

Kaskadni Regulator CPK09-M

Kaskadni regulator CPK09-M je uređaj namenjen kontroli i upravljanju sistema više paralelno povezanih kotlova serije TK-Profesional iste nominalne snage, kojima korisnik upravlja kao jednim kotлом.

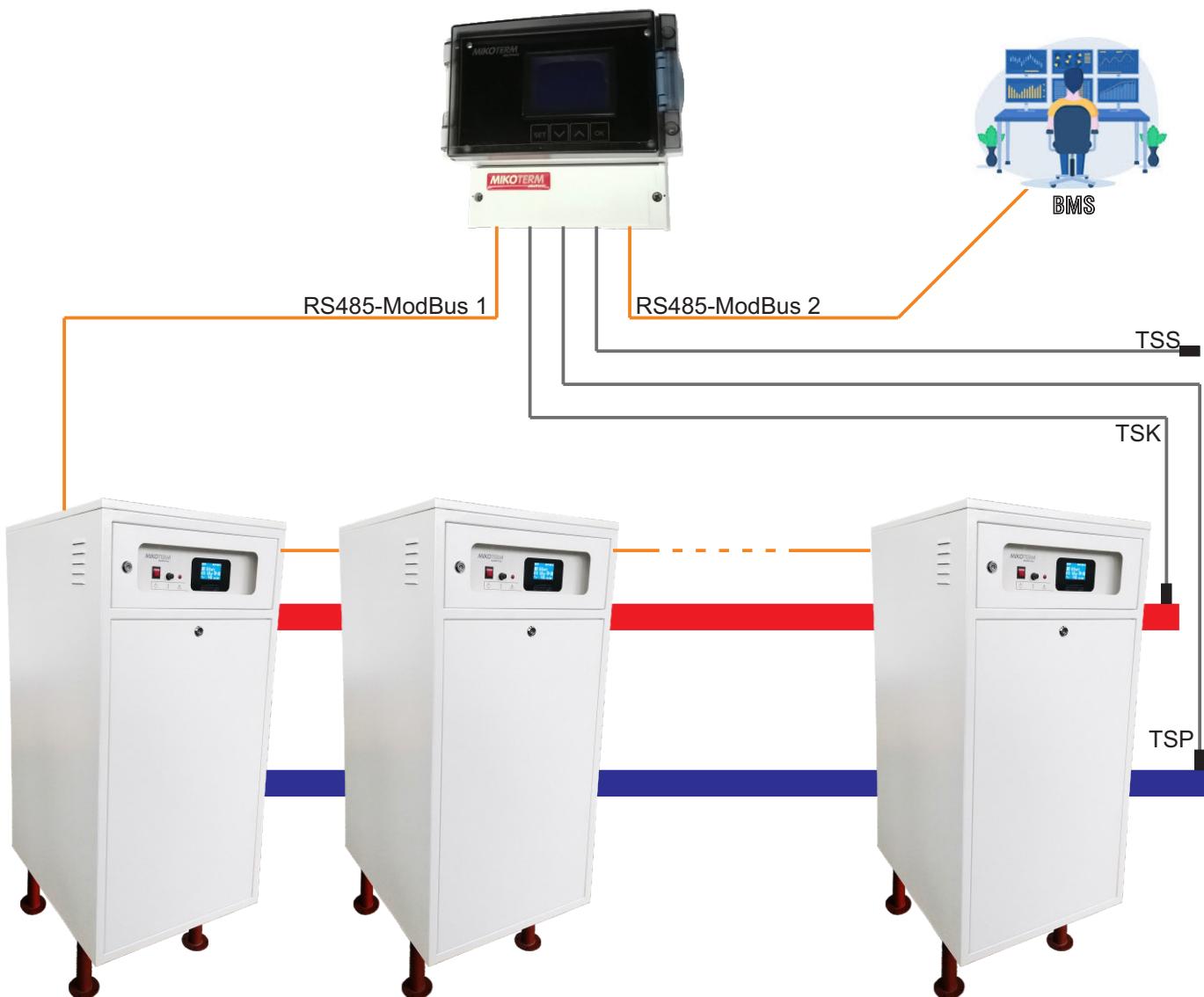
Takođe, CPK09-M se može povezati na BMS, odnosno, centralizovani sistem nadzora i upravljanja, preko ModBus RTU (RS485) protokola, što daje mogućnost sagledavanja kotlarnice kao dela celokupnog objekta, a time i preciznije upravljanje i uštedu energije.

Kaskadni regulator CPK09-M pruža mogućnost kontrole do 10 kotlova paralelno povezanih i podešenih za rad u kaskadnom režimu. Oni se prikazuju kao jedan veći kotao, čija je snaga jednaka ukupnoj snazi svih povezanih kotlova.

Podešavanje zadate snage i zadate temperature potisnog voda sistema kaskadno vezanih kotlova moguće je direktno na kaskadnom regulatoru, kao i daljinski preko ModBus komunikacije. Kaskadni kontroler vrši raspodelu snage po pojedinačnim kotlovima tako da svi raspoloživi kotlovi budu što ravnomernije opterećeni, odnosno, da rade u što optimalnijem režimu po njih - kako bi radni vek svakog kotla bio što duži.

Ukoliko u toku rada dođe do prekida komunikacije između kaskadnog regulatora i nekog od kotlova, maksimalna raspoloživa snaga se smanjuje za snagu kotla sa koga kaskadni regulator ne dobija informacije. Kotao koji nema komunikaciju sa kaskadnim regulatorom će isključiti sve grejače a njihovo uključenje će biti moguće tek kada se uspostavi komunikacija kotla i kaskadnog regulatora, ili ako se na upravljačkoj jedinici tog kotla odabere samostalni režim rada umesto rada u kaskadi.

Opciono, kaskadni regulator može voditi temperaturu razdelnika prema spoljnim uslovima (Outdoor Temperature Compensation).



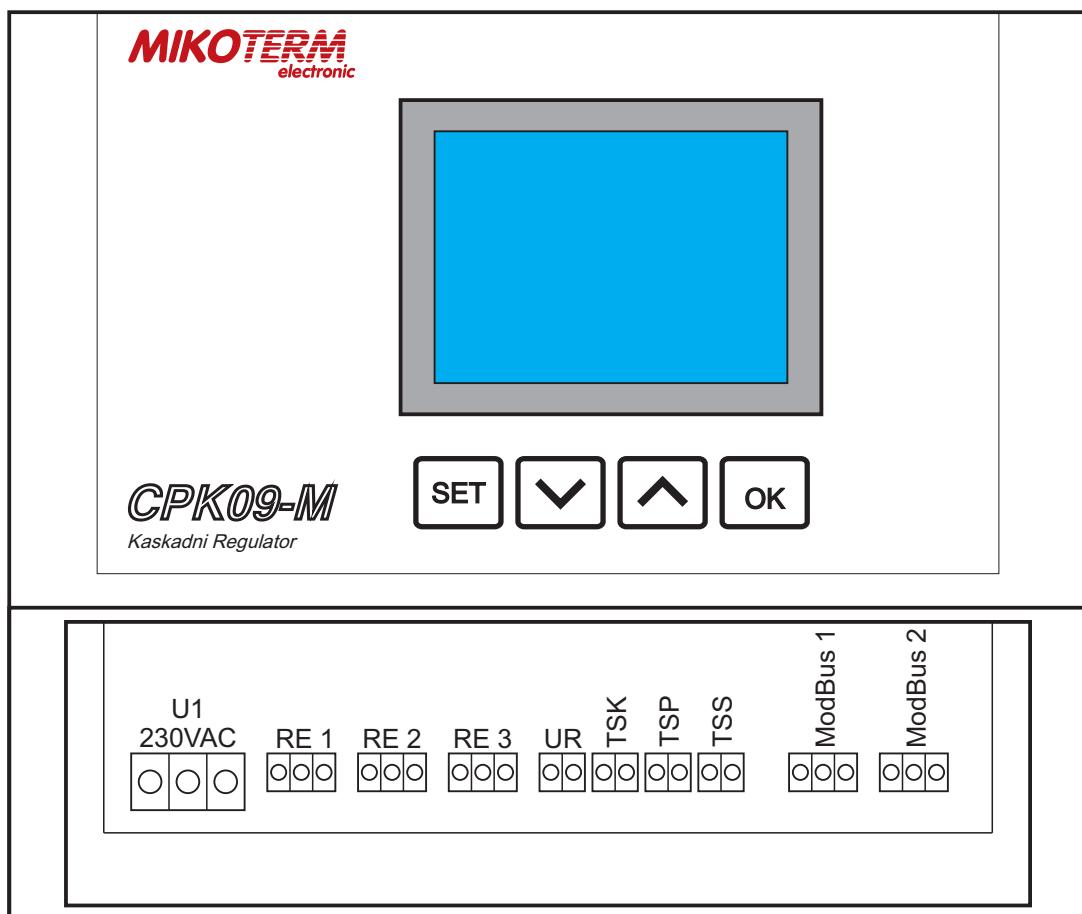
Tehničke karakteristike kaskadnog regulatora CPK09-M

Mehaničke:

- Dimenzije: 160×190×130mm (V×Š×D)
- Montaža na z
- Klasa IP zaštite: IP 65
- Klasa IK zaštite: IK 07

Električne:

- Moguće povezivanje i kontrola 2÷10 kotlova iste nominalne snage
- Ravnomerna raspodela snage po kotlovima za duži radni vek svih kotlova
- Mogućnost isključivanja pojedinih kotlova u slučaju manje potrebne snage
- Relejni signali ili ModBus veza za komunikaciju sa centralnim sistemom nadzora i upravljanja
- Mogućnost vođenja temperature razdelnika prema spoljnim uslovima
- U1: Priključni napon: 230VAC
- RE 1: Rele signala "kotlovi u radu" (Beznaponski kontakti, Imax=10A, 230V)
- RE 2: Rele signala "greška u radu nekog od kotlova" (Beznaponski kontakti, Imax=10A, 230V)
- RE 3: Rele signala "nema komunikacije sa nekim kotlom" (Beznap. kontakti, Imax=10A, 230V)
- ModBus 1: ModBus RTU (RS485) Komunikacija kaskadnog regulatora i kotlova
(kabl za povezivanje RS-485 2-parični Bus upredeni kabl, 2×2×AWG24)
- ModBus 2: ModBus RTU (RS485) Komunikacija kaskadnog regulatora i BMS, SCADA...
(kabl za povezivanje RS-485 2-parični Bus upredeni kabl, 2×2×AWG24)
- TSK: Temperaturni senzor potisnog voda (Razdelnika). Kabl za povezivanje 2×0,75mm²
- TSP: Temperaturni senzor povratnog voda (Sabirnika). Kabl za povezivanje 2×0,75mm²
- TSS: Temperaturni senzor Spoljne temperature (opciono). Kabl za povezivanje 2×0,75mm²
- UR: Spoljni uslov za rad (24VDC). Koristiti sobni termostat (ili dr.) sa beznaponskim kontaktima.



Cascade Regulator CPK09-M

Cascade regulator CPK09-M is a device intended for monitoring and controlling a system of several parallel-connected boilers of the TK-Professional series of the same rated power, which the user controls as one boiler.

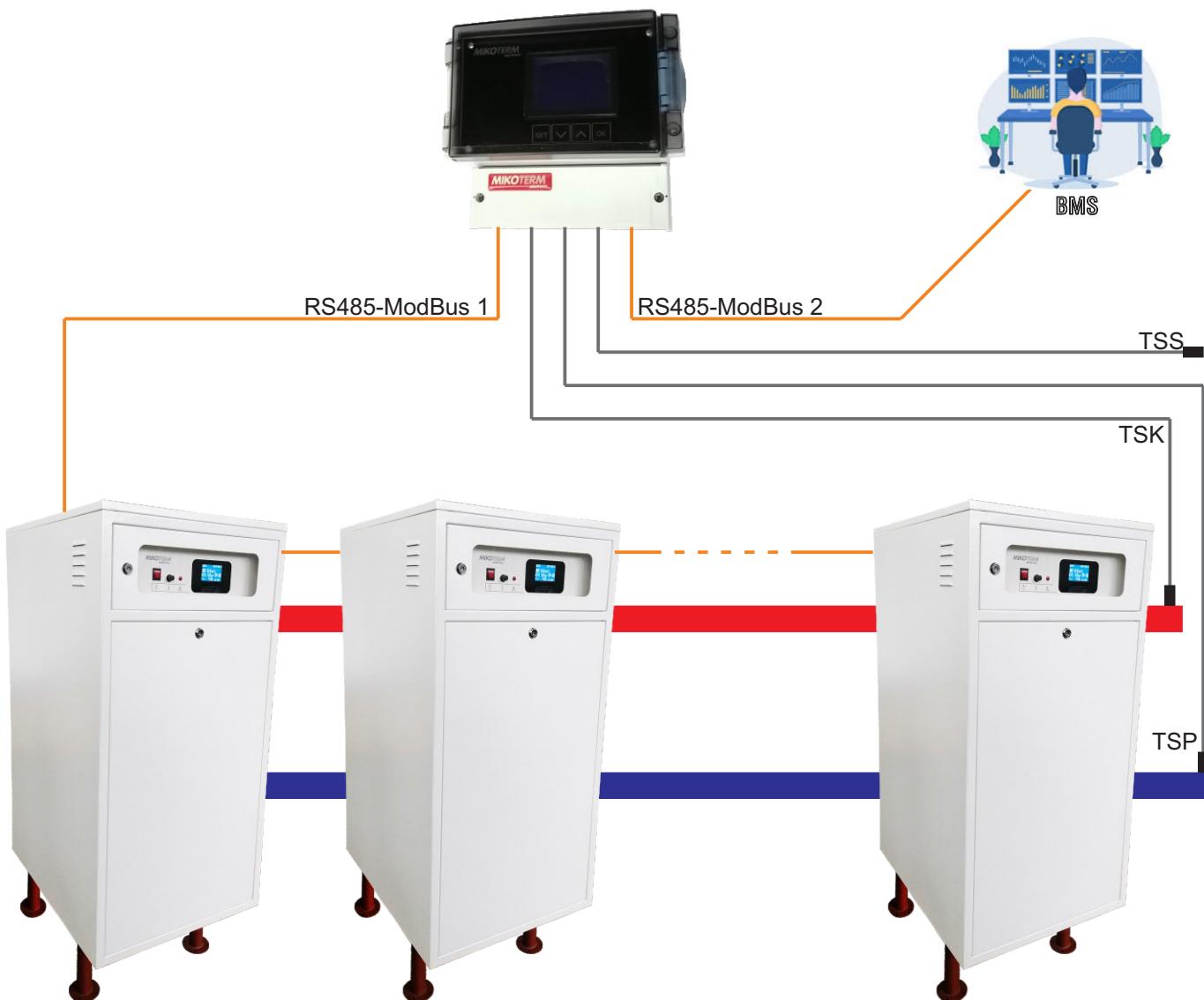
Also, CPK09-M can be connected to BMS, that is, a centralized monitoring and control system, via the ModBus RTU (RS485) protocol, which gives the possibility of viewing the boiler room as part of the entire facility, and thus more precise management and energy saving.

Cascade regulator CPK09-M provides the ability to control up to 10 boilers connected in parallel and set to work in cascade mode. They are shown as one larger boiler, whose power is equal to the total power of all connected boilers.

Setting the set power and set temperature of the output line of the system of cascade connected boilers is possible directly on the cascade regulator, as well as remotely via ModBus communication. The cascade controller distributes power to individual boilers so that all available boilers are loaded as evenly as possible, that is, they work in the most optimal mode for them - so that the working life of each boiler is as long as possible.

If the communication between the cascade controller and one of the boilers is interrupted during operation, the maximum available power is reduced by the power of the boiler from which the cascade controller does not receive information. A boiler that has no communication with the cascade regulator will turn off all heaters, and their activation will be possible only when communication between the boiler and the cascade regulator is established, or if the independent operation mode is selected on the control unit of that boiler instead of cascade operation mode.

Optionally, the cascade regulator can control the output temperature of the boiler group according to the external conditions (Outdoor Temperature Compensation).



Technical data of cascade regulator CPK09-M

Mechanical:

- Dimension: 160×190×130mm (W×H×D)
- Mounting: on the wall
- Class IP : IP 65
- Class IK : IK 07

Electrical:

- Possible connection and control of 2÷10 boilers of the same nominal power
- Equal distribution of power among boilers for a longer working life of all boilers
- The possibility of turning off individual boilers in case of less required power
- Relay signals or ModBus connection for communication with a central monitoring and control system (BMS)
- The possibility of controlling the output temperature according to external conditions

- U1: Supply voltage: 230VAC
- RE 1: Signal relay "boilers in operation" (Voltage-free contacts, I_{max}=10A, 230V)
- RE 2: Signal relay "Boiler operation error" (Voltage-free contacts, I_{max}=10A, 230V)
- RE 3: Signal relay "No communication with some boiler" (Voltage-free contacts, I_{max}=10A, 230V)
- ModBus 1: ModBus RTU (RS485) Communication between cascade regulator and boilers (connection cable: RS-485 2-pair Bus twisted cable, 2×2×AWG24)
- ModBus 2: ModBus RTU (RS485) Communication between cascade regulator and BMS, SCADA. (connection cable: RS-485 2-pair Bus twisted cable, 2×2×AWG24)
- TSK: Output water temperature sensor (the divider). Connection cable 2×0,75mm²
- TSP: Inlet water temperature sensor (collector). Connection cable 2×0,75mm²
- TSS: Outside temperature sensor (option). Connection cable 2×0,75mm²
- UR: External condition for operation (24VDC). Use a room thermostat with voltage-free contacts

