

# Plug-in modules for UPA

Plug-in modules to be combined to UPA series

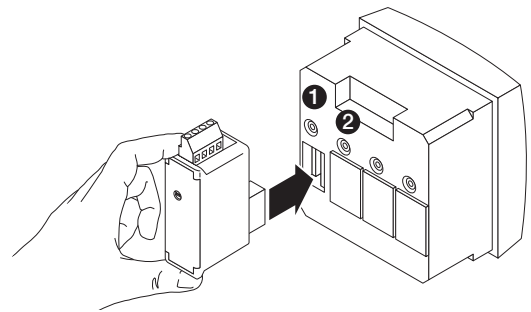


## » Plug-in modules for UPA20

The following plug-in modules can be combined to UPA20 only.

| Available plug-in modules | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>485-MDB-20</b>         | RS485 communication with MODBUS protocol (speed up to 38400 baud)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>1DO-20</b>             | 1 digital output which can be allocated to: <ul style="list-style-type: none"> <li>pulses: configurable (type, weight, duration) to kWh or kvarh</li> <li>monitoring: <math>I_{L1}</math>, <math>I_{L2}</math>, <math>I_{L3}</math>, <math>I_{N}</math>, <math>V_{L1-N}</math>, <math>V_{L2-N}</math>, <math>V_{L3-N}</math>, <math>V_{L1-L2}</math>, <math>V_{L2-L3}</math>, <math>V_{L3-L1}</math>, <math>f</math>, <math>P_{\Sigma}</math>, <math>Q_{\Sigma}</math>, <math>S_{\Sigma}</math>, <math>PF_{\Sigma}</math>, <math>THDA_{L1}</math>, <math>THDA_{L2}</math>, <math>THDA_{L3}</math>, <math>THDV_{L1}</math>, <math>THDV_{L2}</math>, <math>THDV_{L3}</math>, <math>THDV_{L1-L2}</math>, <math>THDV_{L2-L3}</math>, <math>THDV_{L3-L1}</math> time counter</li> <li>equipment control</li> </ul>                                                                      |
| <b>1DO-3DI-20</b>         | 3 digital inputs for information report from an external contact and 1 digital output which can be allocated to: <ul style="list-style-type: none"> <li>pulses: configurable (type, weight, duration) to kWh or kvarh</li> <li>monitoring: <math>I_{L1}</math>, <math>I_{L2}</math>, <math>I_{L3}</math>, <math>I_{N}</math>, <math>V_{L1-N}</math>, <math>V_{L2-N}</math>, <math>V_{L3-N}</math>, <math>V_{L1-L2}</math>, <math>V_{L2-L3}</math>, <math>V_{L3-L1}</math>, <math>f</math>, <math>P_{\Sigma}</math>, <math>Q_{\Sigma}</math>, <math>S_{\Sigma}</math>, <math>PF_{\Sigma}</math>, <math>THDA_{L1}</math>, <math>THDA_{L2}</math>, <math>THDA_{L3}</math>, <math>THDV_{L1}</math>, <math>THDV_{L2}</math>, <math>THDV_{L3}</math>, <math>THDV_{L1-L2}</math>, <math>THDV_{L2-L3}</math>, <math>THDV_{L3-L1}</math> time counter</li> <li>equipment control</li> </ul> |

| Module name       | Max module number | ① | ② |
|-------------------|-------------------|---|---|
| <b>485-MDB-20</b> | 1                 | x | x |
| <b>1DO-20</b>     | 2                 | x | x |
| <b>1DO-3DI-20</b> | 2                 | x | x |



## » Technical specifications of plug-in modules for UPA20

| Pulse or alarm output for 1DO-20 / 1DO-3DI-20 |                         |
|-----------------------------------------------|-------------------------|
| Number                                        | 1                       |
| Type                                          | 100 VDC - 0.5 A - 10 VA |
| Max. number of manoeuvres                     | $\leq 10^8$             |
| Inputs for 1DO-3DI-20                         |                         |
| Number                                        | 3                       |
| Power supply                                  | 10 ... 30 VDC           |
| Minimum width of signal                       | 10 ms                   |
| Minimum length between 2 pulses               | 18 ms                   |
| Type                                          | Optical couplers        |

| 485-MDB-20    |                          |
|---------------|--------------------------|
| Link          | RS485                    |
| Type          | 2 to 3 half duplex wires |
| Protocol      | MODBUS® RTU              |
| MODBUS® speed | 1400 to 38400 baud       |

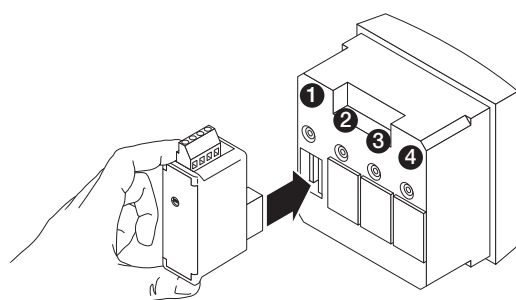
## » Plug-in modules for UPA30/UPA41

The following plug-in modules can be combined to UPA30 or UPA41 only.

| Available plug-in modules | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>485-MDB-30-41</b>      | RS485 communication with MODBUS protocol (speed up to 38400 baud)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>2PULSE-30-41</b>       | 2 configurable pulse outputs (type, weight and run) on $\pm$ kwh, $\pm$ kvarh and kVAh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>2DO-2DI-30-41</b>      | 2 digital inputs for pulse counting and 2 digital outputs which can be allocated to: <ul style="list-style-type: none"> <li>monitoring: <math>I_{L1}, I_{L2}, I_{L3}, I_N, V_{L1-N}, V_{L2-N}, V_{L3-N}, V_{L1-L2}, V_{L2-L3}, V_{L3-L1}, f, \pm P_{\Sigma}, \pm Q_{\Sigma}, S_{\Sigma}, PF_{\Sigma}, THDA_{L1}, THDA_{L2}, THDA_{L3}, THDA_N, THDV_{L1}, THDV_{L2}, THDV_{L3}, THDV_{L1-L2}, THDV_{L2-L3}, THDV_{L3-L1}, P_{PRED}, Q_{PRED}, S_{PRED}, T^{\circ}C</math> internal, <math>T^{\circ}C1</math> external, <math>T^{\circ}C2</math> external, <math>T^{\circ}C3</math> external, time counter</li> <li>remote control</li> <li>timed remote control</li> </ul> |
| <b>2AO-30-41</b>          | 2 analog outputs which can be allocated to: <ul style="list-style-type: none"> <li><math>I_{L1}, I_{L2}, I_{L3}, I_N, V_{L1-N}, V_{L2-N}, V_{L3-N}, V_{L1-L2}, V_{L2-L3}, V_{L3-L1}, f, \pm P_{\Sigma}, \pm Q_{\Sigma}, S_{\Sigma}, PF_{\Sigma}, I_{\Sigma}, V_{\Sigma}, P_{PRED}, Q_{PRED}, S_{PRED}, T^{\circ}C</math> internal, <math>T^{\circ}C1</math> external, <math>T^{\circ}C2</math> external, <math>T^{\circ}C3</math> external, 30 VDC power supply</li> </ul>                                                                                                                                                                                                 |
| <b>TEMP-30-41</b>         | Detection of internal temperature ( $T^{\circ}C$ internal) and up to 3 external temperature through PT100 probes ( $T^{\circ}C1$ external, $T^{\circ}C2$ external, $T^{\circ}C3$ external)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Module name          | Max module number | ①<br>▲ only for UPA30 | ②  | ③  | ④  |
|----------------------|-------------------|-----------------------|----|----|----|
| <b>485-MDB-30-41</b> | 1                 | x                     | x  | x  | x  |
| <b>2PULSE-30-41</b>  | 4                 | x                     | x  | x  | x  |
| <b>2DO-2DI-30-41</b> | 3                 | x                     | x  | x  | x  |
| <b>2AO-30-41</b>     | 2                 | x*                    | x* | x* | x* |
| <b>TEMP-30-41</b>    | 1                 |                       | x  | x  |    |

\* If two modules are used they must be placed on slots 1 and 2



Please note that UPA41 is provided with a permanent module on slot 1. This module allows to measure the neutral current (N) and it cannot be removed.

## » Technical specifications of plug-in modules for UPA30/UPA41

| Outputs (alarms / control) for 2DO-2DI-30-41 |                         |
|----------------------------------------------|-------------------------|
| Number of relays                             | 2(1)                    |
| Type                                         | 250 VAC - 5 A - 1150 VA |
| Optical coupler inputs for 2DO-2DI-30-41     |                         |
| Number                                       | 2(1)                    |
| Power supply                                 | 10 ... 30 VDC           |
| Minimum width of signal                      | 10 ms                   |
| Minimum length between 2 pulses              | 18 ms                   |
| Type                                         | Optical couplers        |
| 2PULSE-30-41                                 |                         |
| Number of relays                             | 2                       |
| Type                                         | 100 VDC - 0.5 A - 10 VA |
| Max. number of manoeuvres                    | ≤ 108                   |
| 2AO-30-41                                    |                         |
| Number of outputs                            | 2(2)                    |
| Type                                         | Insulated               |
| Scale                                        | 0 / 4 ... 20 mA         |
| Load resistance                              | 600 Ω                   |
| Maximum current                              | 30 mA                   |

| 485-MDB-30-41         |                          |
|-----------------------|--------------------------|
| Link                  | RS485                    |
| Type                  | 2 to 3 half duplex wires |
| Protocol              | MODBUS® RTU              |
| MODBUS® speed         | 4800 to 38400 baud       |
| Inputs for TEMP-30-41 |                          |
| Type                  | PT100                    |
| Connection            | 2, 3 or 4 wires          |
| Dynamic               | - 20°C ... 150°C         |
| Accuracy              | ± 1 digit                |
| Maximum length        | 300 cm                   |

## » Order codes of plug-in modules for UPA20

| ORDER CODE                       | MODEL      | TYPE                                                              | CERTIFICATION |
|----------------------------------|------------|-------------------------------------------------------------------|---------------|
|                                  | Name       | Description                                                       | UL            |
| <b>PLUG-IN MODULES FOR UPA20</b> |            |                                                                   |               |
| 1216.0001.0001                   | 485-MDB-20 | RS485 Modbus communication                                        | ●             |
| 1216.0002.0001                   | 1DO-20     | 1 digital output configurable for pulses/alarms                   | ●             |
| 1216.0003.0001                   | 1DO-3DI-20 | 1 digital output configurable for pulses/alarms, 3 digital inputs |               |

## » Order codes of plug-in modules for UPA30/UPA41

| ORDER CODE                               | MODEL         | TYPE                                                               | CERTIFICATION |
|------------------------------------------|---------------|--------------------------------------------------------------------|---------------|
|                                          | Name          | Description                                                        | UL            |
| <b>PLUG-IN MODULES FOR UPA30/UPA41</b>   |               |                                                                    |               |
| 1216.0004.0001                           | 485-MDB-30-41 | RS485 Modbus communication                                         | ●             |
| 1216.0005.0001                           | 2PULSE-30-41  | 2 digital outputs configurable for pulses                          | ●             |
| 1216.0006.0001                           | 2DO-2DI-30-41 | 2 digital outputs configurable for pulses/alarms, 2 digital inputs | ●             |
| 1216.0007.0001                           | 2AO-30-41     | 2 analog outputs                                                   | ●             |
| 1216.0008.0001                           | TEMP-30-41    | Temperature detection                                              |               |
| <b>ACCESSORIES FOR TEMP-30-41 MODULE</b> |               |                                                                    |               |
| 7502.0004.0001                           | PT100 screw   | PT100 temperature probe, M6 screw                                  |               |
| 7502.0005.0001                           | PT100 lug     | PT100 temperature probe, M6 lug                                    |               |

NOTE: Subject to change without notice



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