## MODBUS – Address table BR7003 – V4.0

## Grid parameters, stage information (read only)

| Address DEC | Address HEX | H/L | Register name | Description / Range of values / Examples |
|---|---|---|---|---|
| 3000 | 0B B8 | H | Software version | Divide by 40 to get software version. e.g: 40 = V4.0 |
| | | L | Device type | 73 = BR7003 |
| 3001 | 0B B9 | W | Power-Scaling-Factor (PSF) | Multiplier for values of address 3002 .. 3017<br>Valid values: 1, 10, 100, 1000 |
| 3002 | 0B BA | W | L1 | Signed 16bit integer.<br>Unit var<br><br>E.g.: 1000 * PSF = 10000var (If PSF = 10)<br>→ Negative values: over compensated |
| 3003 | 0B BB | W | L2 | |
| 3004 | 0B BC | W | L3 | |
| 3005 | 0B BD | W | SUM | |
| 3006 | 0B BE | W | L1 | Signed 16bit integer.<br>Unit W<br><br>E.g.: 1000 * PSF = 10000W (If PSF = 10)<br>→ Negative values: energy supply (4-quadrant-mode) |
| 3007 | 0B BF | W | L2 | |
| 3008 | 0B C0 | W | L3 | |
| 3009 | 0B C1 | W | SUM | |
| 3010 | 0B C2 | W | L1 | Unsigned 16bit integer.<br>Unit VA<br><br>E.g.: 1000 * PSF = 10000VA (If PSF = 10) |
| 3011 | 0B C3 | W | L2 | |
| 3012 | 0B C4 | W | L3 | |
| 3013 | 0B C5 | W | SUM | |
| 3014 | 0B C6 | W | L1 | Signed 16bit integer.<br>Unit var<br><br>E.g.: 1000 * PSF = 10000var (If PSF = 10)<br>→ Negative values: over compensated |
| 3015 | 0B C7 | W | L2 | |
| 3016 | 0B C8 | W | L3 | |
| 3017 | 0B C9 | W | SUM | |
| 3018 | 0B CA | W | L1 | Unsigned 16bit integer.<br>Unit V<br>E.g.: 230 = 230V |
| 3019 | 0B CB | W | L2 | |
| 3020 | 0B CC | W | L3 | |
| 3021 | 0B CD | W | L1 | Unsigned 16bit integer.<br>Unit A<br>E.g.: 1000 = 1000A |
| 3022 | 0B CE | W | L2 | |
| 3023 | 0B CF | W | L3 | |
| 3024 | 0B D0 | W | L1 | Signed 16bit integer - Unit 1. Examples:<br>Value Hex / Value Decimal / Value of power factor / cos-phi<br>0h0320 / 800 / 0.800 ind<br>0h03E8 / 1000 / 1.000<br>0hFCE0 / -800 / 0.800 cap<br>Valid range -999 .. 0 .. 1000 |
| 3025 | 0B D1 | W | L2 | |
| 3026 | 0B D2 | W | L3 | |
| 3027 | 0B D3 | W | SUM | |
| 3028 | 0B D4 | L | L1 | Byte<br>Unit Hz<br>E.g.: 50 = 50Hz |
| 3029 | 0B D5 | L | L2 | |
| 3030 | 0B D6 | L | L3 | |

| | | | | |
|---|---|---|---|---|
| 3031 | 0B D7 | W | | Temperature in °C |
| 3032 | 0B D8 | W | L1 | Output relays |
| 3033 | 0B D9 | W | L2 | |
| 3034 | 0B DA | W | L3 | |
| 3035 | 0B DB | W | SUM | |
| 3036 | 0B DC | L | | Control direction |
| 3037 | 0B DD | H | L2 | Error |
| | | L | L1 | |
| 3038 | 0B DE | H | 1Ph | |
| | | L | L3 | |
| 3039 | 0B DF | H | L2 | Warning |
| | | L | L1 | |
| 3040 | 0B E0 | H | 1Ph | |
| | | L | L3 | |
| 3041 | 0B E1 | L | | Messages register |

Signed 16bit integer - Unit °C. Examples:

| *Hex value* | *Temp.* | *Hex value* | *Temp.* |
|---|---|---|---|
| 0h0010 | 10°C | 0hFFFF | -1°C |
| 0h0001 | 1°C | 0hFFF6 | -10°C |

High-Byte

| *Bit* | *15* | *14* | *13* | *12* | *11* | *10* | *9* | *8* |
|---|---|---|---|---|---|---|---|---|
| *Stage* | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 |

Low-Byte

| *Bit* | *7* | *6* | *5* | *4* | *3* | *2* | *1* | *0* |
|---|---|---|---|---|---|---|---|---|
| *Stage* | 7 | 6 | 5 | 4 | 3 | 2 | 1 | AR |

0 = Stage off / 1 = Stage on (connected)

| *Bit* | *7* | *6* | *5* | *4* | *3* | *2* | *1* | *0* |
|---|---|---|---|---|---|---|---|---|
| *Phase* | SUM | | L3 | | L2 | | L1 | |

| *Dec.* | | | *Description* |
|---|---|---|---|
| 0 | 0 | 0 | - |
| 1 | 0 | 1 | Switch-off |
| 2 | 1 | 0 | Stop |
| 3 | 1 | 1 | Switch-on |

| *Decimal value* | *Bit number* | *Description* |
|---|---|---|
| 1 | Bit0 | No measuring voltage |
| 2 | Bit1 | Over voltage |
| 4 | Bit2 | Over compensated |
| 8 | Bit3 | Under compensated |
| 16 | Bit4 | Exceed THD-V limit |
| 32 | Bit5 | Over temperature |
| 64 | Bit6 | Over current |
| 128 | Bit7 | Under voltage |

1Ph = 1phase measuring / controlling

| *Decimal value* | *Bit number* | *Description* |
|---|---|---|
| 1 | Bit0 | Exceed switching cycle limit |
| 2 | Bit1 | Under current |
| 4 | Bit2 | Error COM 1 |
| 8 | Bit3 | Error COM 2 |
| 16 | Bit4 | MODBUS-ERROR |
| 32 | Bit5 | Remote – switch-off |
| 64 | Bit6 | Remote – stop |
| 128 | Bit7 | Remote – switch-on |

1ph = 1phase measuring / controlling

| *dec* | *Bit* | *Description* |
|---|---|---|
| 1 | 0 | System current < ? (no system current) |
| 2 | 1 | Bus error |
| 4 | 2 | Defect capacitor detected |
| 8 | 3 | System current >0 (System current is not 0 but cap.-system is off. e.g. relay is defect) |
| 16 | 4 | System overload |
| 32 | 5 | External error ( from ext. input ) |
| 64 | 6 | - |
| 128 | 7 | - |

| | | | | |
|---|---|---|---|---|
| 3042 | 0B E2 | W | Device state | *Bit* / *Description*<br>0,1 Setting 2nd cos phi: 0= Off, 1= Timer, 2= export energy<br>2 Timer ON ( timer is between ON and OFF time )<br>3 Export energy flag L1<br>4 Export energy flag L2<br>5 Export energy flag L3<br>6 Export energy flag SUM<br>7 2nd parameter set active<br>8 External input active<br>9 Input status of external MMI ( remote meas. mode)<br>10 Alarm-Relays<br>11 Message-Relays<br>12 Fan-Relays |
| 3043 | 0B E3 | **H** | Internal Clock - Minute | Byte, valid range: 1 .. 59 – Unit min |
| | | **L** | Internal Clock - Second | Byte, valid range: 1 .. 59 – Unit sec |
| 3044 | 0B E4 | **H** | Intern. Calendar - Day | Byte, valid range: 1 .. 31 – Unit d |
| | | **L** | Internal Clock - Hour | Byte, valid range: 0 .. 24 – Unit hr |
| 3045 | 0B E5 | **H** | Intern. Calendar - Year | Byte, valid range: 00 .. 99 – Unit yr<br>Add 2000 to get real Year. e.g.: 10 = 2010 |
| | | **L** | Intern. Calendar - Month | Byte, valid values: 1 .. 12 – Unit month |
| 3046 | 0B E6 | W | Last pressed key -1- | *Value* / *Key*<br>1234 AUTO<br>2345 ENTER<br>3456 HELP<br>4567 ESC |
| 3047 | 0B E7 | **L** | Last pressed key -2- | *Value* / *Key*<br>Reg.Value +1 PLUS<br>Reg.Value -1 MINUS |
| 3048 | 0B E8 | **L** | Test state | *Bit* / *Taste*<br>6 After manual-calibration<br>7 After calibration at test stand<br>Register value 0 = main-reset executed |
| 3073..<br>3087 | 0C 01<br>0C 0F | W | L1 | Voltage<br>3rd .. 31st Harmonics<br>Unsigned 16bit integer<br>Unit 0.1 %<br>E.g.: 100 * 0.1 = 10.0% |
| 3088..<br>3102 | 0C 10<br>0C 1E | W | L2 | |
| 3103..<br>3117 | 0C 1F<br>0C 2D | W | L3 | |
| 3118..<br>3132 | 0C 2E<br>0C 3C | W | L1 | Current<br>3rd .. 31st Harmonics<br>Unsigned 16bit integer<br>Unit 0.1 %<br>E.g.: 100 * 0.1 = 10.0% |
| 3133..<br>3147 | 0C 3D<br>0C 4B | W | L2 | |
| 3148..<br>3162 | 0C 4C<br>0C 5A | W | L3 | |
| 3163 | 0C 5B | W | L1 | THD-V<br>Unsigned 16bit integer<br>Unit 0.1 %<br>E.g.: 100 * 0.1 = 10.0% |
| 3164 | 0C 5C | W | L2 | |
| 3165 | 0C 5D | W | L3 | |
| 3166 | 0C 5E | W | L1 | THD-I<br>Unsigned 16bit integer<br>Unit 0.1 %<br>E.g.: 100 * 0.1 = 10.0% |
| 3167 | 0C 5F | W | L2 | |
| 3168 | 0C 60 | W | L3 | |

| | | | | | |
|---|---|---|---|---|---|
| 3214 | 0C 8E | L | | Start-up picture | *Value* / *Name*: 0 EPC; 1 EBE; 2 MDL; 3 ESK; 4 JAN; 5 MR |
| 3215.. | 0C 93 | | | | |
| 3226 | 0C 9A | WW | L1 | Timestamp Maximum Voltage | |
| 3228 | 0C 9C | WW | L2 | | |
| 3230 | 0C 9E | WW | L3 | | |
| 3232 | 0C A0 | WW | L1 | Timestamp Maximum Current | *Bit* / *Description*: 0 .. 16 Time in seconds per day (0 .. 86399); 17 .. 21 Day (1 .. 31); 22 .. 25 Month (1 .. 12); 26 .. 31 Year + 2000 (E.g: 10 → 2010) |
| 3234 | 0C A2 | WW | L2 | | |
| 3236 | 0C A4 | WW | L3 | | |
| 3238 | 0C A6 | WW | L1 | Timestamp Maximum Reactive power | |
| 3240 | 0C A8 | WW | L2 | | |
| 3242 | 0C AA | WW | L3 | | |
| 3244 | 0C AC | WW | L1 | Timestamp Maximum Active power | |
| 3246 | 0C AE | WW | L2 | | |
| 3248 | 0C B0 | WW | L3 | | |
| 3250 | 0C B2 | WW | L1 | Timestamp Maximum Apparent power | |
| 3252 | 0C B4 | WW | L2 | | |
| 3254 | 0C B6 | WW | L3 | | |
| 3256 | 0C B8 | WW | L1 | Timestamp Maximum Frequency | *Bit* / *Description*: 0 .. 16 Time in seconds per day (0 .. 86399); 17 .. 21 Day (1 .. 31); 22 .. 25 Month (1 .. 12); 26 .. 31 Year + 2000 (E.g.: 10 → 2010) |
| 3258 | 0C BA | WW | L2 | | |
| 3260 | 0C BC | WW | L3 | | |
| 3262 | 0C BE | WW | | Timestamp max. Temperature | |
| 3264 | 0C C0 | WW | L1 | Timestamp Maximum Voltage THD | |
| 3266 | 0C C2 | WW | L2 | | |
| 3268 | 0C C4 | WW | L3 | | |
| 3270 | 0C C6 | WW | L1 | Timestamp Maximum Current THD | |
| 3272 | 0C C8 | WW | L2 | | |
| 3274 | 0C CA | WW | L3 | | |
| 3276 | 0C CC | W | L1 | Minimum Voltage | Unsigned 16bit integer. Unit V E.g.: 230 = 230V |
| 3277 | 0C CD | W | L2 | | |
| 3278 | 0C CE | W | L3 | | |
| 3279 | 0C CF | W | L1 | Maximum Voltage | Unsigned 16bit integer. Unit V E.g.: 230 = 230V |
| 3280 | 0C D0 | W | L2 | | |
| 3281 | 0C D1 | W | L3 | | |
| 3282 | 0C D2 | W | L1 | Maximum Current | Unsigned 16bit integer. Unit A E.g.: 100 = 100V |
| 3283 | 0C D3 | W | L2 | | |

| | | | | | |
|---|---|---|---|---|---|
| 3284 | 0C D4 | W | L3 | | |
| 3285 | 0C D5 | W | | Max. Power Scaling Factor (MPSF) | Multiplier for values of address 3286 .. 3297<br>Valid values: 1, 10, 100, 1000 |
| 3286 | 0C D6 | W | L1 | Maximum Reactive power | Unsigned 16bit integer.<br>Unit var<br><br>E.g.: 1000 * MPSF = 10000var (If MPSF = 10) |
| 3287 | 0C D7 | W | L2 | | |
| 3288 | 0C D8 | W | L3 | | |
| 3289 | 0C D9 | W | SUM | | |
| 3290 | 0C DA | W | L1 | Maximum Active power | Unsigned 16bit integer.<br>Unit W<br><br>E.g.: 1000 * MPSF = 10000W (If MPSF = 10) |
| 3291 | 0C DB | W | L2 | | |
| 3292 | 0C DC | W | L3 | | |
| 3293 | 0C DD | W | SUM | | |
| 3294 | 0C DE | W | L1 | Maximum Apparent power | Unsigned 16bit integer.<br>Unit VA<br>E.g.: 1000 * MPSF = 10000VA (If MPSF = 10) |
| 3295 | 0C DF | W | L2 | | |
| 3296 | 0C E0 | W | L3 | | |
| 3297 | 0C E1 | W | SUM | | |
| 3298 | 0C E2 | W | | Maximum Temperature | Signed 16bit integer - Unit °C. Examples:<br>*Hex value* / *Temp.* / *Hex value* / *Temp.*<br>0h000A / 10°C / 0hFFFF / -1°C<br>0h0001 / 1°C / 0hFFF6 / -10°C |
| 3299 | 0C E3 | W | L1 | Maximum Voltage THD | Unsigned 16bit integer<br>Unit 0.1 %<br>E.g.: 100 * 0.1 = 10.0% |
| 3300 | 0C E4 | W | L2 | | |
| 3301 | 0C E5 | W | L3 | | |
| 3302 | 0C E6 | W | L1 | Maximum Current THD | Unsigned 16bit integer<br>Unit 0.1 %<br>E.g.: 100 * 0.1 = 10.0% |
| 3303 | 0C E7 | W | L2 | | |
| 3304 | 0C E8 | W | L3 | | |
| 3305 | 0C E9 | WW | IND | Reactive Energy | Unsigned 32bit long - Unit kvarh<br>E.g.: 100 = 100kvarh |
| 3307 | 0C EB | WW | CAP | | |
| 3309 | 0C ED | WW | + | Energy | Unsigned 32bit long - Unit kWh<br>E.g.: 100 = 100kWh |
| 3311 | 0C EF | WW | - | | |
| 3312.. 3328 | 0C F0<br>0D 00 | | | | |
| 3329 | 0D 01 | W | Status of stage 1 .. 8 | | *Bit* 7 6 5 4 3 2 1 0<br>*Phase* 4th stage / 3rd stage / 2nd stage / 1st stage<br><br>*Dec.* / *Description*<br>0 = 0 0 Disconnected (fix)<br>1 = 0 1 AUTO<br>2 = 1 0 Connected (fix)<br>3 = 1 1 Error<br><br>*Bit* 15 14 13 12 11 10 9 8<br>*Phase* 8thstage / 7th stage / 6th stage / 5th stage |

<table>
<tr><td>3330</td><td>0D 02</td><td>W</td><td>Status of stage 9 .. 15</td><td>see Address 3329 for more information.<br><table><tr><td>Bit</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td><td>0</td></tr><tr><td>Phase</td><td colspan="2">12th stage</td><td colspan="2">11th stage</td><td colspan="2">10th stage</td><td colspan="2">9th stage</td></tr></table><br><table><tr><td>Bit</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td></tr><tr><td>Phase</td><td colspan="2">-</td><td colspan="2">15th stage</td><td colspan="2">14th stage</td><td colspan="2">13th stage</td></tr></table></td></tr>
<tr><td>3389..<br>3403</td><td>0D 3D<br>0D 4B</td><td>W</td><td>Stage quantification L1<br>Stage 1 .. max.15</td><td rowspan="4">Unsigned 16bit integer.<br>E.g.: 4 → 4 times power 1st stage</td></tr>
<tr><td>3404..<br>3418</td><td>0D 4D<br>0D 5A</td><td>W</td><td>Stage quantification L2<br>Stage 1 .. max.15</td></tr>
<tr><td>3419..<br>3433</td><td>0D 5B<br>0D 69</td><td>W</td><td>Stage quantification L3<br>Stage 1 .. max.15</td></tr>
<tr><td>3434..<br>3448</td><td>0D 67<br>0D 78</td><td>W</td><td>Stage quantification SUM<br>Stage 1 .. max.15</td></tr>
<tr><td>3449..<br>3463</td><td>0D 79<br>0D 87</td><td>W</td><td>Switching cycles L1, LOW<br>Stage 1 ..15</td><td rowspan="9">LOW + HIGH * $2^{16}$ = total switching cycle per stage<br>Unsigned 32bit long.<br>Unit 1<br>E.g.: Low = 34464, High= 1 → 100k * switching cycles<br><br>LOW + HIGH * $2^{16}$ = total switching cycle per stage<br>Unsigned 32bit long.<br>Unit 1<br>E.g.: Low = 34464, High= 1 → 100k * switching cycles</td></tr>
<tr><td>3464..<br>3478</td><td>0D 88<br>0D 96</td><td>W</td><td>Switching cycles L2, LOW<br>Stage 1 ..15</td></tr>
<tr><td>3479..<br>3493</td><td>0D 97<br>0D A5</td><td>W</td><td>Switching cycles L3, LOW<br>Stage 1 ..15</td></tr>
<tr><td>3494..<br>3508</td><td>0D A6<br>0D B4</td><td>W</td><td>Switching cyc. SUM, LOW<br>Stage 1 ..15</td></tr>
<tr><td>3509..<br>3523</td><td>0D B5<br>0D C3</td><td>W</td><td>Switching cycles L1, HIGH<br>Stage 1 ..15</td></tr>
<tr><td>3524..<br>3538</td><td>0D C4<br>0D D2</td><td>W</td><td>Switching cycles L2, HIGH<br>Stage 1 ..15</td></tr>
<tr><td>3539..<br>3553</td><td>0D D3<br>0D E1</td><td>W</td><td>Switching cycles L3, HIGH<br>Stage 1 ..15</td></tr>
<tr><td>3554..<br>3568</td><td>0D E2<br>0D F0</td><td>W</td><td>Switching cyc. SUM, HIGH<br>Stage 1 ..15</td></tr>
<tr><td>3585..<br>3599</td><td>0E 01<br>0E 0F</td><td>W</td><td>Operation time – L1, HIGH<br>Stage 1 .. 15</td><td rowspan="8">LOW + HIGH * $2^{16}$ = total operation time per stage<br>Unsigned 32bit long.<br>Unit min<br>E.g.: Low = 34464, High= 1 → 100k * min</td></tr>
<tr><td>3600..<br>3614</td><td>0E 01<br>0E 1E</td><td>W</td><td>Operation time – L2, HIGH<br>Stage 1 .. 15</td></tr>
<tr><td>3615..<br>3629</td><td>0E 1F<br>0E 2D</td><td>W</td><td>Operation time – L3, HIGH<br>Stage 1 .. 15</td></tr>
<tr><td>3630..<br>3644</td><td>0E 2E<br>0E 3C</td><td>W</td><td>Operation time SUM,HIGH<br>Stage 1 .. 15</td></tr>
<tr><td>3645..<br>3659</td><td>0E 3D<br>0E 4B</td><td>W</td><td>Operation time – L1, LOW<br>Stage 1 .. 15</td></tr>
<tr><td>3660..<br>3674</td><td>0E 4C<br>0E 5A</td><td>W</td><td>Operation time – L2, LOW<br>Stage 1 .. 15</td></tr>
<tr><td>3675..<br>3689</td><td>0E 5B<br>0E 69</td><td>W</td><td>Operation time – L3, LOW<br>Stage 1 .. 15</td></tr>
<tr><td>3690..<br>3704</td><td>0E 6A<br>0E 78</td><td>W</td><td>Operation time SUM, LOW<br>Stage 1 .. 15</td></tr>
<tr><td>3705,<br>3706</td><td>0E 79<br>0E 7A</td><td>WW</td><td>Controller operation time</td><td>Unsigned 32bit long.<br>Unit min E.g.: Low = 34464, High= 1 → 100k * min</td></tr>
<tr><td>3707..<br>3823</td><td>0E 7B<br>0E EF</td><td></td><td></td><td></td></tr>
<tr><td>3824,<br>3825</td><td>0E F0<br>0E F1</td><td>WW</td><td>Slave: Target output power (Master-Slave)</td><td>Unsigned 32bit long.<br>Unit kvar</td></tr>
<tr><td>3826</td><td>0E F2</td><td>L</td><td>Slave: Slave outputs (Master-Slave)</td><td>See Address 3032 .. 3035<br>0 = Stage off / 1 = Stage on (connected)</td></tr>
</table>

| | | | | |
|---|---|---|---|---|
| 3827,<br>3828 | 0E F3<br>0E F4 | WW | Slave: Differential reactive power (Master-Slave) | Unsigned 32bit long.<br>Unit kvar |
| 3829 | 0E F5 | L | Status of coupling switch | Coupling switch: 0 = open / 1= closed |
| | | | | |

## Energy values
## Function code 3 (Register 6000)

| Address DEC | Address HEX | H/L | Register name | | Info / Range of values |
|---|---|---|---|---|---|
| 6021 | 17 85 | WW | + | Energy | Unsigned 32bit long. Unit kvarh<br>Exp.: 100 = 100kvarh<br>Unsigned 32bit long. Unit kWh<br>Exp.: 100 = 100kWh |
| 6023 | 17 87 | WW | - | | |
| 6025 | 17 89 | WW | IND | | |
| 6027 | 17 8B | WW | CAP | | |
| 6029 | 17 8D | WW | + | Rest Energy | Unsigned 32bit long. Unit vars<br>Exp.: 100 = 100vars<br>Unsigned 32bit long. Unit Ws<br>Exp.: 100 = 100Ws |
| 6031 | 17 8F | WW | - | | |
| 6033 | 17 91 | WW | IND | | |
| 6035 | 17 93 | WW | CAP | | |

## Floating point values
## Function code 3 (Register 8000)

| Address DEC | Address HEX | H/L | Register name | | Info / Range of values |
|---|---|---|---|---|---|
| 8000 | 1F 40 | WW | L1 | Reactive power (floating point) | 32bit single<br>Unit var |
| 8002 | 1F 42 | WW | L2 | | |
| 8004 | 1F 44 | WW | L3 | | |
| 8006 | 1F 46 | WW | L1 | Active power (floating point) | 32bit single<br>Unit W |
| 8008 | 1F 48 | WW | L2 | | |
| 8010 | 1F 4A | WW | L3 | | |
| 8012 | 1F 4C | WW | L1 | Apparent power (floating point) | 32bit single<br>Unit VA |
| 8014 | 1F 4E | WW | L2 | | |
| 8016 | 1F 50 | WW | L3 | | |
| 8018 | 1F 52 | WW | L1 | Voltage (floating point) | 32bit single<br>Unit V |
| 8020 | 1F 54 | WW | L2 | | |
| 8022 | 1F 56 | WW | L3 | | |
| 8024 | 1F 58 | WW | L1 | Current (floating point) | 32bit single<br>Unit A |
| 8026 | 1F 5A | WW | L2 | | |
| 8028 | 1F 5C | WW | L3 | | |
| 8030 | 1F 5E | WW | L1 | Powerfactor Cos-phi (floating point) | 32bit single<br>Unit 1<br>Range: 0... 1, positive values→ ind, negative values→ cap |
| 8032 | 1F 60 | WW | L2 | | |
| 8034 | 1F 62 | WW | L3 | | |
| 8036 | 1F 64 | WW | SUM | Cos phi (float) | 32bit single, Unit 1, Range: 0...1, pos. → ind, neg. → cap |
| 8038 | 1F 66 | WW | SUM | Reactive pwr (float) | 32bit single, Unit var |
| 8040 | 1F 68 | WW | SUM | Active pwr (float) | 32bit single, Unit W |
| 8042 | 1F 6A | WW | SUM | Apparent pwr (float) | 32bit single, Unit VA |

## Controller settings (read / write)

| Address Code R= 3 | Address Code W= 6 | H/L | Register name | Description / Range of values / Examples |
|---|---|---|---|---|
| 101 | 101 | L | Language | 0 = German<br>1 = English<br>2 = Spanish<br>3 = Turkish<br>4 = Russian |
| 102 | 102 | L | Measuring- / Controlling mode | See table below |
| 103 | 103 | L | L1 | See table below |
| 104 | 104 | L | L2 | |
| 105 | 105 | L | L3 | |
| | | | Primary current converter | |
| 106 | 106 | L | Secondary current converter | 0 = 1A<br>1 = 5A |
| 107 | 107 | L | L1 | Byte.<br>Valid range: 1 .. max. endstop - see table at register 102 |
| 107 | 108 | L | L2 | |
| 109 | 109 | L | L3 | |
| 110 | 110 | L | SUM | |
| | | | Endstop | |
| 111 | 111 | L | L1 | See table below |
| 112 | 112 | L | L2 | |
| 113 | 113 | L | L3 | |
| 114 | 114 | L | SUM | |
| | | | Control series | |

| Mode Nr. | Mode Byte | Measuring / IN L1 | Measuring / IN L2 | Measuring / IN L3 | Controlling / Endstop Sum | Controlling / Endstop L1 | Controlling / Endstop L2 | Controlling / Endstop L3 | ext. MMI |
|---|---|---|---|---|---|---|---|---|---|
| 1 | **0** | x | x | x | - | 5 | 5 | 5 | - |
| 2 | **1** | x | x | x | remain | 4 | 4 | 4 | - |
| 3 | **2** | x | x | x | - | 5 | 5 | 5 | - |
| 4 | **3** | x | x | x | 15 | - | - | - | - |
| 5 | **4** | SUM | - | - | 15 | - | - | - | - |
| 6 | **5** | SUM | I1 | I2 | 15 | - | - | - | - |
| 7 | **6** | x | x | x | 15 | - | - | - | 1…6 |
| 8 | **7** | SUM | - | - | 15 | - | - | - | 1…6 |
| 9 | **8** | x | x | x | - | 5 | 5 | 5 | 1 |
| 10 | **9** | x | x | x | 15 | - | - | - | 1 |
| 11 | **10** | I1 | I2 | I3 | 15 | - | - | - | 1 |
| 12 | **11** | L1 | L2 | L3 | 15 | - | - | - | 1 |

| Valid values | Start | End | Step width |
|---|---|---|---|
| 1 .. 50 | 5A | 250A | 5A |
| 51 .. 175 | 260A | 1.5kA | 10A |
| 176 .. 185 | 1.55kA | 2kA | 50A |
| 186 .. 245 | 2.1kA | 8kA | 100A |
| 246 .. 255 | 8.5kA | 13kA | 500A |

| Valid values | Series | Valid values | Series |
|---|---|---|---|
| 1 | 1:1:1:1:1 ... | 11 | 1:1:2:4:4... |
| 2 | 1:2:2:2:2 ... | 12 | 1:1:2:4:8... |
| 3 | 1:2:3:3:3 ... | 13 | 1:1:1:2:2... |
| 4 | 1:2:3:4:4 ... | 14 | 1:1:1:2:3... |
| 5 | 1:2:4:4:4... | 15 | 1:1:1:2:4... |
| 6 | 1:2:3:6:1... | 16 | 1:1:1:2:5... |
| 7 | 1:2:4:8:8... | 17 | 1:1:1:1:2... |
| 8 | 1:1:2:2:2... | 18 | 1:1:1:1:3... |
| 9 | 1:1:2:3:3... | 19 | 1:1:1:1:4... |
| 10 | 1:1:2:3:6... | 20 | 1:1:1:1:5... |
| | | 21 | Series editor |

| | | | | | |
|---|---|---|---|---|---|
| 115 | 115 | L | Control mode | | *Valid values* / *Control mode*: 0 Sequent / LIFO; 1 Loop / FIFO; 2 Intelligent; 3 Combi-detuning |
| 116 | 116 | L | L1 | Power 1st step (int.) | Integer value: Valid range: 0 .. 255kvar / 0 .. 2550kvar Unit kvar<br>Decimal value: Valid range: 0 .. 99 / 128 If 128 → multiply integer value with 10<br>Examples: int. = 12, dec. = 50 → 1st step = 12.50 kvar int.= 50, dec. = 128 → 1st step = 500 kvar |
| 117 | 117 | L | | Power 1st step(dec) | |
| 118 | 118 | L | L2 | Power 1st step (int.) | |
| 119 | 119 | L | | Power 1st step(dec) | |
| 120 | 120 | L | L3 | Power 1st step (int.) | |
| 121 | 121 | L | | Power 1st step(dec) | |
| 122 | 122 | L | SUM | Power 1st step (int.) | |
| 123 | 123 | L | | Power 1st step(dec) | |
| 124 | 124 | L | Target cos phi | | Byte Valid range: 30 .. 170 Examples: *Value* / *Cos phi*: 80 0.80cap; 100 1.00; 120 0.80ind |
| 125 | 125 | L | Enable 2nd target cos phi | | *Valid values* / *Description*: 0 No; 1 Timer; 2 Energy supply; 3 Low loads |
| 126 | 126 | L | 2nd target cos phi | | See register 124 |
| 127 | 127 | L | Start timer - Hours | | Unit hour, valid range: 0 .. 23 |
| 128 | 128 | L | Start timer - Minutes | | Unit minutes, valid range: 0 .. 59 |
| 129 | 129 | L | Start timer - Weekday | | Valid values: 7 .. 17: 7= Sunday, 8= Monday, 9= Tuesday .. 14= Mo-Fr, 15= Mo-Sa, 16= Mo-Su, 17= Sa/Su |
| 130 | 130 | L | End timer - Hours | | Unit hour, valid range: 0 .. 23 |
| 131 | 131 | L | End timer - Minutes | | Unit minutes, valid range: 0 .. 59 |
| 132 | 132 | L | End timer - Weekday | | Valid range: 7 .. 17: 7= Sunday, 8= Monday, 9= Tuesday .. 14= Mo-Fr, 15= Mo-Sa, 16= Mo-Su, 17= Sa/Su |
| 133 | 133 | L | Measuring voltage L-L | | Byte, valid range: 10 .. 152 - Unit 5V Range: 50V .. 760V E.g.: Byte * 5V = Measuring voltage → 100 * 5V = 500V |
| 134 | 134 | L | Voltage converter | | *Valid values* / *Start* / *End* / *Step width*: 0 not used; 1 .. 59 / 410 / 1kV / 10V; 60 .. 189 / 1.1kV / 14kV / 100V; 190 .. 255 / 15kV / 79kV / 1000V |
| 135 | 135 | L | Frequency | | *Valid values* / *Description*: 0 40…90 Hz; 1 50 Hz; 2 60 Hz; 3 16.7 Hz; 4 10…60 Hz |

| | | | | |
|---|---|---|---|---|
| 136 | 136 | L | Switch-on time | *Valid values* / *Start* / *End* / *Step width*<br>1 .. 120 / 1 sec / 120 sec / 1 sec<br>121 .. 255 / 3 min / 137 min / 1 min |
| 137 | 137 | L | Switch-off time | |
| 138 | 138 | L | Discharge time | |
| 139 | 139 | L | Alarm temperature | Byte, valid range: 20 .. 80 – Unit °C, E.g.: 50 = 50°C |
| 140 | 140 | L | Fan start-up temperature | Byte, valid range: 15 .. 70 – Unit °C, E.g.: 50 = 50°C |
| 141 | 141 | L | Function message relays | 0 = OFF<br>1 = Energy supply<br>2 = Undercurrent<br>3 = Harmonics<br>4 = Error cap. Current<br>5 = Error COM 1<br>6 = Error COM 2<br>7 = Error COM 1/ 2<br>8 = C-defect |
| 142 | 142 | L | External input (2nd para-set) | 0 = No<br>1 = 2nd parameter set<br>2 = External error<br>3 = Remote Connect<br>4 = Remote Disconnect<br>5 = Remote Stop<br>6 = Parallel coupling<br>7 = Master-slave coupling |
| 143 | 143 | L | L1 | See register 103 …137 |
| 144 | 144 | L | L2 | Primary current converter |
| 145 | 145 | L | L3 | |
| 146 | 146 | L | | Secondary current converter |
| 147 | 147 | L | L1 | |
| 148 | 148 | L | L2 | Endstop |
| 149 | 149 | L | L3 | |
| 150 | 150 | L | SUM | |
| 151 | 151 | L | L1 | |
| 152 | 152 | L | L2 | Control series |
| 153 | 153 | L | L3 | |
| 154 | 154 | L | SUM | |
| 155 | 155 | L | | Control mode |
| 156 | 156 | L | L1 | Power 1st step (int.) |
| 157 | 157 | L | L1 | Power 1st step(dec) |
| 158 | 158 | L | L2 | Power 1st step (int.) |
| 159 | 159 | L | L2 | Power 1st step(dec) |
| 160 | 160 | L | L3 | Power 1st step (int.) |
| 161 | 161 | L | L3 | Power 1st step(dec) |
| 162 | 162 | L | SUM | Power 1st step (int.) |
| 163 | 163 | L | SUM | Power 1st step(dec) |
| 164 | 164 | L | Target cos phi | |
| 165 | 165 | L | Enable 2nd target cos phi | |
| 166 | 166 | L | 2nd target cos phi | |
| 167 | 167 | L | Start timer - Hours | |
| 168 | 168 | L | Start timer - Minutes | |
| 169 | 169 | L | Start timer - Weekday | |
| 170 | 170 | L | End timer - Hours | |
| 171 | 171 | L | End timer - Minutes | |
| 172 | 172 | L | End timer - Weekday | |
| 173 | 173 | L | Switch-on time | |

| | | | | | |
|---|---|---|---|---|---|
| 174 | 174 | L | Switch-off time | | |
| 175 | 175 | L | Discharge time | | |
| 176 | 176 | L | Threshold THD-V | | Byte, valid range: 0 .. 255 - Unit 0.1%<br>0 = OFF<br>Range: 0.1% .. 25.5%<br>E.g.: Byte * 0.1% = Threshold THD-V → 100 * 0.1% = 10.0% |
| 177 | 177 | L | Threshold THD-I | | Byte, valid range: 0 .. 255 - Unit 0.1%<br>0 = OFF<br>Range: 0.1% .. 25.5%<br>E.g.: Byte * 0.1% = Threshold THD-V → 100 * 0.1% = 10.0% |
| - | 178 | L | SYSTEM-CLOCK | | hours |
| - | 179 | L | | | minutes |
| - | 180 | L | | | weekday |
| - | 181 | L | | | day |
| - | 182 | L | | | month |
| - | 183 | L | | | year |
| 184 | 184 | L | L1 | Q-OFFSET | Multiple of the 1st stage |
| 185 | 185 | L | L1 | | |
| 186 | 186 | L | L3 | | |
| 187 | 187 | L | ∑ | | |
| | | | | | |

| 3214 | 199 | L | Start-up picture | *Valid values* | *Name* |
|---|---|---|---|---|---|
| | | | | 0 | EPC |
| | | | | 1 | EBE |
| | | | | 2 | MDL |
| | | | | 3 | ESK |
| | | | | 4 | JAN |
| | | | | 5 | MR |

| - | 200 | W | Reset controller memory registers | *Valid values* | *Reset* |
|---|---|---|---|---|---|
| | | | | 0x3333 | Operation time of stages 1 .. 15 |
| | | | | 0x5555 | |
| | | | | 0xAAAA | Max. grid parameters |
| | | | | 0xCCCC | Switching cycles of stages 1 .. 15 |

| | 201.. 254 | | | Reserved |
|---|---|---|---|---|

| 3048 | 255 | L | "Hauptreset" / Set Testmode | *Valid values* | *Function* |
|---|---|---|---|---|---|
| | | | | 55 | "Hauptreset" |

After "Hauptreset" the function will be disabled.

## Remote (read / write)

| ***Address*** *Code R= 3* | *Code W= 6* | ***H/L*** | ***Register name*** | ***Description*** */ Range of values / Examples* |
|---|---|---|---|---|
| | | **H** | Number of steps to switch | Valid range 1..X (X = settings at EXPERT-MODE, PW= 6343)<br>Unit steps<br>Example: 3 → switch-on / -off 3 steps |
| 3036 | 40 | **L** | Control direction | Bit: 7 6 5 4 3 2 1 0<br>Phase: SUM (7 6) L3 (5 4) L2 (3 2) L1 (1 0)<br>*Dec.* \| *Description*<br>0 \| - (0 0)<br>1 \| Switch-off (0 1)<br>2 \| Stop (1 0)<br>3 \| Switch-on (1 1) |

## History

V4.0