

Datacommunication protocol for TAP-2000 / RAP-2000

The rules of Protocol

- 1) Do not send the data which is not measured)
- 2) Distinguish the FAR mode as a capital letter(UN, LM, S, C, A..) and NEAR mode as a small letter(un, lm, s, c, a..)
- 3) Sequence of sending data

1. Sign of “Protocol Start”
2. The save No. of Phoropter
3. PD data
4. WD data
5. Un-aided data
6. LM data
7. AR data
8. SUBJECT data
9. FINAL data
10. TIME data
11. “Protocol End” sign

※ The two items(1. Protocol Start sign, 11. Protocol End sign) only have the prefix as ‘SOH’ and the suffix as ‘EOT’. The others items(2. ~ 10.) have the prefix as ‘STX’ and the suffix as ‘ETB’.

All connection have the following port settings :

Baudrate : 9600
Parity : none
Databit : 8
Stopbit : 1
HardwareFlow : none

TAP-2000 = RAP-2000 (only second line is changed)

Detail of Protocol

1. Protocol Start sign

SOH+*+PC_RCV_S+EOT ex) **SOH***PC_RCV_SEOT

2. The save No. of Phorofter

STX+*+TAP-2000+ID:(a nine-digit No.)+measured time(by minute)-> Express the number with two decimal places+**ETB**

ex) **STX***TAP-2000|00000000|10**ETB**

3. PD data

STX+*+PD+left PD result+right PD result+**ETB** ex) **STX***PD|32.0|32.0**ETB**

4. WD data

STX+*+WD+measured result+**ETB** ex) **STX***WD|40**ETB**

5. Un-aided data

5-1 **STX**+*+UN+**ETB**

5-2 **STX**+*+VA+both side result+left result+right result+**ETB** ex) **STX***UN**ETB**

STX*VA| 0.70| 0.00| 0.00**ETB**

6. LM data

6-1 **STX**+*+LM+**ETB**

6-2 **STX**+*+Kind of data(SP, CY, AX, AD)+left result+right result+**ETB**

6-3 **STX**+*+Kind of prism data(PH, PV)+Polarity (I, O, U, D, or empty)+left result+Polarity (I, O, U, D, or empty)+right result+**ETB**

=> Prism is sent by horizontality(PH) and verticality(PV). If the result is 0, Polarity is empty. ex)

STX*LM**ETB**

STX*SP|-0.25|-0.25**ETB** **STX***CY|-0.25|-0.25**ETB** **STX***AX|135|135**ETB** **STX***PH|0.50|0.50**ETB** **STX***PV|0.50|0.50**ETB**

7. AR data

7-1 **STX**+*+AR+**ETB**

7-2 **STX**+*+Kind of data (SP, CY, AX, AD)+left result+right result+**ETB**

7-3 **STX**+*+Kind of prism data (PH, PV)+Polarity (I, O, U, D, or empty)+left result+Polarity (I, O, U, D, or empty)+right result+**ETB**

=> Prism is sent by horizontality(PH) and verticality(PV). If the result is 0, Polarity is empty. ex)

STX*AR**ETB**

STX*SP| 0.25| 0.25**ETB** **STX***CY| -4.25| -4.25**ETB** **STX***AX| 45| 45**ETB** **STX***PH|0.50|0.50**ETB** **STX***PV|1.50|1.50**ETB**

8. SUBJECT data

8-1 **STX**+*+SJ+**ETB**

8-2 **STX**+*+Kind of data (SP, CY, AX, AD)+|+left result+|right result+|+**ETB**

8-3 **STX**+*+Kind of prism data (PH, PV)+|+Polarity (I, O, U, D, or empty)+|+left result+|+Polarity (I, O, U, D, or empty)+|+right result+|+**ETB**

=> Prism is sent by horizontality(PH) and verticality(PV). If the result is 0, Polarity is empty. ex)

STX*SJ**ETB**

STX*SP| 0.50| 0.50|**ETB**

STX*CY| -0.25| -0.25|**ETB** **STX***AX|135|135|**ETB** **STX***PH|O| 0.50|O| 0.50|**ETB** **STX***PV|U| 0.50|D| 0.50|**ETB**

9. FINAL data

9-1 **STX**+*+FN+**ETB**

9-2 **STX**+*+Kind of data (SP, CY, AX, AD)+|+left result+|right result+|+**ETB**

9-3 **STX**+*+Kind of prism data (PH, PV)+|+Polarity (I, O, U, D, or empty)+|+left result+|+Polarity (I, O, U, D, or empty)+|+right result+|+**ETB**

=> Prism is sent by horizontality(PH) and verticality(PV). If the result is 0, Polarity is empty. ex)

STX*FN**ETB**

STX*SP| -0.50| -0.50|**ETB** **STX***CY| -5.00| -5.00|**ETB** **STX***AX| 30| 30|**ETB** **STX***PH|O| 0.50|O| 0.50|**ETB** **STX***PV|D| 1.00|U| 1.00|**ETB**

10. TIME data

STX+*+TIME+|+sending time(yyyy/MM/dd hh:mm:ss)+**ETB** ex) **STX***TIME|2012/10/06
04:06:58**ETB**

11. Protocol End sign **SOH**+*+PC_**RCV**_E+**EOT**

ex) **SOH***PC_**RCV**_E**EOT**

** From PC to TAP-2000, it is same except first and last as below.

1 start => **SOH**+*+PC_**SND**_S+**EOT** (Start of data sent by PC : PC_**SND**_S) ex)
SOH*PC_**SND**_S**EOT**

2 end => **SOH**+*+PC_**SND**_E+**EOT** (The last of data sent by PC : PC_**SND**_E:) ex)
SOH*PC_**SND**_E**EOT**