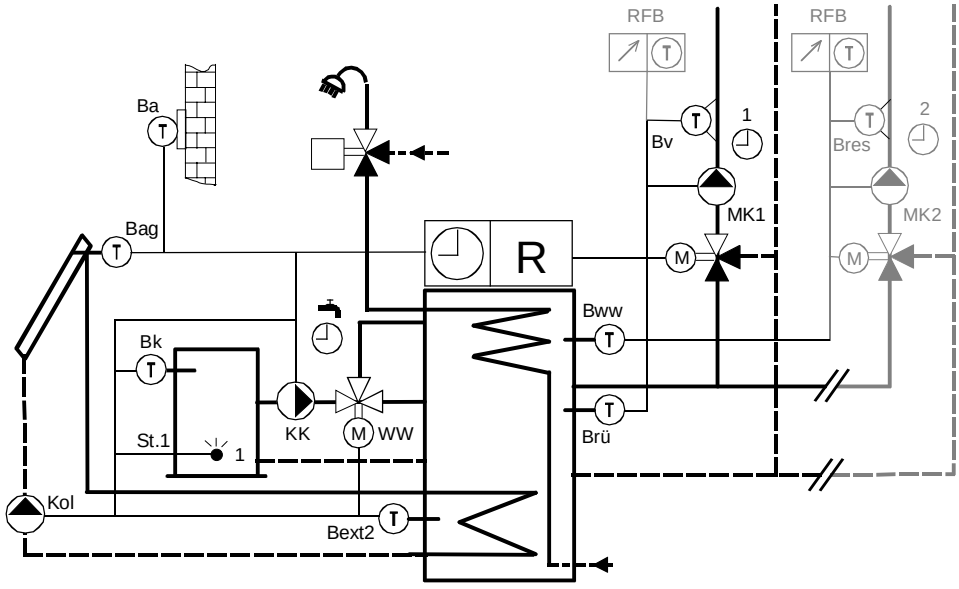
Application 3x3_021 (+90=21)

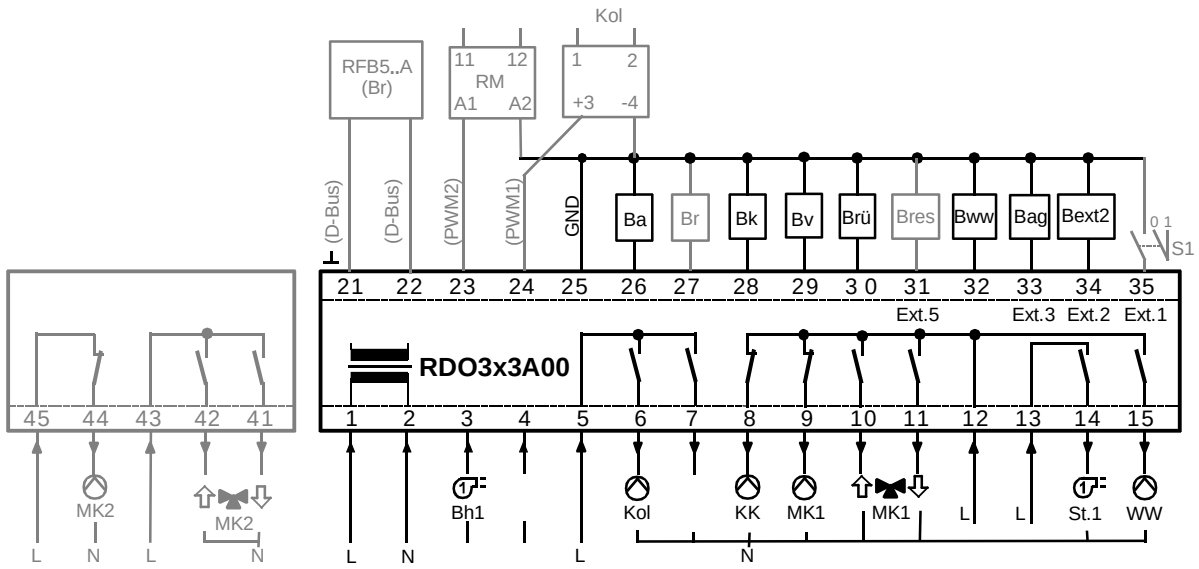
- Boiler single stage with boiler pump
- 2 temperature sensors in buffer storage
- Solar: pump ON/OFF
- 1 mix-heating circuit
- DHW charge with diverting valve after boiler

Application for RDO 383 / RDO 353
Options see page 2

Principle diagram



Installation/wiring diagram



Terminal designation	Terminal number	Symbols designation	Description	
A: 230VAC inputs and outputs	1	N	Neutral	
	2, 5, 12, 13	L	Phase	
	3	Bh1	Counter of operating hours burner stage 1 (230VAC)	
	4	Bh2	Burner disturbance	
	6	2 ⇧	Solar circuit pump	
	7	2 ⇩	Free	
	8	KK	Boiler pump (buffer pump circuit)	
	9	MK1	Mix-circuit pump 1	
	10	⇧ MK1	Mixing valve 1 OPEN: command "warmer"	
	11	⇩ MK1	Mixing valve 1 CLOSE: command "colder"	
	14	St. 1 on	Burner stage 1 ON	
	15	WW	DHW charging pump	
	43, 45	L	Phase	
	44	Q3/ MK2	Mix-circuit pump 2	
	42	Q2/ ⇧ MK2	Mixing valve 2 OPEN: command "warmer"	
	41	Q1/ ⇩ MK2	Mixing valve 2 CLOSE: command "colder"	
B: Measure and control inputs	21	D-Bus	Remote control bus for remote control units, …	
	22	D-Bus	Remote control bus for remote control units, …	
	23	PWM2	Relay module or PWM output	
	24	PWM1	Relay module or PWM output	
	25	GND	Ground	
	26	Ba	Outdoor temperature sensor	FT12A
	27	Br	Room temperature sensor	RFT410A
	28	Bk	Boiler temperature sensor	RFT203B
	29	Bv	Flow temperature mix-circuit 1	FT1A (FT2A)
	30	Brü	Buffer storage sensor 1	RFT203B
	31	Bres	Flow temperature mix-circuit 2	FT1A (FT2A)
	32	Bww	DHW temperature sensor 1	RFT203B (FT2A)
	33	Bag	Solar collector sensor	RFT303A
	34	Ext.2	Buffer storiage sensor 2	RFT203B
	35	Ext.1	Aux. input 1	

Factory settings are listed on following pages.

Options:
Change the following parameters for additional functions. Detailed information of the single parameters are available from your user manual!

Settings for:

2 mix-circuits
110 4 2 mix-heating circuits

Collector pump speed control
11b 1 Speed control for solar collector pump
1A9 0 Output solar collector pump: not used
Note:
Set parameter 1bx

Parameter factory settings

Master controller

Energy production:

100	41	Oil / gas boiler with separate buffer storage
101	0	Number of cascade modules
102,103		*See boiler 1, 2..*
104	0	Boiler cascade: weather compensated
105		*See boiler 1, 2..*
106	0	Boiler cascade: release 2nd step at 100% power
107	0	Boiler cascade, regular sequence
108	0	Switching point: not used
109...10c		*See boiler 1, 2..*
10d	5	Outdoor temperature for release 2nd step
10E	0	Bypass-pump: not used
10F	11	2 sensors in buffer storage
10h		*See boiler 1, 2..*
10J	1	Pump to buffer storage
10L	0	Output diverting valve: not used
10n	0	Energy release at ∆ Bv set/actual

Configuration of energy distribution/hydraulics

110	1	1 mix-heating circuit only
111	0	Number of extra mix-heating circuits (RZM510)
112, 113		*See zone 1, 2*
114	0	Heating circuit pump 1: ON/OFF
115	0	Heating circuit pump 2: ON/OFF
116, 117		*See DHW circuit 1*
118	0	Electrical DHW heater: not used
119	0	Number of external DHW modules (RZM515A)
11A	1	Boiler circuit pump (terminal. 8): as buffer stor.
11b		*See boiler 1, 2..*
11d	0	Return temperature reg.: not used
11E		*See zone 1, 2*
11F		*See DHW circuit 1*

Configuration of electrical inputs and outputs

120	1	Aux.1 (terminal 35): standby
121	26	Aux.2 (terminal 34): buffer storage sensor 2
122	28	Bag (terminal 33): solar collector sensor
123	21	Bres (terminal 31): flow temperature 2
124	1	Ba (terminal 26): outdoor temperature
125	0	Br (terminal 27): not used
126		*See boiler 1, 2..*
127	23	Bv (terminal 29): flow temperature
128	25	Brü (terminal 30): buffer storage sensor 1
129	0	Independent time switch: not used
12A	0	Output 2nd source switch point: not used
12b	0	Output error warning: not used
12c	0	Multi switch 9.1 (terminal 27): not used
12d	0	Multi switch 9.2 (terminal 27): not used
12E	0	Multi switch 9.3 (terminal 27): not used
12F	0	Multi switch 9.4 (terminal 27): not used
12L	0	Independent time switch HC 7 output: not used
12n	0	Independent time switch DHW 4 output: not used

Configuration of controller functions

130	24	Indication field 1: buffer storage temperature 1
131	1	Indication field 2: DHW temperature
132	1	Status display: on at “manual” or “service”
133	0	Time source: internal clock
135	5.03	Summertime change-over (time +1h): last Sunday in March
136	5.10	Wintertime change-over (time -1h): last Sunday in October
137	9600	Baudrate PC connection RS232
138	1	Controller address
139	0	Remote setting of operation mode: prohibited
13A		*See zone 1,2*
13b		*See boiler 1, 2..*
13c		*See DHW circuit 1*
13E	1.00	Counter factor 1
13F	1.00	Counter factor 2

Configuration of heat generator and district heating

140...148		*See boiler 1, 2..*
149	10	Bend point 1
14A	40	District heating return temperature 1
14b	-10	Bend point 2
14c	60	District heating return temperature 2
14d	20	P-band valve drive
14E	2	Transition time of valve drive
14F	0	Allowed number of heat generator starts per hour
14h, 14J		*See zone 1, 2*

Configuration of limitations and boiler protection

150, 151		*See boiler 1, 2..*
152	90	Boiler temperature maximum limitations
153, 154		*See zone 1, 2*
155...157		*See boiler 1, 2..*
158	0	Alternate boiler minimum temperature setpoint
159		*See zone 1, 2*
15A	0	Alternate buffer storage minimum temperature
15b	4	Setpoint raise vs. buffer storage setpoint
15c	0	Mode external flow temperature minimum limit
15E		*See zone 1, 2*
15F		*See boiler 1, 2..*

Configuration of heating curve

160..162		*See zone 1, 2*
163	70	Auxiliary boiler temperature at fixed point
164, 165		*See zone 1, 2*
166	70	Adapted boiler temperature at design point
167..169		*See zone 1, 2*
16A	0	Source of boiler temperature: internal sensor
16b	0	Source of return temperature: internal sensor

Optimization

170..174		*See zone 1, 2*
175		*See DHW circuit 1*

Configuration of special operation modes

180..183		*See zone 1, 2*
185	1	Pump protection during summer operation
186		*See zone 1, 2*
187	1	Frost protection temperature
188	2	Follow-up time of boiler circuit pump
18c	0	Function of independent time switch: not used

Configuration of DHW charging

190...194		*See DHW circuit 1*
195	0	Power for DHW charge: demand dependent
196		*See zone 1, 2*
197...199		*See DHW circuit 1*
19A	0	Temp. difference to release electrical DHW charging
19b		*See zone 1, 2*
19c...19h		*See DHW circuit 1*

Configuration of solar operation

1A1	6	Starting point for collector pump
1A2	2	Shut-off point for collector pump
1A3	0	Action on exceeding max. collector temp.: none
1A4	240	Maximum collector temperature
1A5	1	Back cooling to collector at night
1A6	80	Maximum buffer storage temperature
1A7	20	∆T OFF for max. buffer storage temperature
1A8	-20	Frost protection of collector
1A9	12	Output collector pump: terminal 6

1AA	0	Output solar energy beyond capacity: not used
1Ab	300	Volume flow rate of solar pump
1Ac	3.80	Specific heat capacity
1Ad	100	Collector efficiency
1AF	10	Collector absorber area

Configuration of PWM1 control

1b0	0.2	Cycle time of PWM1 signal
1b1	40	Minimum PWM1 signal strength
1b2	100	Maximum PWM1 signal strength
1b4	10	Temperature (<) at min. PWM signal
1b5	20	Temperature (>) at max. PWM signal

District heating with 2nd HE for DHW charging

1d9	10	Bend point 1
1dA	40	Return temperature at bend point 1
1db	-10	Bend point 2
1dc	60	Return temperature at bend point 2
1dd	20	P-band of valve drive
1dE	2	Transition time of valve drive

Additional parameters

1EA	0	Output storage charging pump: not used

Zone 1, 2..

Energy distribution / hydraulics

112	3	Characteristic of valve drive: 3-point
113	2	Transition time of mixing valve
11E	0	Heating circuit special function: not used

Configuration of controller functions

13A	4	Remote operation mode: Auto „normal/frost“

Configuration of heat generator and district heating

14h	4	Offset ON flow temperature difference set/actual
14J	3	Offset OFF flow temperature difference set/actual

Configuration of limitations and boiler protection

153	0	Flow temperature minimum
154	90	Flow temperature maximum
159	0	Alternate minimum flow temperature
15E	0	Minimum return temperature offset

Configuration of heating curve

160	20	Flow temperature at Ta=20°C
161	-10	Outdoor temperature at design point
162	60	Flow temperature at design point
164	20	Adapted flow temp. at fixed point (Ta=20°C)
165	60	Adapted flow temp. at design point
167	1	Adaptation: ON (manual and automatic)
168	8	Setpoint raise vs. flow temperature setpoint
169	1	Source of outdoor temp.: outdoor sensor 1

Optimisation

170	2	Thermal lag of building: Normal design
171	0	Boost heating cut-off: economy (-0.75K)
172	1	Begin and end of heating period advanced
173	120	Maximum time shift for heating start
174	60	Maximum time shift for heating end

Configuration of special operation modes

180	1	Automatic short term heating limit
181	3.0	ΔT for automatic summer / winter heating limit
182	1	Remote control room sensor: Active
183	25	Influence of room temperature
186	2	Follow-up time of heating circuit pumps

Configuration of DHW charging

196	2	Full priority, heating circuits are closed
19b	1	Allocation to heating circuits: DHW of RDO

Boiler 1, 2..

Configuration of energy:

102	1	Heat generator single stage
103	0	Flue gas sensor: not used
105	0	Boiler cascade, shut-off valve used
109	50	Boiler cascade, partial load switch point
10A	10	Boiler cascade, wait time to next stage
10b	10	Boiler cascade, boiler standby time
10c	20	Boiler cascade, 2nd source switching point
10h	0	Boiler cascade, virtual setpoint shift

Energy distribution / hydraulics

11b	0	Output PWM1: not used

Configuration of electrical inputs and outputs

126	0	Input Bh2: Counter of operating hours burner 2

Configuration of controller functions

13b	4	Remote operation mode: Auto

Configuration of heat generator and district heating

140	6	Switching difference for burner stage 1
141	8	Switching difference for burner stage 2
142	1	Wait time to stage 2
143	2	Minimum burner stage 2
144	30	Modulation P-band
145	10	Modulation offset P-band
146	30	Modulation integral phase
147	0	Modulation differential phase
148	60	Modulating burner transition time

Configuration of limitations and boiler protection

150	38	Boiler temperature minimum limitation
151	90	Boiler temperature maximum limitation
155	0	Return temperature minimum
156	240	Flue gas temperature maximum
157	1	Boiler start up relief, DHW discharge protection
15F	0	Return temperature minimum limit offset

Configuration of special operation modes

188	2	Follow-up time of boiler circuit pump

DHW circuit 1

Energy distribution / hydraulics

116	2	DHW hydraulics: diverting valve
117	1	DHW equipment: sensor connected input Bww
11F	0	DHW circuit energy demand

Configuration of controller functions

13c	4	Remote operation mode: Auto

Optimisation

175	0	DHW charge: according to switch program

Configuration of DHW charging

190	65	Maximum temperature of DHW setpoint
191	6	Switching difference DHW
192	0	Anti legionella function: not used
193	20	Setpoint raise on DHW charge
194	80	Alternate boiler temperature setpoint
197	0	Follow-up time of DHW charging pump
198	1	Electrical DHW charge: Ext. signal
199	0	DHW forced charging: not used
19c	10	Setpoint raise DHW mix-circuit 1
19d	5	Setpoint raise DHW mix-circuit 2
19E	2	Transition time DHW mixer 1
19F	2	Transition time DHW mixer 2
19h	2	DHW pump operation: independent time switch