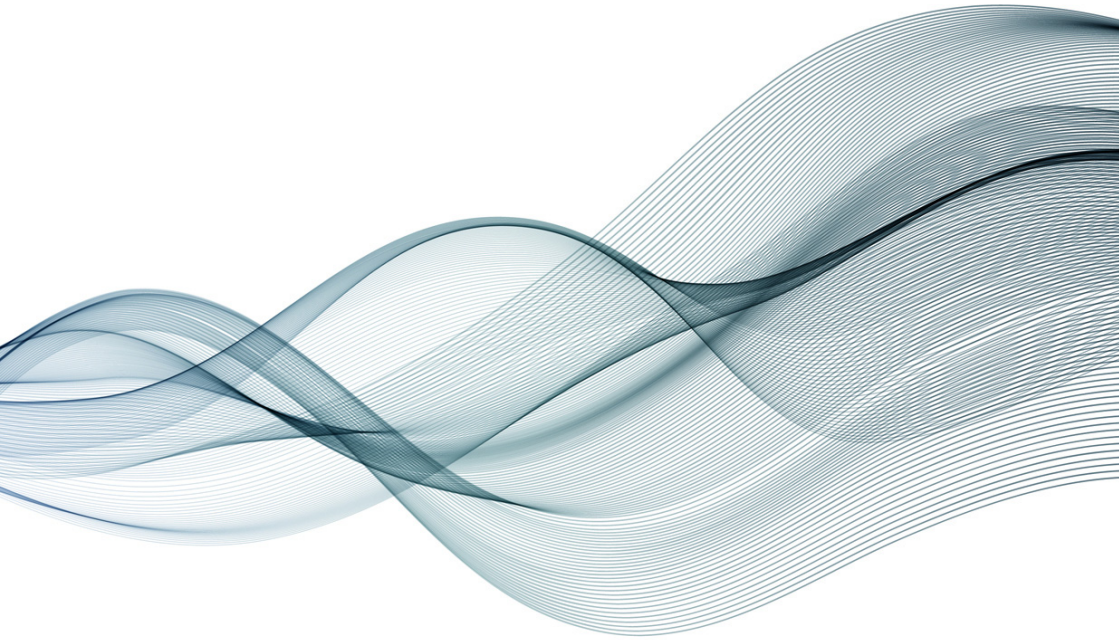

User Guide
DO03900
Temperature Controller

Document No.	KI-UG-1
Document Rev.	0

Overview

The CB100 temperature controller is obsolete, it is replaced by The RB100 temperature controller, JDF part number DO03900. The RB 100 is panel fitted and connected in the same way as the CB100 and uses the same connections.

On fitting the RB100 it must be updated with the correct parameters from factory settings, these parameters may be manually input or may be uploaded to the controller form a PC. The software and data file to apply them are available to download (see links below). Parameter values are listed at Annex A.

For digital upload of parameters, a 'USB communication converter COM-K' is required along with suitable connecting cables.

Application

The RB100 Temperature Controller is used on the following applications:

KI40018AA	WHE3 Diver Hot Water Heater 440 V
KI40018AB	WHE3 Diver Hot Water Heater 380 V
KI40026AA	MHE2 Mini Hot Water Heater 440 V
KI40026AB	MHE2 Mini Hot Water Heater 380 V

Downloads

Manuals and Protem2, data setting support tool:
https://www.rkcinst.co.jp/english/download-center/?dc_cat=15

USB communication converter COM-K manual:
http://www.rkcinst-usa.com/product/peripherals.html

All documentation and parameters file required to update the RB100 temperature controller are embedded within the PDF of this document available in related documents at the JFD website:

https://www.jfdglobal.com/products/gas-and-fluid-systems/environmental-control/kinergetics-water-heaters/kinergetics-water-heater-electric-whe-03/

RB100 Spec Sheet | RB100 Manual | RB100 Settings

Annex A

Manual input of parameters.

Instructions for applying the following parameters are set out in the manual specified above.

Note The parameters shown below ***bold-non-italic*** *need to be adjusted from factory settings.*

Name	Identifier	Value
Measured value (PV) monitor	*M1*	*0*
Current transformer 1 (CT1) input value monitor:CT1	*M2*	*eot*
Current transformer 2 (CT2) input value monitor:CT2	*M3*	*eot*
Event 1 state monitor	*AA*	*0*
Event 2 state monitor	*AB*	*eot*
Burnout state monitor	*B1*	*0*
Error code:Err	*ER*	*0*
RUN/STOP transfer:R/S	*SR*	*0*
Set value 1 (SV1):SV1	*S1*	*56*
Event 1 set value (EV1):EV1 (Event 1 set value (EV1)[high]):EV1	*A1*	*50*
Event 2 set value (EV2):EV2 (Event 2 set value (EV2)[high]):EV2	*A2*	*eot*
Heater break alarm 1(HBA1) set value:HbA1	*A3*	*eot*
Heater break alarm 2(HBA2) set value:HbA2	*A4*	*eot*
Control loop break alarm (LBA) time:LbA	*A5*	*eot*
LBA deadband (LBD):Lbd	*A6*	*eot*
Autotuning (AT):ATU	*G1*	*0*
Proportional band [heat-side]:P	**P1**	**3.2**
Integral time:I	**I1**	**70**
Derivative time:d	*D1*	*17*
Anti-reset windup (ARW):ARW	*W1*	*100*
Proportional cycle time [heat-side]:T	*T0*	*eot*
Proportional band [cool-side]:Pc	*P2*	*eot*
Overlap/Deadband:db	*V1*	*eot*
Proportional cycle time [cool-side]:t	*T1*	*eot*
PV bias:Pb	*PB*	*0*
Set lock level:LocK	*LK*	*0*
EEPROM mode	*EB*	*0*
EEPROM state	*EM*	*1*
Interlock release:ILR	*IR*	*0*
Event 1 timer:EVT1	*TD*	*0*
Event 2 timer:EVT2	*TG*	*eot*
Manipulated output value (MV1) monitor [heat-side]:MV	*O1*	*-5*
Manipulated output value (MV2) monitor [cool-side]:MV2	*O2*	*eot*
Manipulated output ON/OFF state monitor [heat-side]	*Q1*	*eot*
Manipulated output ON/OFF state monitor [cool-side]	*Q2*	*eot*

Name	Identifier	Value
Model code	*ID*	*RB100FJ02-MN-3*1N-NN/A1/YHNNN-N*
ROM version monitor	*VR*	*PC824-01*
Comprehensive event state	*AJ*	*0*
Digital input (DI) state	*L1*	*eot*
Output state monitor	*Q3*	*0*
Set value (SV) display while the setting change rate limiter is working	*MS*	*56*
Remaining time monitor:TIME	*TR*	*000:00*
Event 3 state monitor	*AC*	*eot*
Event 4 state monitor	*AD*	*eot*
Operation mode state monitor	*L0*	*0*
Actual SV selection number	*LZ*	*1*
Auto (AUTO)/Manual (MAN) transfer:AUTo/MAN	*J1*	*0*
Monitor selection (no display):MoNI	*LP*	*0*
Mode selection (no display):ModE	*LM*	*128*
Set value 2 (SV2):SV2	*S2*	*0*
Set value 3 (SV3):SV3	*S3*	*0*
Set value 4 (SV4):SV4	*S4*	*0*
SV selection:S-SV	*ZB*	*1*
F01 block selection (no display):S.F01	*DA*	*1*
Timer 1:SVT1	*TH*	*000:01*
Timer 2:SVT2	*TI*	*000:01*
Timer 3:SVT3	*TJ*	*000:01*
Timer 4:SVT4	*TK*	*000:01*
Timer function:TMFS	*ZC*	*0*
Repeat execution times:RPTS	*RR*	*0*
F02 block selection (no display):S.F02	*DK*	*1*
Setting change rate limiter (up):SVRU	*HH*	*0*
Setting change rate limiter (down):SVRd	*HL*	*0*
F03 block selection (no display):S.F03	*DL*	*1*
Event 1 set value (EV1') [low]:EV1	*BT*	*eot*
Event 2 set value (EV2') [low]:EV2	*BU*	*eot*
Event 3 set value (EV3) (Event 3 set value (EV3) [high]):EV3	*A7*	*eot*
Event 3 set value (EV3') [low]:EV3	*BV*	*eot*
Event 4 set value (EV4) (Event 4 set value (EV4) [high]):EV4	*A8*	*eot*
Event 4 set value (EV4') [low]:EV4	*BW*	*eot*
F04 block selection (no display):S.F04	*DM*	*0*
Startup tuning (ST):STU	*ST*	*0*
F05 block selection (no display):S.F05	*DN*	*0*

Name	Identifier	Value
Fine tuning setting:PTU	*CB*	*0*
F06 block selection (no display):S.F06	*DO*	*0*
F07 block selection (no display):S.F07	*DQ*	*eot*
Minimum ON/OFF time of proportioning cycle [heat-side]:MT	*VI*	*eot*
Output limiter high [Heat-side output limiter (high)]:oLH	*OH*	*105*
Output limiter low [Cool-side output limiter (high)]:oLL	*OL*	*-5*
Minimum ON/OFF time of proportioning cycle [cool-side]:Mt	*VJ*	*eot*
F08 block selection (no display):S.F08	*DR*	*0*
PV digital filter:dF	*F1*	*1*
F09 block selection (no display):S.F09	*DS*	*0*
Manual manipulated output value (MV):M-MV	*ON*	*0*
F10 block selection (no display):S.F10	*DT*	*0*
Holding peak value ambient temperature monitor:TCJ	*HP*	*31*
Integrated operating time monitor:WT	*UT*	*19*
Input type:INP	*XI*	*15*
Decimal point position:PGdP	*XU*	*1*
Burnout direction:boS	*BS*	*0*
Input scale high:PGSH	*XV*	*200*
Input scale low:PGSL	*XW*	*-100*
Setting limiter high:SLH	*SH*	*200*
Setting limiter low:SLL	*SL*	*-100*
PV flashing display at input error:dSoP	*DU*	*0*
DI assignment:dISL	*H2*	*eot*
Output action at STOP mode:SS	*SS*	*0*
Transmission output type:Ao	*LB*	*eot*
Transmission output scale high:AHS	*CV*	*eot*
Transmission output scale low:ALS	*CW*	*eot*
Event 1 type:ES1	*XA*	*9*
Event 1 hold action:EHo1	*WA*	*0*
Event 1 differential gap:EH1	*HA*	*2*
Event 1 output action at input burnout:Ebo1	*OA*	*0*
Energized/De-energized of Event 1 output:EXC1	*Z1*	*0*
Event 1 interlock:EIL1	*LF*	*0*
Event 2 type:ES2	*XB*	*eot*
Event 2 hold action:EHo2	*WB*	*eot*
Event 2 differential gap:EH2	*HB*	*eot*
Event 2 output action at input burnout:Ebo2	*OB*	*eot*
Energized/De-energized of Event 2 output:EXC2	*NB*	*eot*
Event 2 interlock:EIL2	*LG*	*eot*
Event 3 type:ES3	*VC*	*eot*
Event 3 hold action:EHo3	*WC*	*eot*

Name	Identifier	Value
Event 3 differential gap:EH3	*HC*	*eot*
Event 3 output action at input burnout:Ebo3	*OC*	*eot*
Energized/De-energized of Event 3 output:EXC3	*NC*	*eot*
Event 3 timer:EVT3	*TE*	*eot*
Event 3 interlock:EIL3	*LH*	*eot*
Event 4 type:ES4	*XD*	*eot*
Event 4 hold action:EHo4	*WD*	*eot*
Event 4 differential gap:EH4	*HD*	*eot*
Event 4 output action at input burnout:Ebo4	*OD*	*eot*
Energized/De-energized of Event 4 output:EXC4	*ND*	*eot*
Event 4 timer:EVT4	*TF*	*eot*
Event 4 interlock:EIL4	*LI*	*eot*
CT ratio (Number of turns):CTR	*XR*	*eot*
Number of HBA delay times:HbC	*EH*	*eot*
Direct/Reverse action:oS	*CA*	*1*
Cool action:oSc	*XQ*	*eot*
ON/OFF action differential gap (upper):oHH	*IV*	*1*
ON/OFF action differential gap (lower):oHL	*IW*	*1*
Control output at burnout:obo	*WH*	*0*
Bumpless mode setting:bUMP	*OT*	*1*
Derivative action:dTP	*KA*	*0*
AT cycles:ATC	*G3*	*0*
AT differential gap time:ATH	*GH*	*10*
ST start condition:STS	*SU*	*0*
Setting change rate limiter unit time:SVRT	*HU*	*0*
Timer time unit:TMU	*RU*	*0*
STOP display selection:SPCH	*DX*	*1*
Time setting of proportional cycle time [heat-side]:TU	*TA*	*eot*
Time setting of proportional cycle time [cool-side]:tU	*TB*	*eot*

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