INTERFACE PROTOCOL INFORMATION

TO: CONRAD

	CONRAD MODEL NO	PROTOCOL VERSION
	VOLTCRAFT 300K	300-303Rs232Protocol
	VOLTCRAFT 302KJ/KJ202	300-303Rs232Protocol
	VOLTCRAFT K204	304-309Rs232Protocol
	VOLTCRAFT K204	304-309Rs232Protocol
	VOLTCRAFT K202	305-306Rs232Protocol

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RS232	function	note
K(ASC 4BH)	Ask for model No.	Return 4 bytes
H(ASC 48H)	Hold button	Simulate HOLD button
T(ASC 54H)	301,303:T1/T2/T1-T2(TIMER) 300,302:TIMER	Simulate T1/T2/T1-T2 button(301,303) or TIMER(300,302)button
M(ASC 4DH)	AVG/MAX/MIN	Simulate AVG/MAX/MINbutton
N(ASC 4EH)	AVG/MAX/MIN	Simulate hold AVG/MAX/MIN button for 2 seconds
R(ASC 52H)	REL	Simulate RELbutton
C(ASC 43H)	C/F	Simulate C/F
A(ASC 41H)	nquire all encoded data	See below

explanation:

×∅μμα×δ ×××ε××®× ← β××εΣ· ×∅® ε×αμπλε∞ ××ε× Σε×δΣ ©∅μμα×δ ²×² ×∅ ³≙≙∞ ××ε× ××
××λλ ®ε××®× ²³²∞²≙²∞²≙²∞××××■×³□·

Command A(301,303):

1nd BYTE:

The first byte is the start byte , it value is 2.

2nd BYTE:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
C/F	Low Bat	Hold	REL	K/J	MAX/AVG/MIN		

bit 2 bit 1 bit0

0 0 0 ->normal mode

0 0 1 ->MAXIMUN mode

0 1 0 ->MINIMUN mode

1 0 0 ->AVG mode

1 1 1 -> calculate MAX/MIN/AVG in background and lcd "MAX""AVG""MIN" will flash.

bit3:1->0->K TYPE 1->J TYPE(301 only has K type)

bit4:1->REL

bit5:1- HOLD 0->not HOLD

bit6:1->LOW BATTERY 0->BATTERY NORMAL

bit7:1->C 0->F

3nd BYTE:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
		point	minus	OL	point	minus	OL

bit0:1->main window value is OL 0->not OL

bit1:1->main window value is minus, 0->main window value is plus.
bit2:1->4th byte and 5th byte represent #### 0-> 4th byte and 5th byte represent ###.#
bit3:1->sub window value is OL 0->not OL
bit4:1->sub window value is minus, 0->sub window value is plus.
bit5:1->6th byte and 7th byte represent #### 0-> 6th byte and 7th byte represent ###.#
bit7 bit6:00->Main window is T1-T2,sub window is T1
01->Main window is T1-T2, sub window is T2
10->Main window is T1, sub window is T2
11->Main window is T2, sub window is T1

4th BYTE:first two BCD code of main window value.
5th BYTE:last two BCD code of main window value
6th BYTE:first two BCD code of sub window value.
7th BYTE:last two BCD code of sub window value.
8th BYTE
The last byte is the end byte , it value is 3, first and last byte are used to check frame error.

A Command(300,302):

1nd BYTE:
The first byte is the start byte , it value is 2.
2nd BYTE:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
C/F	Low Bat	Hold	REL	K/J	MAX/AVG/MIN		

bit 2	bit 1	bit0	
0	0	0	->normal mode
0	0	1	->MAXIMUN mode
0	1	0	->MINIMUN mode
1	0	0	->AVG mode
1	1	1	-> calculate MAX/MIN/AVG in background and lcd "MAX""AVG""MIN" will flash.

bit3:1->0->K TYPE 1->J TYPE(300 only has K type)
bit4:1->REL
bit5:1- HOLD 0->not HOLD
bit6:1->LOW BATTERY 0->BATTERY NORMAL
bit7:1->C 0->F
3th BYTE:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
no use	no use	no use	Time unit	no use	X1_X10	minus	OL

bit0:1->main window value is OL 0->not OL

bit1:1->main window value is minus, 0->main window value is plus.

bit2:1->4th byte and 5th byte represent #### 0-> 4th byte and 5th byte represent ###.#

bit4:1->sub window value is MM:SS, 0-> sub window value is HH:MM

4th BYTE:first two BCD code of main window value.

5th BYTE:last two BCD code of main window value

6th BYTE:first two BCD code of sub window value.

7th BYTE:last two BCD code of sub window value.

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Baudrate : 9600

Parity: none

Data bits : 8

Stop bits : 1

Command list:

RS232	function	note
K(ASC 4BH)	Ask for model No.	Return 4 bytes
H(ASC 48H)	Simulate Hold button	Simulate HOLD button
T(ASC 54H)	301,303:T1/T2/T1-T2(TIMER) 300,302:TIMER	Simulate T1/T2/T1-T2 button(301,303) or TIMER(300,302)button
M(ASC 4DH)	Simulate AVG/MAX/MIN	Simulate AVG/MAX/MINbutton
N(ASC 4EH)	Simulate canceling AVG/MAX/MIN	Simulate hold AVG/MAX/MIN button for 2 seconds
R(ASC 52H)	Simulate REL button	Simulate RELbutton
C(ASC 43H)	Simulate C/F button	Simulate C/F
A(ASC 41H)	Ask for LCD reading	See below

explanation:

×∅μμα×δ ×××ε××®× ← β××εΣ· ×∅® ε×αμπλε∞ ××ε× Σε×δΣ ©∅μμα×δ ²×² ×∅ ³≙≙∞ ××ε× ××
××λλ ®ε××®× ²³²∞²≙²∞²≙²∞××××××■×³□·

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2nd BYTE:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
C/F	Low Bat	Hold	REL	K/J	MAX/AVG/MIN		

bit 2 bit 1 bit0

0 0 0 ->normal mode

0 0 1 ->MAXIMUN mode

0 1 0 ->MINIMUN mode

1 0 0 ->AVG mode

1 1 1 -> calculate MAX/MIN/AVG in background and lcd "MAX""AVG""MIN" will flash.

bit3:1->0->K TYPE 1->J TYPE(301 only has K type)

bit4:1->REL

bit5:1- HOLD 0->not HOLD

bit6:1->LOW BATTERY 0->BATTERY NORMAL

bit7:1->C 0->F

3nd BYTE:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
		point	minus	OL	point	minus	OL

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4th BYTE:first two BCD code of main window value.

5th BYTE:last two BCD code of main window value

6th BYTE:first two BCD code of sub window value.

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8th BYTE

The last byte is the end byte , it value is 3, first and last byte are used to check frame error.

A Command(300,302):

1nd BYTE:

The first byte is the start byte , it value is 2.

2nd BYTE:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
C/F	Low Bat	Hold	REL	K/J	MAX/AVG/MIN		

bit 2	bit 1	bit0	
0	0	0	->normal mode
0	0	1	->MAXIMUN mode
0	1	0	->MINIMUN mode
1	0	0	->AVG mode
1	1	1	-> calculate MAX/MIN/AVG in background and lcd "MAX""AVG""MIN" will flash.

bit3:1->0->K TYPE 1->J TYPE(300 only has K type)

bit4:1->REL

bit5:1- HOLD 0->not HOLD

bit6:1->LOW BATTERY 0->BATTERY NORMAL

bit7:1->C 0->F

3th BYTE:

bit7	bit6	bit5	bit4	bit3	bit2	bit1	bit0
no use	no use	no use	Time unit	no use	X1_X10	minus	OL

bit0:1->main window value is OL 0->not OL

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bit2:1->4th byte and 5th byte represent #### 0-> 4th byte and 5th byte represent ###.#

bit4:1->sub window value is MM:SS, 0-> sub window value is HH:MM

4th BYTE:first two BCD code of main window value.

5th BYTE:last two BCD code of main window value

6th BYTE:first two BCD code of sub window value.

7th BYTE:last two BCD code of sub window value.