Dear valued customers,

Regarding HELIOT series Signal Conversion Unit EXC-73

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Component Division measurement instrument 1 department

≪ Note ≫

1. Overview

「EXC-73」 is a signal conversion unit for the customers who needs to upgrade HELIOT 300 series integrated to the system to the new leak detector HELIOT 700/710/900 series using the external I/O input-output and Rec Output.

Following information is the setting method for EXC-73 customers who purchased/delivered before January 2016 to upgrade to HELIOT 900 series.

2. Pin assignment list for EXC-73 Signal conversion

I/O conversion will be as below .

HELIOT900 I/O (HELIOT side)		HELIOT300 I/O (System side)	
Connector shape: D-Sub 37Pin		Connector shape: D-Sub 15Pin	
Signal name	Pin No.	Signal name	Pin No.
SETPOINT 2[※3]	2	SETPOINT L	2
SETPOINT 3[※3]	3	SETPOINT H	3
ERROR1 (Warning)	5	SYSTEM ERROR	5
OVER RANGE[※2]	6	SYSTEM ERROR	5
ERROR2[※1] (Caution)	7	UNWIRED	
STANDBY	13	START UP OK	4
SYSTEM START/STOP	20	SYSTEM START/STOP	14
TEST START/STOP	21	TEST START/STOP	12
Re-CALIBRATION	25	CALIBRATION	11
AUTO ZERO	26	AUTO ZERO	10
PRINT	27	PRINT OUT	13
+COM	32	+COM	9
-COM	34	-COM	1
< -(MINUS)	15	−0	6
He Spraying	9	Big Flow Valve Output	A, B
Testing	12	Helium Spray Output	C, D

3. ERROR2 Output （ Refer to above list ※1）

- On HELIOT900 setting screen, go and check that is set as follow .
  [Settings] - [Serial Comm. EXT I/O] - [Compatibility], and check that model 300 is selected.
  When model 300 is selected ERROR2 (Pin#7) signal of HELIOT900 is programed to output the signal ERROR1 to system side from Pin#5.
- When none is selected ERROR2 signal (caution signal) is not issued thorough EXC-73 to the system side..
  EXC-73 delivered before January 2016 has the pin assignment which ERROR2 of HELIOT900 is not wired to Pin#5.

This ERROR2 caution signal is issued when HELIOT starts ・ recalibrate the sensitivity, the pressure rises during test and the abnormal temperature is detected when HELIOT is used as vacuum method.

In case ERROR2 caution signal is issued when HELIOT starts・ recalibrate the sensitivity.

　1) In case that the system only issues TEST START/STOP signal and recognizes that HELIOT is testing. When HELIOT900 has ERROR2, since all SETPOINTs from HELIOT900 are off, there is a possibility the system passes the pass/fail judgement even though ERROR2 is occurring.

　2) On the other hand, in case that the helium spray output (Pin# C, D) of HELIOT300 is detected and the system recognizes that HELIOT is testing. When HELIOT900 has ERROR2, since the helium spray output is not output so the system can determine if HELIOT has abnormal troubles.

In case ERROR2 caution signal is issued when the pressure rises during the test.

　1) When this error occurs, HELIOT stops the test.
　When the pressure rises during the test, the system cannot recognize the error and all SETPOINT signals from HELIOT are off. That is why there is a possibility that system makes a false pass/fail judgement and pass every leak test.

In case ERROR2 caution signal is issued when abnormal temperature is detected.

　1) In case that the system uses only TEST START/STOP signal input and recognizes

that HELIOT is testing. Since all SETPOINT signals from HELIOT are off, there is a possibility the system makes a false pass/fail judgement and pass every leak test even though the abnormal temperature at startup and during standby occurs. When the abnormal temperature occurs during the test, measurement is being performed and SETPOINT is functioning, even though error message is displayed on the screen.

4. Regarding OVER RANGE Output (The above list ※2)

● Pin#6 of HELIOT900 is OVER RANGE Output which is issued when the leak is detected over the leakage range. <u>This OVER RANGE Output was wired to SYSTEM ERROR of the system side. That is why when over range occurred, OVER RANGE signal was converted to SYSTEM ERROR and was output as SYSTEM ERROR incorrectly.</u>
HELIOT300 does not have OVER RANGE Output. It is necessary not to wire to output correctly.
This miss wiring is determined as safe for the pass/fail judgement and a defective product is not judged as a good product. EXC-73 manufactured after January 2016 are wired correctly.

5. Regarding SETPOINT Output (The above list ※3)

● HELIOT300 controller was the following,
SETPOINT LAMP1 (the lamp turns on when the leak rate is above 0.0 and below SETPOINT L.)
SETPOINT LAMP2 (the lamp turns on when the leak rate is above SETPOINT L and below SETPOINT H.)
SETPOINT LAMP3 (the lamp turns on when the leak rate is above SETPOINT H.)
This signal conversion unit is designed to correspond to the above lamps as follows,
HELIOT700/710 outputs SETPOINT2 as SETPOINT L of HELIOT300.
HELIOT700/710 outputs SETPOINT3 as SETPOINT H of HELIOT300.

6. Regarding REC Output

● The Rec output table of HELIOT900 is different from the table of HELIOT model 300. To change it to the rec output table of HELIOT300, please go to HELIOT900 [Settings]－[Serial Comm. EXT I/O]－[Compatibility] and then chose model 300 .

In addition, please go to HELIOT900 [Settings]－[Serial Comm. EXT I/O]－[REC. OUT Voltage] and then choose LINEAR or LOGARITHM whichever it is the same output with HELIOT300.

HELIOT900 LEAK RATE (HELIOT side)		HELIOT300 REC. OUT (System side)	
Connector shape: D-Sub9Pin		Connector shape: Banana terminal	
Signal name	Pin No.	Signal name	Pin No.
Mantissa portion output ＋	2	REC.OUT Red ＋	Red
Mantissa portion output －	7	REC.OUT Black －	Black

6-1. LINEAR Output

	HELIOT900		HELIOT300	
	[Settings]－[Serial Comm. EXT I/O]－[REC. OUT Voltage] when LINEAR Selected.		[Graph Display Selection] when LINEAR Selected.	
	Conversion Value	Display Value	Conversion Value	Display Value
9.99	9.99E-**	9.99E-**	9.99E-**	9.9E-**
9.00	9.00E-**	9.00E-**	9.00E-**	9.0E-**
8.00	8.00E-**	8.00E-**	8.00E-**	8.0E-**
7.00	7.00E-**	7.00E-**	7.00E-**	7.0E-**
6.00	6.00E-**	6.00E-**	6.00E-**	6.0E-**
5.00	5.00E-**	5.00E-**	5.00E-**	5.0E-**
4.00	4.00E-**	4.00E-**	4.00E-**	4.0E-**
3.00	3.00E-**	3.00E-**	3.00E-**	3.0E-**
2.00	2.00E-**	2.00E-**	2.00E-**	2.0E-**
1.00	1.00E-**	1.00E-**	1.00E-**	1.0E-**
0.00	0.00E-**	0.00E-**	0.00E-**	0.0E-**

6-2. Logarithm Output (The unit : Pa・m³/s selected)

	HELIOT900	HELIOT300	
	[Settings] − [Serial Comm. EXT I/O] − [REC. OUT Voltage] when LOGARITHM Selected.	[Graph Display Selection] When LOGARITHM Selected.	
	Logarithm output voltage varies depending on the measuring range which is set on the test screen.	Conversion Value	Display Value
9.999		9.99E-02	9.9E-02
9.100		1.00E-02	1.0E-02
8.999		9.99E-03	9.9E-03
8.100		1.00E-03	1.0E-03
7.999		9.99E-04	9.9E-04
7.100		1.00E-04	1.0E-04
6.999		9.99E-05	9.9E-05
6.100		1.00E-05	1.0E-05
5.999		9.99E-06	9.9E-06
5.100		1.00E-06	1.0E-06
4.999		9.99E-07	9.9E-07
4.100		1.00E-07	1.0E-07
3.999		9.99E-08	9.9E-08
3.100		1.00E-08	1.0E-08
2.999		9.99E-09	9.9E-09
2.100		1.00E-09	1.0E-09
1.999		9.99E-10	9.9E-10
1.100		1.00E-10	1.0E-10
0.999		9.99E-11	9.9E-11
0.100		1.00E-11	1.0E-11
0.010		0.10E-11	0.1E-11
0.000		0.00E-11	0.0E-11

7. Regarding RS232C

● RS232C command of HELIOT 900 is different from the command of HELIOT model 300. To change it to RS232C command of model 300, please go to HELIOT900 [Settings] － [Serial Comm. EXT I/O]－[Compatibility] and then choose model 300 .

The baud rate of RS232C of HELIOT900 is also different from the baud rate of HELIOT model 300. Please go to HELIOT900 [Settings] － [Serial Comm. EXT I/O]－[Serial Comm.]－[RS232C]－[Baud rate] and then choose 9600bps .

The subject ends herewith.