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Interface Description

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KERN EW-A01

Versie 1.0 08/99

EW-A01-SB-e-9910



KERN EW/EG

Interface Description

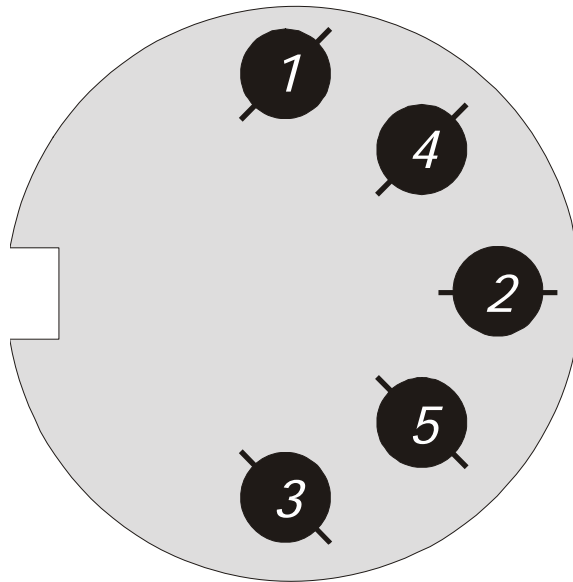
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1 Function of pins

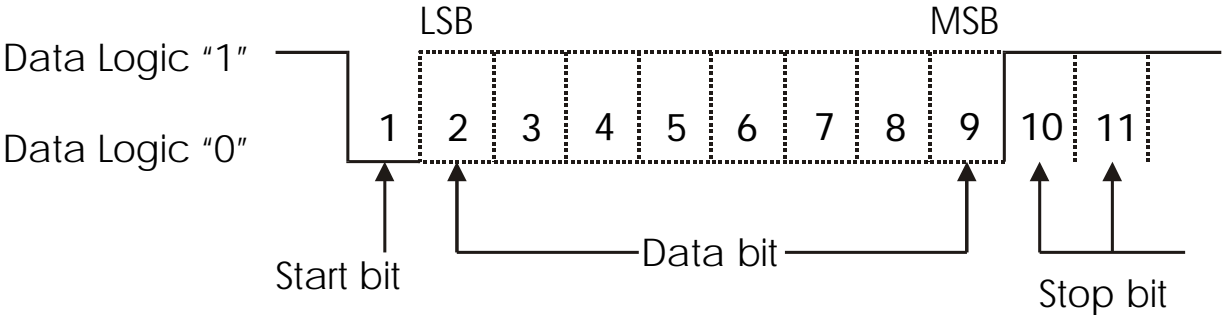
Pin No.	Signal	Output/Input	Functions
1	---	---	
2	<i>DTR</i>	<i>Output</i>	<i>High level with balance power "ON"</i>
3	<i>RXD</i>	<i>Input</i>	<i>Receiving data</i>
4	<i>TXD</i>	<i>Output</i>	<i>Transmitting data</i>
5	<i>GND</i>	---	<i>Signal ground</i>

Applicable plug: TCP0556-01-0201 (Hoshiden) included.



2 Interface specifications

1) Transmission method:	<i>Serial data transmission, random access</i>
2) Transmission speed	<i>1200/2400/4800 bps</i>
3) Transmission code	<i>ASCII code, 8-bit</i>
4) Signal level	<i>Base on EIA RS232C High level: Data logic "0" +5 to +15 V Low level: Data logic "1" -5 to -15 V</i>
5) Contents of a word:	<i>8-bit word based on ASCII standard character codes, 1 start bit, 2 stop bits, no parity bit</i>
6) Parity bit:	<i>Nil</i>



3 Output data: transmission data

3.1 Transmission data formats

One of the following three formats is selectable by function setting of EW/EG balances, function A PrF. See page 6 and refer to page 9 of the operating instructions for EW/EG balances.

6-digit data format, consists of 14 words, including terminators; CR = ODH, LF = OAH.

Remark: With EW/EG models set function 9.Ai "0" and function A.PrF "1". In other words, while the auxiliary indication is set effective, no transmission will be done.

Function A. PrF "1"

1	2	3	4	5	6	7	8	9	10	11	12	13	14
P1	D1	D2	D3	D4	D5	D6	D7	U1	U2	S1	S2	CR	LF

1. Standard format as above 1., but the auxiliary indication is also transmitted by EW/EG models. Consists of 14 words, including terminators; CR = ODH, LF = OAH.

Function A. PrF "2"

1	2	3	4	5	6	7	8	9	10	11	12	13	14
P1	D1	D2	D3	D4	D5	D6	D7	U1	U2	S1	S2	CR	LF

2. EN format with "/" before last digit in auxiliary indication with EW/EG models. While functions set at 9. Ai "0" and A. PrF "1", transmission will be done as above 1. Consists of 15 words including terminators; CR = ODH, LF = OAH.

Function A. PrF "3"

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
P1	D1	D2	D3	D4	D5	D6	D7	D8	U1	U2	S1	S2	CR	LF

3.2 Polarity

P1 = 1-word

P1	Code	Contents
+	2BH	Data is 0 or positive
-	2DH	Data is negative
sp	20H	Data is 0 or positive

3.3 Data

D1 to D7, 7 words with 6-digit format, above 1.

D1 to D8, 8 words with auxiliary indication transmission, to conform to EN standards.

D *	Code	Contents
0~9	30H~39H	Data 0 to 9 (Max. 6 digits with 6-digit data format) (Max. 7 digits with auxiliary indication) (Max. 7 digits with auxiliary indication and EN format)
•	2EH	Decimal point, position is unfixed. There is a case transmitting a space in the last digit instead of a decimal point.
SP	20H	Space; Leading zero suppression
/	2FH	Inserted before the last digit with setting to EN format and auxiliary indication.

3.4 Units

U1, U2 = 2 words based on ASCII codes

U1	U2	Contents	Symbol
sp	G	Gram	g
C	T	Carat	ct
L	B	Pound	lb
O	Z	Ounce	oz

3.5 Status of data

S2 = 1 word

S2	Code	Contents
<i>S</i>	<i>53H</i>	<i>Data stabilized</i>
<i>U</i>	<i>55H</i>	<i>Data unstabilized (fluctuates)</i>
<i>E</i>	<i>45H</i>	<i>Erroneous data; all data unreliable except S2. Balance reads o-Err, u-Err.</i>
<i>sp</i>	<i>20H</i>	<i>No specified status.</i>

4 Input command: reception data

The balance is available to control by transmitting command from external device with this PR-1 interface pack. Types of the commands are:

1. External tare command
2. Output control setting

4.1 Transmission procedure

- 1) Transit command to the balance from external device. Command transmission is free from output timing out of the balance, because the system is full duplex.
- 2) If the command is properly received, the balance transmits acknowledgment (ACK, code 06H). If the command is erroneous, the balance transmits non-acceptance (NAK, code 15H).

In ordinary display modes of the balance, ACK or NAK will be replied in 1 second after transmission of the command.

In such operation of the balance as settings of unit weight, judgment values, function parameters, or in calibration, ACK or NAK will be replied after the operation of the balance is completed. Don't send next command before receiving the response, ACK or NAK.

4.2 Input command format

Consists of 4 words, including terminators; CR = 0DH, LF = 0AH

1	2	3	4
C1	C2	CR	LF

4.3 External tare command

C1	C2	Code	Contents
<i>T</i>	<i>sp</i>	54H 20H	<i>Tare command</i>

4.4 Output control setting

C1	C2	Code	Contents
0	0	4FH 30H	<i>No output (command input is available)</i>
0	1	4FH 31H	<i>Constant output</i>
0	2	4FH 32H	<i>Constant output in stabilization (no output in unstabilization)</i>
0	3	4FH 33H	<i>One output by every pressing of print key "P"</i>
0	4	4FH 34H	<i>Automatic output</i>
0	5	4FH 35H	<i>One output in stabilization (no output in unstabilization)</i>
0	6	4FH 36H	<i>One output in stabilization (constant output in unstabilization)</i>
0	7	4FH 37H	<i>One output when data is stabilized after print key pressed</i>
0	8	4FH 38H	<i>One output at once</i>
0	9	4FH 39H	<i>One output after stabilization</i>

Remarks:

* The performance of both output controls by commands "00~07" and by the setting of balance function are the same. For further information about each performance of the output control, refer to Various Functions.

** The performance by "08 and 09" are specific by INPUT COMMAND.

Once any command of "00~09" is performed, the status will be kept until next command input. However, once the power is turned off, the output control status will return to the primary one, function setting status.

5 Setting of balance functions

Output control, transmission speed and print format are selectable by setting of balance functions. The contents is as in the following table. As to setting operation, refer to the operating instruction of the balance.

*1 Output interval of data in constant transmission is 0.1 sec. to 1 sec., depending on weighing condition and setting of functions.

<i>Output control</i>	6.0C0	<i>No data transmitted</i>
	6.0C1	<i>Constant serial transmission. *1</i>
	6.0C2	<i>Serial transmission of stabilized data only</i>
	6.0C3	<i>One transmission by command from printer</i>
	6.0C4	<i>Auto-transmission with loading an object</i>
	6.0C5	<i>One transmission of stabilized data only</i>
	6.0C6 6.0C7 *	<i>One transmission when stabilized, serial for else One stabilized data by command from printer*</i>
<i>Baud rate</i>	7.GL1	<i>1200 bps</i>
	7.GL2	<i>2400 bps</i>
	7.GL3	<i>4800 bps</i>
<i>Weight unit</i>	8.SET1	<i>“g” only*</i>
	8.SET2	<i>g/ct switchable</i>
	8.SET3	<i>g/oz (lb) switchable</i>
	8.SET4	<i>g/ct/oz (lb) switchable</i>
<i>Auxiliary indication</i>	9.A10	<i>No auxiliary indication*</i>
	9.A11	<i>Auxiliary indication is effective</i>
<i>GLP printing</i>	0.GLP0	<i>No transmission for GLP printing*</i>
	0.GLP1	<i>GLP printing transmission is effective</i>
<i>Format for auxiliary indication**</i>	A.PRF1	<i>No transmission of auxiliary indication</i>
	A.PRF2	<i>Standard format while auxiliary indication</i>
	A.PRF3 *	<i>EN format with “/” before the last digit in auxiliary indication. Ex. 200.00/5*</i>

* Settings made when delivered from factory.

** Formats for auxiliary indication is effective when the lock switch is OFF, free. While the lock switch is ON, functions will not be displayed but the balance performs just as set when it was free.

6 Example of connection with a personal computer

PC-9801 (NEC)

