



Awkward Engineer Creations, LLC
369 Broadway, #2
Somerville, MA 02145
USA

phone: 1-703-772-3373
email: sam@awkwardengineer.com

PURCHASE ORDER

DATE:

22 Mar 2015

P.O. #

02332015-02

VENDOR

WENZHOU HOPESUN INSTRUMENT CO.,LTD
NO.1-3 JISHI WEST ROAD
SHUANGYU, WENZHOU
CHINA
phone: 86-577-88762086

SHIP TO

Awkward Engineer Creations
369 Broadway, #2
Somerville, MA 02145
USA
phone: 1-703-772-3373

REQUISITIONER	SHIP VIA	F.O.B.	SHIPPING TERMS
Sam Feller		Shanghai	customer (Awkward Engineer) will arrange for freight forwarding

ITEM #	DESCRIPTION	QTY	UNIT PRICE	TOTAL
PM-2, Custom	50µA panel meter, "Hours" artwork	600	2.80	1,680.00
PM-2, Custom	50µA panel meter, "Minutes" artwork	600	2.80	1,680.00
Payment terms (in US\$):				
50% deposit by T/T				
50% T/T after first article inspection				
Packaging:				
bulk packaging is requested with no washers or nuts, see attached picture for explanation				
Artwork:				
Original artwork and approved proofs are attached				
Testing:				
100% inspection of meters, customer requirements and factory procedure attached for reference				
customer will provide a test circuit				
SUBTOTAL				\$3,360.00

Other Comments or Special Instructions

TOTAL

\$3,360.00

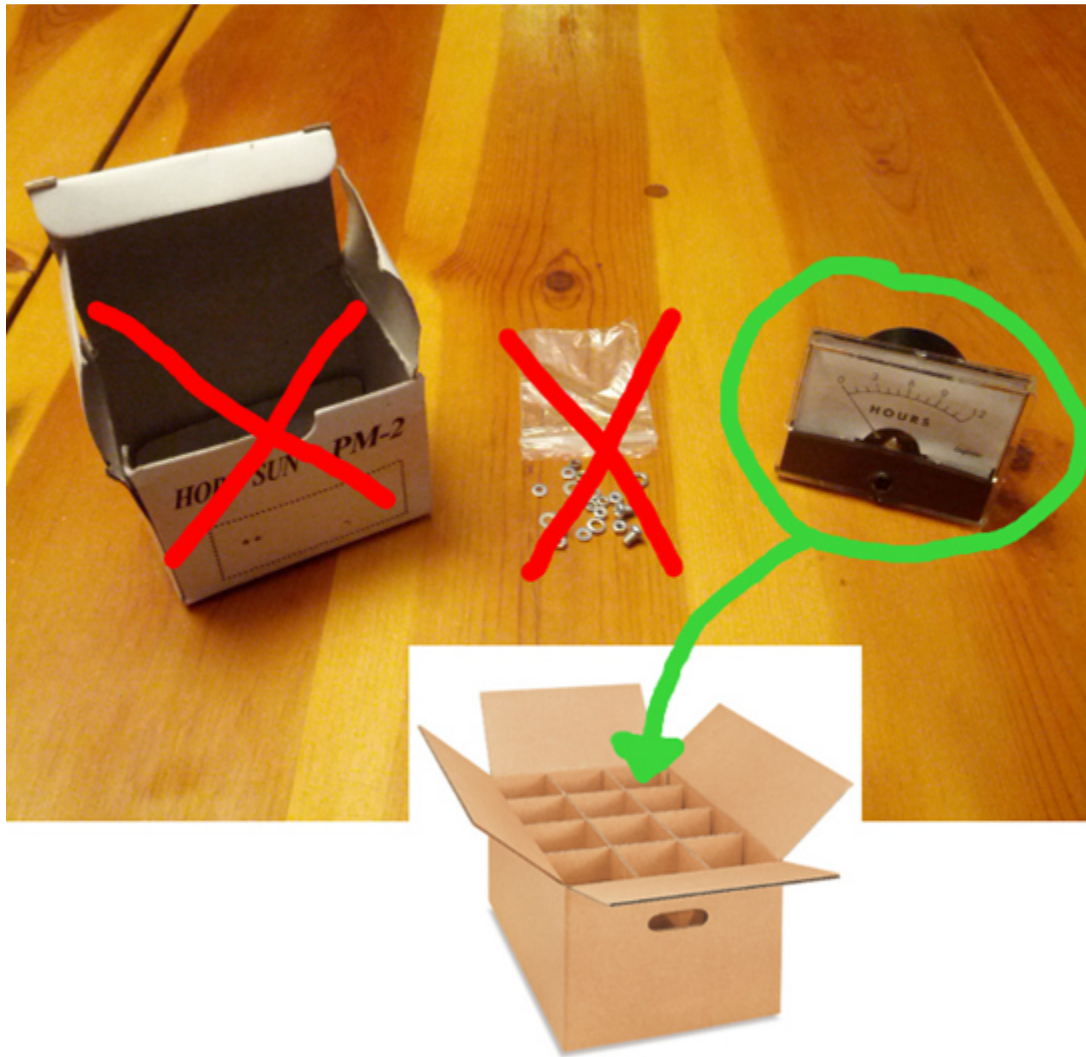
Authorized by

Date

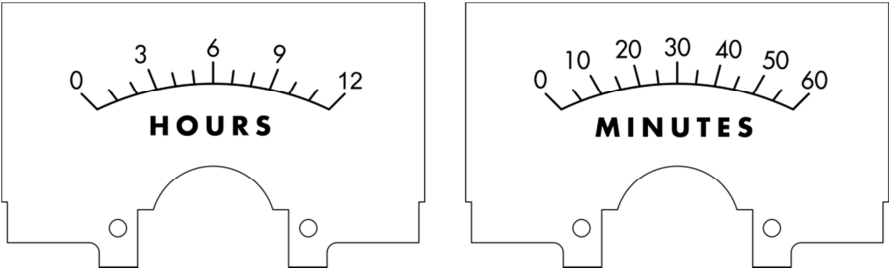
22 MAR 2015

Packaging

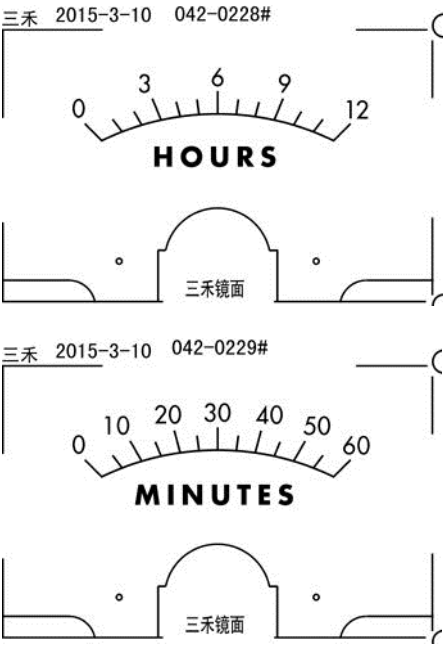
Bulk packaging is requested.


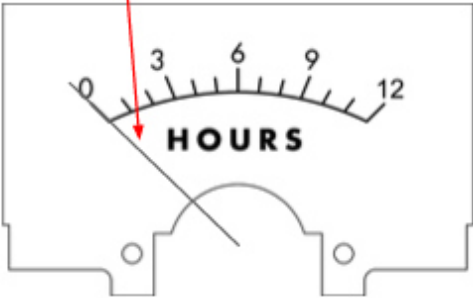





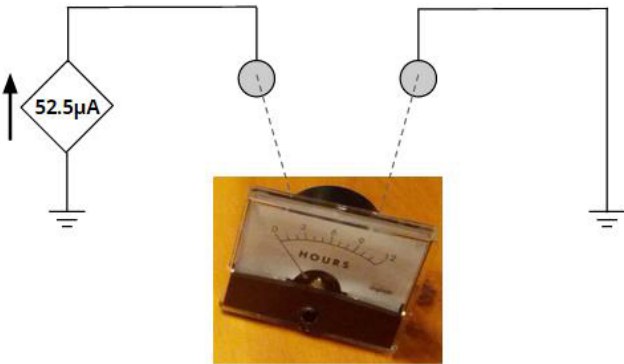
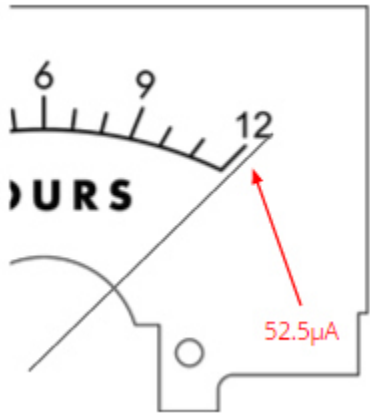
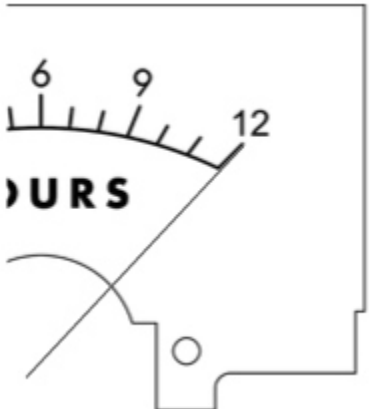
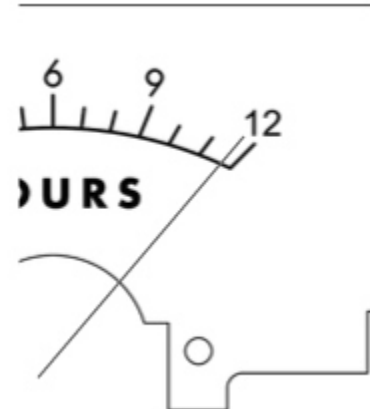
Customer Supplied Artwork: “AWK-105-0001-ARTWORK.png”



Factory verified artwork



Test	Setup	Good	Bad
<p>Test 1: The meter can be aligned to zero with a screw driver.</p>	<div data-bbox="386 237 842 418"></div> <p data-bbox="394 456 596 483">Lined up on the "0"</p> <div data-bbox="405 534 875 829"></div> <p data-bbox="373 878 709 906">Adjust with a screwdriver.</p>	<div data-bbox="1167 298 1530 708"></div> <p data-bbox="1066 716 1325 781">Needle is on "zero". Visual test.</p>	<div data-bbox="1682 220 1965 565"></div> <div data-bbox="1646 662 1965 1065"></div> <p data-bbox="1570 1097 2003 1162">Needle does not line up to "zero". Visual test.</p>

Test	Setup	Good	Bad
<p>Test 2: After Test 1, When 52.5μA are applied, the meter reaches past full scale.</p>	<div data-bbox="388 251 1008 613">  </div> <p>Apply current.</p>	<div data-bbox="1113 272 1480 682">  </div> <p>Needle goes <i>past</i> the last mark. Visual test.</p>	<div data-bbox="1596 259 1963 665">  </div> <div data-bbox="1596 706 1963 1112">  </div> <p>Meter did not reach <i>past</i> the end.</p>

What my purpose is with these tests:

I want to confirm that the meter can achieve the full range of motion. I can calibrate the signal sent to the meter, so I'm not testing for accuracy, I'm testing for how far the meter can move.

Questions:

Do they test 100% of the meters? Do they do statistical sampling? What other quality checks do they make?

1. 测试内容和要求标准:

测试一：电表可以用螺丝刀调整归零。通过目测，**指针必须与零刻度标记对齐**。低于或高于零刻度标记均视为坏结果。

测试二：以上测试完成后，施加52.5uA的电流。通过目测，**指针必须超过（高于）满刻度标记**。对齐或者低于满刻度**标记**均视为坏结果。满刻度**标记**对应的是50uA的电流。

如果达到上面两个要求，我假设会对其它方面的质量满意。

2. 目标解释:

我的目标不是衡量精确程度，而是衡量电表的指针能够到达多远的位置。重要的是保证电表的指针在整个刻度盘区间都能移动。基本上，我不是太，太在意电表的精确程度，因为我可以调整发送给电表的PWM信号。我的电子装置设计可以提供一些额外的电流。如果电表有偏差，指针不能与标记绝对对齐，我可以通过软件减弱信号水平并校准。

3. 其他问题，请工厂根据其专业知识决定:

- 工厂是否将测试所有（100%）的电表？
- 或者是根据AQT标准进行统计抽样？
- 工厂还将进行其它什么方式的质量检测？

PM-2 50UA Test Procedure:

1、 Test “Zero” position



2、 The balance test at 45degree, horizontal and vertical



3、Test the scale between Zero and full scale



4、 Test at full scale



