32 · Hidden in the settings screen

Hidden in the MENU screen key 0 4 displayed press and continue。

This screen sets the REMOTE/LOCAL mode and number of devices for serial communication.

■ Press the 1 key, device number, highlighted in the figure 0 ~ well, 7 device number can be entered.

Therefore, to distinguish between device numbers with up to eight FK5481C, communication.

■Operating modes press the 2 key on F_STOP or P_STOP, the underline moves alternately REMOTE and LOCAL (cannot change operating mode other than P_STOP or F_STOP,). It is underlined how the selected mode.

33. LOCAL MODE

This mode is used based on the settings entered into FK5481C, step program and program patterns. From your PC, RUN programs and start pattern settings, STOP, ADVANCE, HOLD the remote control is possible.

34. REMOTE MODE

PID constants are used in the input data of the FK5481C only the mode commands all configuration settings for temperature and humidity and 9 on/off outputs from your PC. When in REMOTE mode, all control outputs the operating state.

33. COMMUNICATION

35.1 Communication protocol

Communication method　　Asynchronous serial communication
RS485 signal level　　Baud rate 9600BPS
Character length　　7 Bittoparite　~I Even parity check
Stop bits 1 bit X para　　No meter

35.2 Transmit data from the PC to the FK

■As shown in the table below, sent in the header part, the data part of the footer.

■ If the command without data there is no data part.

■in the "" represents the ASCII code. H of the end of the 0 ~ F is a decimal number indicates that 16.

Classification	Name		Signal	communications
Header section	Communication start code		“@”	1
	Equipment number		“0”～“7”(Decimal 1 digit)	1
	Command		“a”～“r”	1
Data portion	Start pattern	Command＝“o”	“0”～“9”(Decimal 1 digit)	1
	Temperature	Command＝“p”	-999～2000(Hexadecimal 4-digit)	11
	Humidity		0000～1000(Hexadecimal 4-digit)	
	Output Settings ON / OFF		000H～1FFH(Hexadecimal 3-digit)	
	パターンデータ	Command	All data patterns 0-9	100
	ステップデータ	Command	Divided by 10 steps	111
Footer section	FCS (horizontal parity)		00H～FFH(Hexadecimal 2-digit)	2
	Exit code communication		CR(DH)＋LF(AH)	2

35.3 Command with no data

■ request to send "a" = data (unconditional)

■ (mode of operation is valid only when the P.STOP and F.STOP or in LOCAL MODE) is set to "b" = REMOTE MODE

■ (REMOTE is valid only when the operation mode) is set to "c" = LOCAL MODE

■ Directive "d" = PROGRAM RUN (with the same function as the RUN key, the operation mode is effective only (when the P.STOP or F.STOP)

■The same directive function "e" = PROGRAM STOP and (STOP key, the operation mode F.RUN, P.RUN (Valid only when the WAIT or HOLD)

■ The same directive function "f" = HOLD and (HOLD key, the operation mode F.RUN, P.RUN, available only when the WAIT or HOLD)

■ The same directive function "g" = ADVANCE and (ADV key, the operation mode P.RUN, when the WAIT or HOLD (Valid only)

35.4 Commands and data with the data

■(Valid only when the operation mode is or P.STOP F.STOP) sends a "0" to "9" followed by the start pattern "o" in the command set of "o" = start pattern.

■ Send the following data command followed by "p" (valid only in REMOTE MODE) setting ON / OFF of the output ON / OFF temperature and humidity set value and "p" =.

(Valid only in the range of LOW LIMIT ~ HIGH LIMIT that is set on the screen TEMP RANGE) sent in four hexadecimal digits with no sign of the temperature set point value (1)

(Valid only in the range of 0-1000) sent in four hexadecimal digits without a decimal point setting of the humidity (2)

Bit of the output corresponding to the bit to 8 bit 0 of 2 bytes each output as shown in Table 1, and then to ON, the setting ON / OFF of the output (3) ON / OFF the output bits to 1, OFF the combination of oN / OFF of each output of "1FFH" of all outputs oN from "000H" of all output OFF decides to 0

Since hexadecimal number, I will send that value.

1 Table:Output Settings ON / OFF:

Setting is set to OFF to ON bit output name	Setting is set to OFF to ON bit	Setting is set	Setting is set
Time signal TS2 = 2 8 1 0	8	1	0
Time signal TS1 = 1 7 1 0	7	1	0
4 6 1 0 temperature T4 =	6	1	0
5 1 0 humidity H1 =	5	1	0
2 4 1 0 temperature T2 =	4	1	0
Temperature T3 = 3 3 1 0	3	1	0
RUN = run program 2 1 0	2	1	0
Temperature T1 = 1 1 1 0	1	1	0
END = final program	0	1	0

(4) Example: The device number = 0, = 40.0 ℃ setting temperature, RH, ON / OFF (bits 8,6,4,2,0) to be sent even if the ON bit = 60.0% humidity setting 0258H, data = 40.0 temperature setting is 400, its hexadecimal 0190H, = 60.0 humidity setting value = "0190" send 600 character, hexadecimal number that is transmitted without a decimal point character without a decimal point = "0258 "ON / OFF is 101 010 101, hexadecimal is 155H, = transmission character in hexadecimal 2" @ "+" 0 "+" p "+" 0190 "+" 0258 "+" 155 "is a send string becomes" 155 "+" 36 "+ CR + LF

= It will be "@ 0p0190025815536" DA. In addition, FCS "36" is the (horizontal parity).

■(or P.STOP F.STOP is valid only when the operation mode) transmission of "q" = pattern data

Sent after the command "q", the data as follows: for each pattern in the order of the pattern number 0,1,2 ..... 9. (00H ~ 63H, = "00" ~ "63" 99,16 00 character hexadecimal number sent in the first step) 00H ~ 63H in decimal step number 00 to 99,16 (2) END the last ((1) TOP = "00" to "63" characters) Send

In addition, please be sure to TOP ≦ END ≦ 99.

0001H ~ 03E7H, = "0001" letter sent in decimal number of repetitions from 1 to 999,16 (3) CYC (pattern ~ "03E7")

If 0H ~ AH, = "0" ~ "A" transmission character, of 0-9 jumps to the pattern specified in hexadecimal from 0 to 10.16 pattern to run run (4) JP (pattern will continue after the end of, If the pattern ends at 10.

(5) EXE(Start pattern is "*", and others - to send the "－"

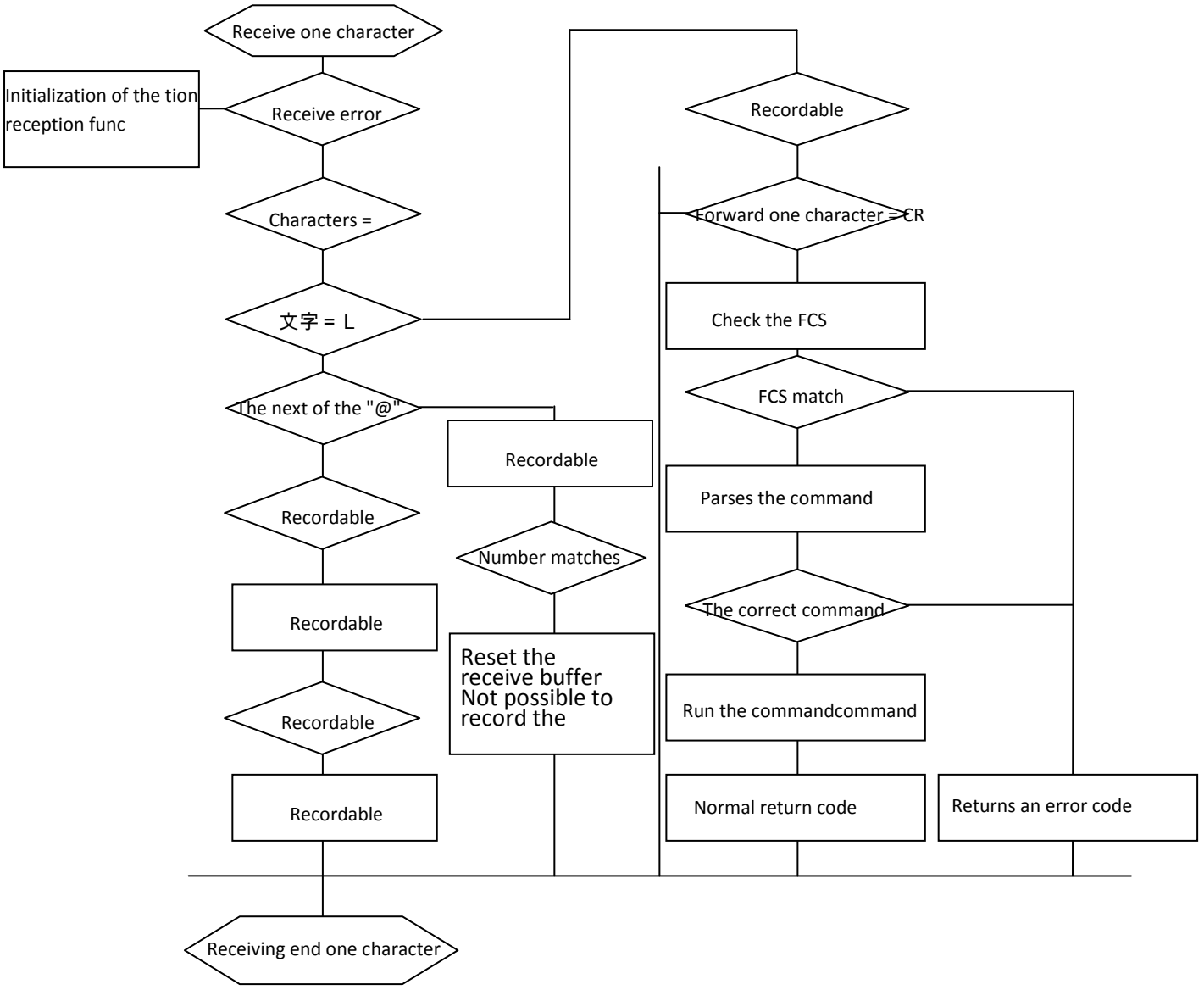
■(Valid only when the operation mode P.STOP F.STOP or transmission) of "r" = step data
Because there are many data step data, bank to bank 0 = Step 00-09, Bank 1 = Step 10-19, Bank 2 = Step 20-29, ..., 10 of 90-99 banks step 9 = 100 steps I will send the 10 steps of the bank that divides, specified. Therefore, after the command "r", I will send "0" to "9" on the bank number.
It is transmitted as follows: 10 steps from the first step to the last step of the bank specified below.
(0000H ~ 176FH, = "0000" ~ "176F" letter sent in decimal from 0 to 5999,16 minutes you have 0-99 hours and 59 minutes) run time (1)
FC19H ~ 07D0 decimal -999 ~ 2000,16, = "FC19" temperature setpoint transmission character (2) without a decimal point (
~ "07D0")
(00H ~ 63H, = "00" ~ "63" letter sent in decimal from 0 to 99,16) humidity setting (3)
Set, when both OFF "0", only one signal is "1" when the ON means that the ON = 1, OFF = 0 (4) Time signal (signal 1 = bit 0, bit 2 = 1 signal , "2", only two signals when both the ON sends a "3" when is ON.
In addition, FK bank number will check, because it does not check the range of the data step, send the correct data.

35.5 Description of the FCS

FCS (horizontal parity), the data in order to detect errors in transmission and reception in software, it is the value taken by the exclusive OR of each bit of the transmit data until all code just before the FCS from the start of communication. For example, if you want to send a start pattern = 1 FK 0 and device number, the code "@" = 40H start of communication, "0" = 30H equipment number, the command "o" = 6FH send start pattern, the number "1" pattern = will be sent to the order of 31H, FCS in this case will be 40H ^ 30H ^ 6FH ^ 31H = 2EH.
Therefore, I will send data becomes "@ 0o12E" DA "= 40H, 30H, 6FH, 31H, 32H, 45H, DH, in AH.

35.6 FK receiving process is FK

Are usually ready to receive, it is possible to receive at any time interrupt processing. Flowchart of the reception process is shown below. If the number matches the device, regardless of the enable / disable commands to a maximum of 0.5 seconds after receiving the exit code
Returns an error code or code answer back as normal.



1. If there is an error in the hardware, including the parity check one reception., We reset the receive buffer. Receive buffer is reset, data other than the code "@" start the reception will be ignored.
2. Set the receive buffer to receive the code "@" Start two received., We allow the recording of the received data.
3. The following letter was received 3. "@" Because it is the instrument number, compared with the number I have entered into the equipment FK.

Equipment number

(1) If the discrepancy is, ignore the received data until it receives the code "@" following the start of reception to reset the receive buffer.
Until it receives a CR + LF exit code, if the equipment number

(2) there is a match, the received data sequentially recorded in the receive buffer.

4. Upon receipt of the CR + LF code completion

(1) Compare the FCS to the FCS and the receive buffer (horizontal parity) was sent.

(2) It returns an error code "1", FCS if not match, the command is not executed.

(3) If the FCS is matched, it checks whether the command is successful.

(4) If the operation mode of the FK is not in a valid state for the command or command is undefined, Erako Mode — to reply to "2", the command is not executed.

(5) If a valid state of the command, the start of the command pattern "o", all data for the command "p", for the bank number of the command "r" to check the range of the data mode of operation. It returns an error code "3", if the data is out of range and will not be executed.

(6) Run the command, if the normal data to be checked and in the enabled state of the command, the command returns the same data "a" and the Directive (sending data).

(7) Or "p" Command "o" is executed, the screen is displayed EDIT PATTERN. Command "r" is executed, the screen EDIT STEP of the steps that have been sent is displayed.

(8) Command "a" is a request to send data, it returns the following data as a success code.

Name the number of communications	Name the number of communications signals	Name the
Communication start code	“@”	1
Equipment number	(1 digit hexadecimal) from "0" to "7"	1
Temperature setpoint	(Four hexadecimal digits with sign) -999 to 2000	4
temperature readings	(Four hexadecimal digits with sign) -999 to 2200	4
setting value	(Four hexadecimal digits) 0000-1000	4
humidity measurements	(Four hexadecimal digits) 0000-1000	4
state of the output ON / OFF	(3 digits decimal 16) 000H ~ 1FFH	3
operation	(1 digit hexadecimal 16) "0" ~ "C"	1
pattern number	(1 digit hexadecimal) from "0" to "9"	1
step number	(Two-digit hexadecimal number 16) 00 ~ 99 = 00H ~ 3CH	2
FCS (horizontal parity)	(Two-digit hexadecimal number 16) 00H ~ FFH	2
communication end	CR (0DH) & LF (0AH)	2

The measured value, 2 numbers without decimal places 10 times the actual number and set value
Note 1: the state of the output ON / OFF, the bit of the output of the ON as well as the setting of the output ON / OFF in Table 1 1,
Bit of the output of the OFF is transmitted Note 3 0: mode of operation

Note 1: Measurements, the number without a decimal point times the set value and the actual

Note2：State of the output ON / OFF, the bits of the output of ON bits of the output of 1, OFF is sent in as well as the setting of the output 0 ON / OFF in Table 1

Note3：The operating mode is

“0”＝F.STOP
“1”＝P.STOP
“2”＝F.PAUSE
“3”＝P.PAUSE
“4”＝F.RUN
“5”＝P.RUN
“6”＝HOLD
“7”＝WAIT
“8”＝COMPRESSOR-ERROR
“9”＝WATER-ERROR
“A”＝TEMP-ERROR
“B”＝FAN-ERROR
“C”＝REMOTE

Note4：※Step number is marked with a number and the pattern of, the operation mode P.RUN, P.PAUSE, WAIT,
Sent only if the HOLD

35.7 Writing to non-volatile memory

Non-volatile memory is limited to 1 million times the number of writes.
Therefore, only the data is written to non-volatile memory or the following command.

The execution result of the command RUN, STOP, HOLD, the ADVANCE

■start sending data patterns, and step patterns

■RUN,STOP,HOLD,ADVANCE

Enables the data to be extinguished data other than the above, when you turn off the FK, has been a key input.