: P.F.C. Booster  
7: Inverter P.F.C. Booster  
8: Overheat  
9: Inverter Overheat  
10: P.F.C. Overheat  
11: Inverter P.F.C. Overheat  
12: Booster Overheat  
13: Inverter Booster Overheat  
14: P.F.C. Booster Overheat  
15: Inverter P.F.C. Booster Overheat  
16: Battery charger  
17: Overheat & Battery charger

# 30 A/D average values (read):

Request command:

byte = 30

Answer:

byte Command (replica of the request command)  
byte Vin A/D  
byte lin A/D  
byte Vout A/D  
byte Iout A/D

# 31 Bus voltages (read):

Request command:

byte = 31

Answer:

byte Command (replica of the request command)

word Positive bus voltage

word Negative bus voltage (absolute value)

# 32 Battery thresholds (set):

Request command:

byte = 32

word Reserve Threshold (V\*10) { 0 = automatic }

word Exhaust Threshold (V\*10) { 0 = automatic }

byte not 0 -> Perform an automatic battery test after turn on with mains  
power present

Answer:

byte Command (replica of the request command)

word Reserve Threshold (V\*10) { 0 = automatic }

word Exhaust Threshold (V\*10) { 0 = automatic }

byte not 0 -> Perform an automatic battery test after turn on with mains  
power present

*N.B.: If a threshold is above or below the allowed range the UPS uses the maximum or minimum value respectively.*

*If Reserve Threshold < Exhaust Threshold then Reserve Threshold = Exhaust Threshold.*

*This will be reported in the answer.*

*Exception: selecting a level of 0 V for at least one of the thresholds means using for both the default levels that are load dependent (automatic mode).*

# 33 Battery thresholds mode (HF only) (read):

Request command:

byte = 33

Answer:

byte Command (replica of the request command)

byte not 0 -> Automatic battery thresholds

byte not 0 -> Perform an automatic battery test after turn on with mains  
power present

## **“ALLY HF” specific commands**

- # 21 No load threshold (set):  
**same as HF specific command ( # 21 )**
  - # 22 No load threshold (read):  
**same as HF specific command ( # 22 )**
  - # 23 Output voltage control (set):  
**same as HF specific command ( # 23 )**
  - # 24 Output voltage control (read):  
**same as HF specific command ( # 24 )**
  - # 25 Bypass (set):  
**same as HF specific command ( # 25 )**
  - # 26 Bypass (read):  
**same as HF specific command ( # 26 )**
  - # 27 Hardware status report (read):  
**same as HF specific command ( # 27 )**
  - # 30 A/D average values (read):  
**same as HF specific command ( # 30 )**
  - # 31 Bus voltages (read):  
**same as HF specific command ( # 31 )**
  - # 32 Battery thresholds (set):  
**same as HF specific command ( # 32 )**
  - # 33 Battery thresholds mode (read):  
**same as HF specific command ( # 33 )**
  - # 36 Line frequency autoselect (set):  
Request command:  
    byte       = 36  
    byte       0 -> Line frequency autoselect disabled  
              1 -> Line frequency autoselect enabled  
              2 -> Read line frequency autoselect  
  
Answer:  
    byte       Command (replica of the request command)  
    byte       0 -> Line frequency autoselect disabled  
              1 -> Line frequency autoselect enabled
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## **“MEGALINE” specific commands**

- # 21 No load threshold (set):  
**same as HF specific command ( # 21 )**
- # 22 No load threshold (read):  
**same as HF specific command ( # 22 )**
- # 23 Output voltage control (set):  
**same as HF specific command ( # 23 )**
- # 24 Output voltage control (read):  
**same as HF specific command ( # 24 )**
- # 25 Bypass (set):  
**same as HF specific command ( # 25 )**
- # 26 Bypass (read):  
**same as HF specific command ( # 26 )**
- # 27 Hardware status report (read):  
**same as HF specific command ( # 27 )**
- # 31 Bus voltages (read):  
**same as HF specific command ( # 31 )**
- # 32 Battery thresholds (set):  
**same as HF specific command ( # 32 )**
- # 33 Battery thresholds mode (read):  
**same as HF specific command ( # 33 )**
- # 36 Line frequency autoselect (set):  
**same as ally HF specific command ( # 36 )**
- # 37 Battery state of charge (read):  
Request command:  
    byte       = 37  
Answer:  
    byte       Command (replica of the request command)  
    byte       0 -> Data are valid  
              1 -> Data are not valid (battery discharge learning required)  
              255 -> Impossible (classic management is selected)  
    word       Remaining time to battery exhaust (s)  
    byte       Battery remaining charge (%)
- # 38 Battery discharge learning (set):  
Request command:  
    byte       = 38  
    byte       0 -> Start battery discharge learning  
              1 -> Read battery discharge learning status  
              2 -> Abort battery discharge learning  
Answer:  
    byte       Command (replica of the request command)  
    byte       Battery discharge learning status  
              0: Running  
              1: Not running  
              2: Ended  
              255: Impossible (UPS on battery power or classic management is selected)

# 39 Battery autonomy management (read / set):

Request command:

byte = 39  
byte 0 -> Set classic management  
1 -> Set S.O.C. management  
2 -> Read actual status

Answer:

byte Command (replica of the request command)  
byte Actual battery autonomy management  
0: Classic management  
1: S.O.C. management

# 40 Battery reserve time (set):

Request command:

byte = 40  
word Reserve time (m)

Answer:

byte Command (replica of the request command)  
word Actual reserve time (m)

# 41 Battery reserve time (read):

Request command:

byte = 41

Answer:

byte Command (replica of the request command)  
word Actual reserve time (m)

# 44 Output voltage control (set):

Request command:

byte = 44  
byte Output set level (V)  
byte not 0 -> Output 60 Hz  
byte not 0 -> PLL inhibited  
byte not 0 -> Extended PLL lock range  
byte Dip detector speed:  
1 -> fast  
2 -> standard  
3 -> slow

Answer:

byte Command (replica of the request command)  
byte Output set level (V)  
byte not 0 -> Output 60 Hz  
byte not 0 -> PLL inhibited  
byte not 0 -> Extended PLL lock range  
byte Dip detector speed:  
1 -> fast  
2 -> standard  
3 -> slow

*N.B.: If the level is above or below the allowed range, the UPS uses the maximum or minimum value respectively.*

*This will be reported in the answer.*

# 45 Output voltage control (read):

Request command:

byte = 45

Answer:

byte Command (replica of the request command)  
 byte Output set level (V)  
 byte not 0 -> Output 60 Hz  
 byte not 0 -> PLL inhibited  
 byte not 0 -> Extended PLL lock range  
 byte Dip detector speed:  
     1 -> fast  
     2 -> standard  
     3 -> slow

# 46 Single event read (read):

Request command:

byte = 46

byte = 0 -> Reset (answer will contain most recent event)

= 1 -> Autoincrement

Answer:

byte Command (replica of the request command)  
 byte Time Stamp - Year (BCD packed)  
 byte Time Stamp - Month (BCD packed)  
 byte Time Stamp - Day (BCD packed)  
 byte Time Stamp - Hour (BCD packed)  
 byte Time Stamp - Min (BCD packed)  
 byte Event Code – LSB  
     0 = Regular Turn Off  
     1 = Irregular turn Off  
     2 = Memory Error!  
     3 = Low Battery Turn Off  
     4 = Battery Runaway  
     5 = Overload Turn Off  
     6 = Long Overload  
     7 = Neutral Wrong Turn Off  
     8 = Neutral Wrong while running  
     9 = Modules Number Error  
     10 = Programmed battery time expired  
     11 = Programmed reserve time expired  
     12 = Earth Fault Turn Off  
     13 = Load Waiting Turn Off  
     14 = HV Bus Runaway  
     15 = Output DC Level  
     16 = Bad Wiring  
     17 = Hardware Fault: Unknown  
     18 = Hardware Fault: Inverter  
     19 = Hardware Fault: P.F.C.  
     20 = Hardware Fault: Inverter P.F.C.  
     21 = Hardware Fault: Booster  
     22 = Hardware Fault: Inverter Booster  
     23 = Hardware Fault: P.F.C. Booster  
     24 = Hardware Fault: Inverter P.F.C. Booster  
     25 = Hardware Fault: Overheat  
     26 = Hardware Fault: Inverter Overheat  
     27 = Hardware Fault: P.F.C. Overheat  
     28 = Hardware Fault: Inverter P.F.C. Overheat  
     29 = Hardware Fault: Booster Overheat  
     30 = Hardware Fault: Inverter Booster Overheat  
     31 = Hardware Fault: P.F.C. Booster Overheat  
     32 = Hardware Fault: Inverter P.F.C. Booster Overheat  
     33 = Hardware Fault: Battery charger  
     34 = Hardware Fault: Overheat & Battery charger  
     35 = Output Plug Removed  
     36 = Mains Power: voltage very high

37 = Watchdog reset  
 38 = Battery Startup failed  
 39 = Battery Calibration aborted by user  
 40 = Mains Power: SAG  
 41 = Mains Power: SWELL  
 42 = Mains Power: BROWNOUT  
 43 = Mains Power: SPIKE  
 44 = Mains Power: Harmonic distortion  
 45 = Neutral Voltage: SWELL  
 46 = Neutral Voltage: SPIKE  
 byte Event Code - extended byte 1  
 byte Event Code - extended byte 2  
 byte Event Memory Position

# 48 Date/Time (set):

Request command:

byte = 48  
 byte Year (BCD packed)  
 byte Month (BCD packed)  
 byte Day (BCD packed)  
 byte Hour (BCD packed)  
 byte Min (BCD packed)  
 byte Sec (BCD packed)  
 byte Day of Week { 0 = Sunday; 1 = Monday; ... }

Answer:

byte Command (replica of the request command)  
 byte Year (BCD packed)  
 byte Month (BCD packed)  
 byte Day (BCD packed)  
 byte Hour (BCD packed)  
 byte Min (BCD packed)  
 byte Sec (BCD packed)  
 byte Day of Week { 0 = Sunday; 1 = Monday; ... }

# 49 Date/Time (read):

Request command:

byte = 49

Answer:

byte Command (replica of the request command)  
 byte Year (BCD packed)  
 byte Month (BCD packed)  
 byte Day (BCD packed)  
 byte Hour (BCD packed)  
 byte Min (BCD packed)  
 byte Sec (BCD packed)  
 byte Day of Week { 0 = Sunday; 1 = Monday; ... }

# 52 Calendar scheduling (set):

Request command:

byte = 52  
 byte Step index (0..step\_memory\_dimension-1)  
 byte Month (BCD packed) { 0xAA = wildcard }  
 byte Day (BCD packed) { 0xAA = wildcard }  
 byte Day of Week { 0 = Sunday; 1 = Monday; ... ; 0xAA = wildcard }  
 byte Hour (BCD packed)  
 byte Min (BCD packed)  
 byte Action  
 0: No Action – Delete Step  
 1: Turn Off  
 2: Turn On  
 3: Battery Calibration  
 4: Battery Test

Answer:

byte Command (replica of the request command)

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byte    Step index (0..step_memory_dimension-1)
byte    Month (BCD packed)                      { 0xAA = wildcard }
byte    Day (BCD packed)                        { 0xAA = wildcard }
byte    Day of Week      { 0 = Sunday; 1 = Monday; ... ; 0xAA = wildcard }
byte    Hour (BCD packed)
byte    Min (BCD packed)
byte    Action
        0: No Action
        1: Turn Off
        2: Turn On
        3: Battery Calibration
        4: Battery Test
        255: Step index out of range

```

# 53 Calendar scheduling (read):

Request command:

```

byte    = 53
byte    Step index (0..step_memory_dimension-1)

```

Answer:

```

byte    Command (replica of the request command)
byte    Step index
byte    Month (BCD packed)                      { 0xAA = wildcard }
byte    Day (BCD packed)                        { 0xAA = wildcard }
byte    Day of Week      { 0 = Sunday; 1 = Monday; ... ; 0xAA = wildcard }
byte    Hour (BCD packed)
byte    Min (BCD packed)
byte    Action
        0: No Action
        1: Turn Off
        2: Turn On
        3: Battery Calibration
        4: Battery Test
        255: Step index out of range

```

# 54 Calendar scheduling enable (read / set):

Request command:

```

byte    = 54
byte    0 -> Disable
        1 -> Enable
        2 -> Read actual status

```

Answer:

```

byte    Command (replica of the request command)
byte    0 -> Disabled
        1 -> Enabled

```



## ***DHEA specific commands***

- # 21 No load threshold (set):  
***same as HF specific command ( # 21 )***
- # 22 No load threshold (read):  
***same as HF specific command ( # 22 )***
- # 23 Output voltage control (set):  
***same as HF specific command ( # 23 )***
- # 24 Output voltage control (read):  
***same as HF specific command ( # 24 )***
- # 25 Bypass (set):  
***same as HF specific command ( # 25 )***
- # 26 Bypass (read):  
***same as HF specific command ( # 26 )***
- # 27 Hardware status report (read):  
***same as HF specific command ( # 27 )***
- # 31 Bus voltages (read):  
***same as HF specific command ( # 31 )***
- # 32 Battery thresholds (set):  
***same as HF specific command ( # 32 )***
- # 33 Battery thresholds mode (read):  
***same as HF specific command ( # 33 )***
- # 36 Line frequency autoselect (set):  
***same as ally HF specific command ( # 36 )***
- # 37 Battery state of charge (read):  
***same as ally HF specific command ( # 37 )***
- # 38 Battery discharge learning (set):  
***same as ally HF specific command ( # 38 )***
- # 39 Battery autonomy management (read / set):  
***same as ally HF specific command ( # 39 )***
- # 40 Battery reserve time (set):  
***same as ALLY HF specific command ( # 40 )***
- # 41 Battery reserve time (read):  
***same as ALLY HF specific command ( # 41 )***
- # 44 Output voltage control (set):  
***same as MEGALINE specific command ( # 44 )***
- # 45 Output voltage control (read):  
***same as MEGALINE specific command ( # 45 )***
- # 46 Single event read (read):  
***same as MEGALINE specific command ( # 46 )***
- # 48 Date/Time (set):  
***same as MEGALINE specific command ( # 48 )***

- # 49 Date/Time (read):  
**same as MEGALINE specific command ( # 49 )**
- # 52 Calendar scheduling (set):  
**same as MEGALINE specific command ( # 52 )**
- # 53 Calendar scheduling (read):  
**same as MEGALINE specific command ( # 53 )**
- # 54 Calendar scheduling enable (read/set):  
**same as MEGALINE specific command ( # 54 )**
- # 55 Auxiliary output (set):  
Request command:  
byte = 55  
byte AUX OUT 1 max time on battery (m)  
byte AUX OUT 2 max time on battery (m)  
byte AUX OUT 1 OFF on battery reserve {1 => OFF on battery reserve}  
byte AUX OUT 2 OFF on battery reserve {1 => OFF on battery reserve}
- Answer:  
byte Command (replica of the request command)  
byte AUX OUT 1 max time on battery (m)  
byte AUX OUT 2 max time on battery (m)  
byte AUX OUT 1 OFF on battery reserve  
byte AUX OUT 2 OFF on battery reserve
- # 56 Auxiliary output (read):  
Request command:  
byte = 56
- Answer:  
byte Command (replica of the request command)  
byte AUX OUT 1 max time on battery (m)  
byte AUX OUT 2 max time on battery (m)  
byte AUX OUT 1 OFF on battery reserve  
byte AUX OUT 2 OFF on battery reserve
-