


| | | |
|--|----------------------------------|--|
| Name: TR 800 Web | Type: Universal Relais |  |
| Edited: (date / name) 29.04.2009 Fu | UDP protocol description | Drawing no.: 12280-1603-00 |
| | EA-Nr.: 1451 Replace for: | Page: 1 von 10 |

UDP protocol TR 800 - master requests data

| | | | |
|-----------------------------|--|---------|--------------------------------|
| Mode *) | 0 .. 9 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Reference of request | Any data of the master. Those are sent back in the answer (e.g. number of sequence, time-stamp). | 16 Byte | |

Data: 18 Byte


*)

| | |
|--|----------------|
| 0 = protocol compatible with TR 600 WebControl | -> ASCII-data |
| 1 = TR 800 (data and alarm) | -> ASCII-data |
| 2 = TR 800 (data and alarm) | -> binary data |
| 3 = TR 800 (configuration) | -> binary data |

UDP protocol TR 800 – answer mode 0 (compatible with TR 600 WebControl)

| | | | |
|------------------------|--|---------|--------------------------------|
| Name of unit | TR600 | 5 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Mode | 0 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Reference of request | A copy from the received telegram | 16 Byte | ASCII |
| Device-ID | ASCII-string for definite marking of the device. 3 leading „0“ + MAC-address e.g. „0000012E4000014“. MAC 00-12-E4-00-00-14 | 15 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 1 | *) | 4 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 2 | *) | 4 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 3 | *) | 4 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 4 | *) | 4 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 5 | *) | 4 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 6 | *) | 4 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Alarm 1 | 0 .. 1 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Alarm 2 | 0 .. 1 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Alarm 3 | 0 .. 1 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Alarm 4 | 0 .. 1 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Alarm 5 no function | 0 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Alarm 6 no function | 0 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Alarm 7 = Alarm 4 | 0 .. 1 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Error code | 00 .. 99 | 2 Byte | ASCII |


= 86 Byte

| | | |
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| | |
|----------------------------------|------------------------------|
| *) | |
| Sensor nc: | +980 |
| Sensor short-circuit: | -999 |
| Sensor break: | +999 |
| <u>temperature sensor*2)</u> | |
| range (thermocouple): | -199 .. +950 |
| <u>Current input *3)</u> | |
| range: | +000 .. +240 |
| <u>Voltage input *3)</u> | |
| range: | +000 .. +120 |
| <u>Resistor input *3)</u> | |
| range: | +000 .. +500 +000 .. +300 |
| <u>Sensor scaling *3)</u> | |
| range: | -998 .. +950 |
| <u>difference sensor *3)</u> | |
| range: | -998 .. +950 |
| *2) depending on sensor type | |
| *3) output without decimal point | |

UDP protocol TR 800 – answer mode 1


| | | |
|------------------------|---|---|
| Type of device | TR800 | 5 Byte ASCII (+ 1 Byte Delimiter ";") |
| Mode | 1 | 1 Byte ASCII (+ 1 Byte Delimiter ";") |
| Reference of request | A copy from the received telegram | 16 Byte ASCII |
| Device-ID | ASCII-string for definite marking of the device. 3 leading „0“ + MAC-address e.g. „0000012E4000014“. MAC 00-12-E4-00-00-14 | 15 Byte ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 1 | *) | 7 Byte ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 2 | *) | 7 Byte ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 3 | *) | 7 Byte ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 4 | *) | 7 Byte ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 5 | *) | 7 Byte ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 6 | *) | 7 Byte ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 7 | *) | 7 Byte ASCII (+ 1 Byte Delimiter ";") |
| Current value sensor 8 | *) | 7 Byte ASCII (+ 1 Byte Delimiter ";") |
| Alarm 1 | 0 .. 1 | 1 Byte ASCII (+ 1 Byte Delimiter ";") |
| Alarm 2 | 0 .. 1 | 1 Byte ASCII (+ 1 Byte Delimiter ";") |

| | | |
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| | | | |
|------------|----------|--------|--------------------------------|
| Alarm 3 | 0 .. 1 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Alarm 4 | 0 .. 1 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") |
| Error code | 00 .. 99 | 2 Byte | ASCII |

= 114 Byte

| | |
|--------------------------------|--------------------|
| <u>Current value sensor *)</u> | |
| Sensor short-circuit: | +32767 |
| Sensor break: | +32766 |
| Thermocouple poled wrong: | +32765 |
| Overflow: | +32750 |
| Underflow: | +32749 |
| Sensor nc: | +32748 |
| <u>temperature sensor</u> | |
| range (°C): | -0270.0 .. +1800.0 |
| range (°F): | -000454 .. +003272 |
| <u>Current input</u> | |
| range: | +000.00 .. +024.00 |
| <u>Voltage input</u> | |
| range: | +000.00 .. +012.00 |
| <u>Resistor input</u> | |
| range: | +0000.0 .. +0500.0 |
| | +00.000 .. +30.000 |
| <u>Sensor scaling</u> | |
| range: | -01.999 .. +09.999 |
| | -019.99 .. +099.99 |
| | -0199.9 .. +0999.9 |
| | -001999 .. +009999 |

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UDP protocol TR 800 – answer mode 2

| | | | | |
|------------------------|--|---------|--------------------------------|-----------------|
| Type of device | TR800 | 5 Byte | ASCII (+ 1 Byte Delimiter ";") | |
| Mode | 2 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") | |
| Reference of request | A copy from the received telegram | 16 Byte | | |
| Device-ID | ASCII-string for definite marking of the device. 3 leading „0“ + MAC-address e.g. „0000012E4000014“. MAC 00-12-E4-00-00-14 | 15 Byte | ASCII (+ 1 Byte Delimiter ";") | |
| Current value sensor 1 | | 2 Byte | Signed Int16 | low / high Byte |
| Decimal point Sensor 1 | | 1 Byte | Unsigned Char | |
| Current value sensor 2 | | 2 Byte | Signed Int16 | low / high Byte |
| Decimal point Sensor 2 | | 1 Byte | Unsigned Char | |
| Current value sensor 3 | | 2 Byte | Signed Int16 | low / high Byte |
| Decimal point Sensor 3 | | 1 Byte | Unsigned Char | |
| Current value sensor 4 | | 2 Byte | Signed Int16 | low / high Byte |
| Decimal point Sensor 4 | | 1 Byte | Unsigned Char | |
| Current value sensor 5 | | 2 Byte | Signed Int16 | low / high Byte |
| Decimal point Sensor 5 | | 1 Byte | Unsigned Char | |
| Current value sensor 6 | | 2 Byte | Signed Int16 | low / high Byte |
| Decimal point Sensor 6 | | 1 Byte | Unsigned Char | |
| Current value sensor 7 | | 2 Byte | Signed Int16 | low / high Byte |
| Decimal point Sensor 7 | | 1 Byte | Unsigned Char | |
| Current value sensor 8 | | 2 Byte | Signed Int16 | low / high Byte |
| Decimal point Sensor 8 | | 1 Byte | Unsigned Char | |
| Alarm status | | 1 Byte | Unsigned Char | |
| Alarm from sensor | | 2 Byte | Unsigned Char | low / high Byte |
| Error code | | 1 Byte | Unsigned Char | |

= 68 Byte

Current value sensor:

| | |
|---------------------------|--------------------|
| Sensor short-circuit: | 32767 (0x7FFF Hex) |
| Sensor break: | 32766 (0x7FFE Hex) |
| Thermocouple poled wrong: | 32765 (0x7FFD Hex) |
| Overflow: | 32750 (0x7FEE Hex) |
| Underflow: | 32749 (0x7FED Hex) |
| Sensor nc: | 32748 (0x7FEC Hex) |

temperature sensor


| | | |
|-------------|----------------|------------------|
| range (°C): | -2700 .. 18000 | 0xF574 .. 0x4560 |
| range (°F): | -454 .. 3272 | 0xFE3A .. 0x0CC8 |

Current input

| | | |
|--------|-----------|-----------------|
| range: | 0 .. 2400 | 0x000 .. 0x0960 |
|--------|-----------|-----------------|

Voltage input

| | | |
|--------|-----------|-----------------|
| range: | 0 .. 1200 | 0x000 .. 0x04B0 |
|--------|-----------|-----------------|

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Resistor input

| | | |
|--------|------------|-----------------|
| range: | 0 .. 5000 | 0x000 .. 0x1388 |
| | 0 .. 30000 | 0x000 .. 0x7530 |

Sensor scaling

| | | |
|--------|---------------|------------------|
| range: | -1999 .. 9999 | 0xF831 .. 0x270F |
|--------|---------------|------------------|

Decimal point:


| | |
|-------|---|
| xxxx | 0 |
| xxx.x | 1 |
| xx.xx | 2 |
| x.xxx | 3 |

Alarm status:

| | | |
|---------|-------|--------------|
| Alarm 1 | bit 0 | = 1 if Alarm |
| Alarm 2 | bit 1 | = 1 if Alarm |
| Alarm 3 | bit 2 | = 1 if Alarm |
| Alarm 4 | bit 3 | = 1 if Alarm |


Alarm from sensor:

| | | |
|----------|-------|--|
| Sensor 1 | bit 0 | = 1 if the sensor triggers an alarm |
| Sensor 2 | bit 1 | |
| Sensor 3 | bit 2 | |
| Sensor 4 | bit 3 | |
| Sensor 5 | bit 4 | |
| Sensor 6 | bit 5 | |
| Sensor 7 | bit 6 | |
| Sensor 8 | bit 7 | |

| | | | |
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UDP Protocol TR 800 - Answer Mode 3


| | | | | |
|-----------------------------|---|---------|--------------------------------|-----------------|
| Type of device | TR800 | 5 Byte | ASCII (+ 1 Byte Delimiter ";") | |
| Mode | 3 | 1 Byte | ASCII (+ 1 Byte Delimiter ";") | |
| Reference of request | A copy from the received telegram | 16 Byte | | |
| Device-ID | ASCII-string for definite marking of the device. 3 leading „0“ + MAC-address e.g. „0000012E4000014“. MAC 00-12-E4-00-00-14 | 15 Byte | ASCII (+ 1 Byte Delimiter ";") | |
| Sensor Type | Sensor 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| Wire compensation | Sensor 1 | 2 Byte | Signed Int16 | low / high Byte |
| Unit | Sensor 1 | 2 Byte | Signed Int16 | low / high Byte |
| Scaling active | Sensor 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| Scaling zero point | Sensor 1 | 2 Byte | Signed Int16 | low / high Byte |
| Scaling full-scale | Sensor 1 | 2 Byte | Signed Int16 | low / high Byte |
| Scaling decimal point | Sensor 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| Alarm 1 active | Sensor 1 - Alarm1 | 2 Byte | Unsigned Int16 | low / high Byte |
| Value - Alarm 1 ON | Sensor 1 - Alarm1 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 1 OFF | Sensor 1 - Alarm1 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 1 ON (Night) | Sensor 1 - Alarm1 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 1 OFF (Night) | Sensor 1 - Alarm1 | 2 Byte | Signed Int16 | low / high Byte |
| Alarm 2 active | Sensor 1 - Alarm2 | 2 Byte | Unsigned Int16 | low / high Byte |
| Value - Alarm 2 ON | Sensor 1 - Alarm2 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 2 OFF | Sensor 1 - Alarm2 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 2 ON (Night) | Sensor 1 - Alarm2 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 2 OFF (Night) | Sensor 1 - Alarm2 | 2 Byte | Signed Int16 | low / high Byte |
| Alarm 3 active | Sensor 1 - Alarm3 | 2 Byte | Unsigned Int16 | low / high Byte |
| Value - Alarm 3 ON | Sensor 1 - Alarm3 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 3 OFF | Sensor 1 - Alarm3 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 3 ON (Night) | Sensor 1 - Alarm3 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 3 OFF (Night) | Sensor 1 - Alarm3 | 2 Byte | Signed Int16 | low / high Byte |
| Alarm 4 active | Sensor 1 - Alarm4 | 2 Byte | Unsigned Int16 | low / high Byte |
| Value - Alarm 4 ON | Sensor 1 - Alarm4 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 4 OFF | Sensor 1 - Alarm4 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 4 ON (Night) | Sensor 1 - Alarm4 | 2 Byte | Signed Int16 | low / high Byte |
| Value - Alarm 4 OFF (Night) | Sensor 1 - Alarm4 | 2 Byte | Signed Int16 | low / high Byte |
| : | | | | |
| | Sensor 2 | 54 Byte | | |
| | Sensor 3 | 54 Byte | | |
| | Sensor 4 | 54 Byte | | |
| | Sensor 5 | 54 Byte | | |
| | Sensor 6 | 54 Byte | | |
| | Sensor 7 | 54 Byte | | |
| | Sensor 8 | 54 Byte | | |
| delay Alarm on | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| delay Alarm off | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| alarm on error | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| alarm locked | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |

| | | |
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| | | | | |
|-------------------------|----------|---------|----------------|-----------------|
| relay on alarm | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| | : | | | |
| | Alarm 2 | 10 Byte | | |
| | Alarm 3 | 10 Byte | | |
| | Alarm 4 | 10 Byte | | |
| Data (scaled value) | Sensor 1 | 2 Byte | Signed Int16 | low / high Byte |
| Data (not scaled value) | Sensor 1 | 2 Byte | Signed Int16 | low / high Byte |
| Sensor error | Sensor 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| | : | | | |
| | Sensor 2 | 6 Byte | | |
| | Sensor 3 | 6 Byte | | |
| | Sensor 4 | 6 Byte | | |
| | Sensor 5 | 6 Byte | | |
| | Sensor 6 | 6 Byte | | |
| | Sensor 7 | 6 Byte | | |
| | Sensor 8 | 6 Byte | | |
| simulated sensor | | 2 Byte | Unsigned Int16 | low / high Byte |
| Status alarm | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| Status delay alarm on | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| Status delay alarm off | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| Status locked alarm | Alarm 1 | 2 Byte | Unsigned Int16 | low / high Byte |
| | : | | | |
| | Alarm 2 | 8 Byte | | |
| | Alarm 3 | 8 Byte | | |
| | Alarm 4 | 8 Byte | | |
| Status relays | | 2 Byte | Unsigned Int16 | low / high Byte |
| Error code | | 2 Byte | Unsigned Int16 | low / high Byte |
| Data- counter | | 2 Byte | Unsigned Int16 | low / high Byte |

597 Byte
+ 3 Byte (Delimiter)

600 Byte

| | | |
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Values of the register

| Sensor Type | |
|-------------|--------------------------|
| Value | meaning |
| 0 | nc |
| 1 | Pt 100 |
| 2 | Pt 1000 |
| 3 | KTY 83 |
| 4 | KTY 84 |
| 5 | Thermocouple B |
| 6 | Thermocouple E |
| 7 | Thermocouple J |
| 8 | Thermocouple K |
| 9 | Thermocouple L |
| 10 | Thermocouple N |
| 11 | Thermocouple R |
| 12 | Thermocouple S |
| 13 | Thermocouple T |
| 14 | Voltage 0 .. 10V |
| 15 | Current 0 .. 20mA |
| 16 | Current 4 .. 20mA |
| 17 | Resistor 500 Ohm |
| 18 | Resistor 30 kOhm |
| 19 | Difference of two inputs |

| Wire compensation | |
|-------------------|-----------|
| Value | meaning |
| -1 | 3-wire |
| 0 | 0 Ohm |
| 1 | 0,1 Ohm |
| : | : |
| 1000 | 100,0 Ohm |

| Unit | |
|-------|---------|
| Value | meaning |
| 0 | °C |
| 1 | °F |
| 2 | V |
| 3 | mA |
| 4 | Ohm |
| 5 | kOhm |
| 6 | % |
| 7 | User |

| Scaling on | |
|------------|----------|
| Value | meaning |
| 0 | inactive |
| 1 | active |

| Scaling zero point | |
|--------------------|---------|
| Scaling full-scale | |
| Value | meaning |
| -1999 | |
| : | |
| 9999 | |

| Scaling Decimal point | |
|-----------------------|---------|
| Value | meaning |
| 0 | xxxx |
| 1 | xxx.x |
| 2 | xx.xx |
| 3 | x.xxx |

| Alarm active | |
|--------------|---------|
| Value | meaning |
| 0 | off |
| 1 | on |


| Alarm value - | |
|---------------|---------------------|
| Value | meaning |
| -9999 | Alarm x on |
| : | Alarm x off |
| : | Alarm x on (night) |
| 30000 | Alarm x off (night) |

| delay alarm on delay alarm off | |
|-----------------------------------|---------|
| Value | meaning |
| 0 | [s] |
| : | : |
| 9999 | [s] |

| Alarm on error | |
|----------------|---------|
| Value | meaning |
| 0 | off |
| 1 | on |

| Alarm locked | |
|--------------|---------|
| Value | meaning |
| 0 | off |
| 1 | on |

| Relay on alarm | |
|----------------|--------------|
| Value | meaning |
| 0 | de-energized |
| 1 | energized |

| | | |
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Data- Sensor 1 .. 8

| Data (scaled value) | |
|-------------------------|---------------------------|
| Data (not scaled value) | |
| Value | meaning |
| -9999 | |
| : | |
| 30000 | |
| 32767 | Sensor short-circuit: |
| 32766 | Sensor break: |
| 32765 | Thermocouple poled wrong: |
| 32750 | Overflow: |
| 32749 | Underflow: |
| 32748 | Sensor nc: |


| Sensor error | |
|--------------|-------------------------------|
| Value | meaning |
| 0 | OK |
| 1 | Sensor short-circuit |
| 2 | Sensor break: |
| 3 | |
| 4 | Thermocouple connected wrong: |

Sensor Simulation

| Simulated sensor | |
|------------------|----------|
| Value | meaning |
| bit 0 | Sensor 1 |
| : | : |
| bit 7 | Sensor 8 |

Status

| Status alarm on | |
|------------------------|----------------|
| Status delay alarm on | |
| Status delay alarm off | |
| Status locked alarm | |
| Value | meaning |
| 0 | off |
| bit0 | Alarm Sensor 1 |
| bit1 | Alarm Sensor 2 |
| bit2 | Alarm Sensor 3 |
| bit3 | Alarm Sensor 4 |
| bit4 | Alarm Sensor 5 |
| bit5 | Alarm Sensor 6 |
| bit6 | Alarm Sensor 7 |
| bit7 | Alarm Sensor 8 |
| bit8 | Device error |

| | | |
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Other

| Status relays | |
|---------------|-----------|
| Value | meaning |
| bit 0 | Relays K1 |
| : | |
| bit 3 | Relays K4 |

| Data- counter | |
|---------------|------------------------------------|
| Value | meaning |
| 0 | is incremented at each measurement |
| : | |
| 65535 | |

| Error code | |
|------------|------------------------------|
| Value | meaning |
| 0 | No error |
| bit 0 | AD-error (Er 8) |
| | Internal communication error |
| bit 1 | (Er 5) |
| | Internal communication error |
| bit 2 | (Er 6) |
| bit 3 | EEPROM error (Er 9) |