

Motion Control Technologies
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精傳科技有限公司

HP Robot Drivers

Overhaul

地址: 新竹市明湖路798號1F

聯絡電話: 03-5292359 fax: 03-5205366

Mail : motiontec@ebtnet.net

統一編號: 27297862

HP Robot Drivers 簡介

一、總類

HP Robot Drivers可細分為二種:

(1) HP

(2) HP plus

二、適用機型-**Applied Materials**

CVD,PVD-Centura,Endura,HDP
Producer.

ETCH-MXP+,E-MAX,SUPER E
DPS .

三、Step Motor 構造



四、分解圖

1.Step Motor

2.Harmonic Gear



3.Encoder



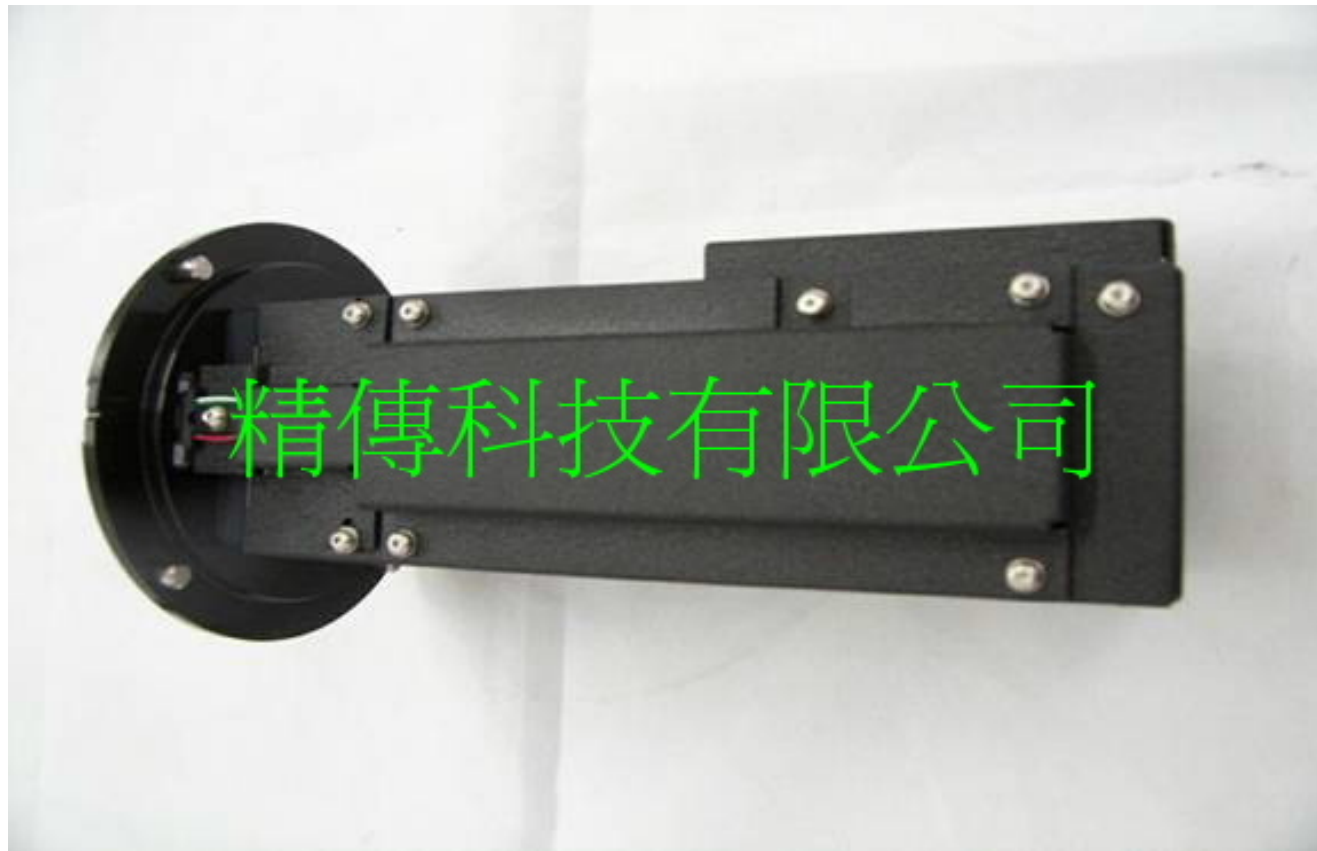
4. Reflective Object Sensor



5.磁性齒盤



6. 驅動器外殼



五、HP Robot Drivers 之故障原因分析:

故障原因可分為三類:

1.Step motor & Harmonic gear (佔數據分析比例 80%)

(1) Step motor

- * 磁極破損
- * 欠相運轉
- * 運轉環境欠佳(軸承磨損, 磁極受異物污染)
- * 負載阻力過大(軸承破損, 減速齒機磨損)

(2) Harmonic gear

- * 減速機磨損 (長期使用耗損, 減速機主軸與出力軸產生
間隙)
- * 減速機主軸軸承磨損

2.Encoder (佔數據分析比例 10%)

(1) Optical encoder module

- * **Detector chip (發光二極體作用不良, 光二極體作用不良)**
- * **Optical encoder module (故障)**

(2) Optical encoder disks

- * **分度盤污染**
- * **分度盤變形**
- * **分度盤破損**

3.Reflective Object Sensor (佔數據分析比例 10%)

- * **input Diode (發光二極體作用不良. 故障)**
- * **output Phototransistor (光二極體作用不良. 故障)**
- * **Reflective surface (反射鏡面不潔, 反射距離不正確)**

六、**HP Robot Drivers** 之檢驗測試:

HP Robot Drivers 專用 測試機

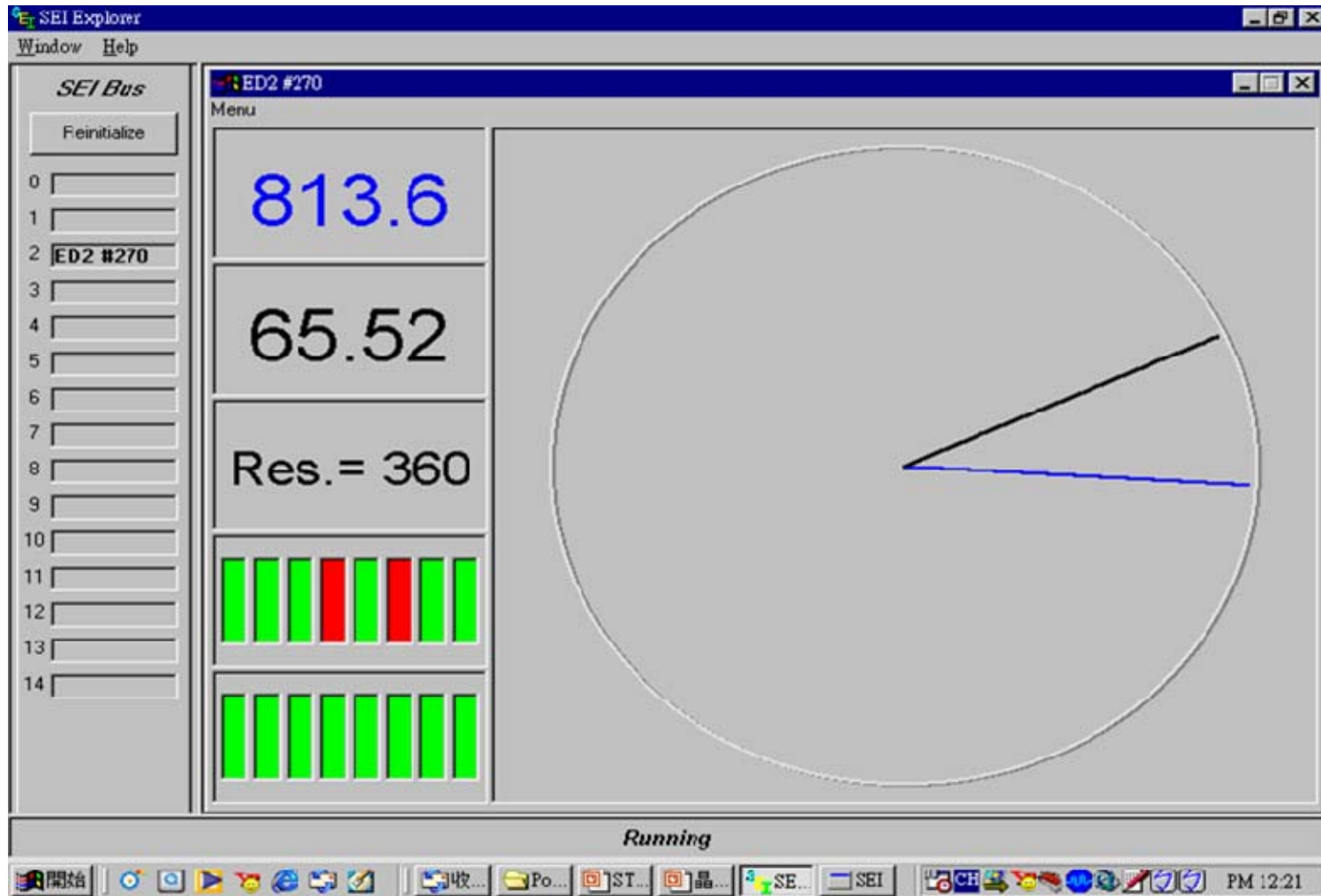
ETEST ST-01 , ST-01S 內含:

- * STEP MOTOR CONTROLLER**
- * STEP MOTOR DRIVER**
- * DIGITAL READER**
- * QUADRATURE ENCODER TESTER**
- * REFLECTIVE OBJECT SENSOR TESTER**
- * INCREMENTAL SHAFT ENCODER**
- * STEP MOTER TEST PLATFORM**
- * SEI Explorer V1.07 software**

專用測試儀 ETEST ES-01



SEI Explorer V1.07 software



檢測報告

精傳科技有限公司

STEP MOTOR QA CHECK LIST

CUSTOMER : SMC-F3-PVD

2. SERIAL NO: 06501091U

DATE :2005/08/25

PART NAME : step motor : LOWER UPPER

3. PARTS NO#: 0010-70264

FAB NO # :F3

CHECK POINT CHECK TYPE	STANDARD	1	2	3	4	5	6	7	8	9
1.ENCODER TEST (VR=100Hz,500pules) (ENCODER TESTER,DC5V)	180.00 °	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00
2.STEP MOTOR TEST (VR=1000Hz,2000pulse) ENCODER DIGITAL READOUT	720.00 °	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00	720.00
3.STEP MOTOR TEST (VR=2000Hz,5000pulse) ENCODER DIGITAL READOUT	1800.00 °	1800.0	1800.0	1800.0	1800.0	1800.0	1800.0	1800.0	1800.0	1800.0
4.STEP MOTOR TEST (VR=2500Hz,10000pulse) ENCODER DIGITAL READOUT	3600.00 °	3600.00	3600.00	3600.00	3600.00	3600.00	3600.00	3600.00	3600.00	3600.00
5.REFLECTIVE OBJECT SENSOR TEST (IN:1.7V OUT:12V)	10.0± 1.0V	11.0	11.0	11.1	10.9	11.1	11.0	11.2	11.0	11.1
6.HARMONIC GEAR TEST (RATIO: 1/50) (input VR=2500Hz,10000pules) (output CPR1000)	IN:3600.00 ° OUT:72.00 °	3600.00 72.00	3600.00 72.00	3600.00 72.00	3600.00 72.00	3600.00 72.00	3600.00 72.00	3600.00 72.00	3600.00 72.00	3600.00 72.00

TEST RESULT: (1)ENCODER: OK FAULT (2)Reflective Object Sensor: OK FAULT (3)Step Motor: OK FAULT

QA CHECKER: _____

VERIFY BY: _____

七、檢修流程及檢測服務:

Overhaul之零件入廠檢測

- 1) 模擬機台運轉速度run rate 3500,10000,30000,60000
分析encoder讀取訊號,判定encoder及step motor動作是否正常.
- 2) 模擬機台做home檢查home sensor讀取訊號動作是否正常.
- 3) 異常動作元件進行維修或更換

本公司亦提供入廠 **in-line** 檢測服務.

drivers無需取下,提供使用單位快速檢測分析故障原因.