莫得威
ModWeigh

APPLICATIONS

- **Silo/Tank weighing**
- **批量称重**
  BATCH WEIGHING
- **Platform scales**

产品特点....FEATURES

- **Digital high accuracy design (no pots or DIP switches)**
- **Excitation for up to 10 x 350Ω loadcells**
- **6 or 4 wire loadcell connection**
- **Update rate 100 times per second**
- **4-20mA output**
- **使用 Modbus 实现数据交换（独立的 RS232 及 RS485 接口）**
  Modbus COMMUNICATIONS (INDEPENDENT RS232 AND RS485 PORTS)
- **系统软件可升级**
  FIELD SOFTWARE UPGRADES
- **电源 12-24 Vdc**
  12-24VDC POWER SUPPLY
- **系统精度优于 0.01%**
  OVERALL ACCURACY BETTER THAN 0.01%
- **Totalising**
- **Peak reading**
- **Rate of change (flowrate)**

MP2 INDICATOR

- **IP54 Facia**
- **2.8" (70mm) 彩色液晶显示屏**
- **320 x 240 像素**
- **Polyester film tactile keypad**
- **4-20mA output, 1 digital input & 2 digital outputs**

MO3 I/O for MP2

- **4 开关量输入**
  DIGITAL INPUTS
- **4 开关量输出**
  DIGITAL OUTPUTS
- **4-20mA 输入（或 0-10V）**
 4-20MA INPUT (OR 0-10V)
- **4-20mA output**

应用 APPLICATION

The ModWeigh MW61 Weigher Systems are state of the art weighing instruments that can be used with any loadcell based weighing system. The unit is fully digital with no potentiometers or DIP switches. The basic calibration is done by pushbutton on the unit, or full calibration facilities remotely by a ModWeigh Weight Indicator.

When calibrated remotely, the calibration may be done by entering loadcell capacity and sensitivity which allows the calibration of systems without the use of test weights.

ModWeigh 显示器 MODWEIGH DISPLAY

The ModWeigh Weight Indicator display are separate products which may be used with the ModWeigh family of products for display of weight, setup and calibration. It has a graphics display with easy to use menu selection of settings.
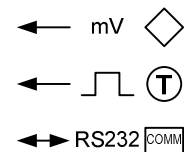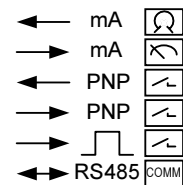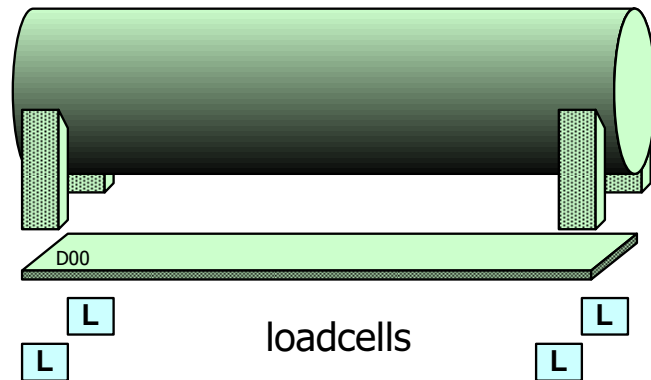
功能特点 FEATURES

基本 BASIC

计量单位及数据采集率 UNITS & RESOLUTION

用户可根据需要在列表中选择公制或英制变量（重量等）单位。可调的变量单位数据采集率，例如，100kg 可显示为 0.2kg 的增量。

THE UNITS FOR EACH VARIABLE TYPE (WEIGHT ETC.) CAN BE SELECTED FROM A LIST OF METRIC AND IMPERIAL UNITS. THE RESOLUTION OF EACH VARIABLE TYPE CAN BE ADJUSTED, THIS ALTERS THE COUNT BY E.G 100KG DISPLAYED IN 0.2KG INCREMENTS.

OIML（国际合法计量组织）设计 OIML DESIGN

本设备按 OIML 认证标准设计制造。

THE INSTRUMENT IS DESIGNED TO OIML STANDARDS.

支持语言 LANGUAGE SUPPORT

提供以下语言支持：英文，中文，韩文，德文，西班牙文，法文，意大利文，即波兰文。

SUPPORT IS AVAILABLE FOR THE FOLLOWING LANGUAGES: ENGLISH, CHINESE, KOREAN, GERMAN, SPANISH, FRENCH, ITALIAN AND POLISH.

输入 INPUTS

开关量输入 INx DIGITAL INPUTS INx

开关量输入可进行编程并匹配一系列功能包括"校零"，"打印"等。

THE DIGITAL INPUTS ARE PROGRAMMABLE TO A RANGE OF FUNCTION INCLUDING 'ACQUIRE ZERO', 'PRINT' ETC.

直接标定 DIRECT CALIBRATION

直接标定是通过使用称重传感器额定量程及灵敏度来标定称重信号。此标定方法的优点是不必使用大测试重量就能快速并准确的标定较大量程的称重系统。

DIRECT CALIBRATION USES THE LOADCELL CAPACITY AND LOADCELL SENSITIVITY TO CALIBRATE THE WEIGHT SIGNAL. LARGE CAPACITY WEIGHING SYSTEMS CAN BE QUICKLY AND ACCURATELY CALIBRATED WITHOUT THE NEED FOR LARGE TEST WEIGHTS.

Zeroing/Taring

The ZERO and TARE keys allow the weight reading to be set to zero. The SET TARE key allows a manual tare weight to be entered.

信号过滤 SIGNAL FILTERING

重量信号过滤功能可以在减小秤体震动及仪表反应速度间进行调整以取得最佳折衷点。

FILTERING FOR THE WEIGHT CAN BE ADJUSTED TO GET THE OPTIMUM COMPROMISE BETWEEN REDUCTION OF PLANT VIBRATION AND RESPONSE SPEED.

内部信号 INTERNAL SIGNALS

极限值 LIMITS

最高及最低极限值均可进行设置，编程及匹配操作其它内部信号。

THE HIGH AND LOW LIMITS HAVE ADJUSTABLE SETPOINTS WHICH MAY BE PROGRAMMED TO OPERATE ON ANY INTERNAL SIGNAL.

事件收集 EVENT COLLECTION

系统可收集处理事件并提供给外部设备（PLC 或其它）。

PROCESS EVENTS ARE COLLECTED FOR OPERATION WITH EXTERNAL EQUIPMENT (PLCs ETC.)

Total Weight FEED FORWARD SETTINGS CAN BE ADJUSTED AND CORRECTIONS FOR PLANT DELAYS (TRANSPORT DELAY) CAN BE MADE. A RATIO SETTING IS AVAILABLE TO MULTIPLY THE SETPOINT SIGNAL BY A PERCENTAGE FOR RATIO CONTROL APPLICATIONS.

The displayed weight can be added to a running total. The total can be reset at any time.

FEED FORWARD SETTINGS CAN BE ADJUSTED AND CORRECTIONS FOR PLANT DELAYS (TRANSPORT DELAY) CAN BE MADE. A RATIO SETTING IS AVAILABLE TO MULTIPLY THE SETPOINT SIGNAL BY A PERCENTAGE FOR RATIO CONTROL APPLICATIONS.

Peak Weight

FEED FORWARD SETTINGS CAN BE ADJUSTED AND CORRECTIONS FOR PLANT DELAYS (TRANSPORT DELAY) CAN BE MADE. A RATIO SETTING IS AVAILABLE TO MULTIPLY THE SETPOINT SIGNAL BY A PERCENTAGE FOR RATIO CONTROL APPLICATIONS.

A peak weight reading is maintained of the highest absolute value of the weight measured. The peak value can be reset to 0.

FEED FORWARD SETTINGS CAN BE ADJUSTED AND CORRECTIONS FOR PLANT DELAYS (TRANSPORT DELAY) CAN BE MADE. A RATIO SETTING IS AVAILABLE TO MULTIPLY THE SETPOINT SIGNAL BY A PERCENTAGE FOR RATIO CONTROL APPLICATIONS.

记忆存储 MEMORY STORAGE

此功能可对一组设定值进行存储，并从存储中恢复设定值。此功能可存储不同的设定值用于不同的用途，系统可提供 20 个存储单元，每个存储单元可存储多达 4 个设定值。

ALLOWS A GROUP OF SETTINGS TO BE STORED OR RECALLED FROM MEMORY. THIS CAN BE USED FOR EXAMPLE TO STORE SETTINGS FOR DIFFERENT PRODUCTS. THERE ARE 20 MEMORY LOCATIONS WITH UP TO 4 SETTINGS IN EACH.

THE TOTALISER CAN BE SET TO OPERATE WITH 5, 6, 7 OR 8 DIGITS.

输出 OUTPUTS

Analog Outputs AO1 & AO2

A 4-20mA output normally of weight may be programmed to be any of the internal signals including displayed weight, gross weight and net weight.

模拟信号输入/输出缩放比例 ANALOG I/O SCALING

模拟输出信号可在 0 至 20mA 范围内进行调节。当使用 0 至 20mA 范围时，为达到相对 0 值，输出信号可略为负毫安。电压输出信号可通过在输出上连接电阻器获得。

THE ANALOG OUTPUT RANGE CAN BE ADJUSTED OVER THE FULL 0 TO 20MA RANGE. THE OUTPUT WILL DRIVE TO A SLIGHT NEGATIVE MA, ALLOWING A LIVE ZERO TO BE ACHIEVED WHEN USING A 0 TO 20MA RANGE. A VOLTAGE OUTPUT IS EASILY PRODUCED BY CONNECTING A RESISTOR TO THE OUTPUT.

模拟输出信号可任意在仪表内部信号中选择，例如，重量，流量等。

IN ADDITION THE ANALOG OUTPUT SIGNAL IS SELECTABLE TO COME FROM ANY INTERNAL SIGNAL IN THE INSTRUMENT E.G WEIGHT, FLOWRATE ETC.

开关量输出 OUTx DIGITAL OUTPUTS

开关量输出功能能够进行编程以运行任意内部信号。这些信号包括了开关量输入状态，运行条件（运行，暂停等）及检测任何故障情况。此功能使得仪器接驳其它系统变得更简单。

THE DIGITAL OUTPUTS ARE PROGRAMMABLE TO OPERATE FROM ANY INTERNAL SIGNAL. THESE SIGNALS INCLUDE THE DIGITAL INPUT STATES, STATUS CONDITIONS (RUNNING, PAUSED ETC) AND ANY FAULT CONDITIONS THAT ARE DETECTED. THIS MAKES IT EASY CONNECT INTO OTHER SYSTEMS.

通信 & 显示 COMMUNICATIONS & DISPLAY

数据交换 COMMS

本仪表提供独立的 RS232 及 RS485 通信接口，用于连接其它 ModWeigh 系统，或其它设备。例如，ASCII 输出协议可驱动打印机或 Modbus 进行更高层次的交互式通信，波特率及节点地址都可进行编程。

RS232 AND RS485 PORTS ARE AVAILABLE. THESE ARE USED TO CONNECT MODWEIGH UNITS TOGETHER AND ALSO TO CONNECT TO OTHER SYSTEMS. THE PROTOCOL IS EITHER ASCII OUTPUT FOR EXAMPLE TO DRIVE A PRINTER OR MODBUS FOR INTERACTIVE COMMUNICATIONS. BAUD RATES AND NODE ADDRESSES ARE PROGRAMMABLE.

打印及设计功能 PRINTOUTS & MACROS

打印功能可通过按键操作或预设打印时间与周期来实现。数据能够连续输出以作为数据收集用途。打印数据经由 COM1 RS232 接口输出，打印内容可通过打印设计功能进行编辑。

PRINTOUTS CAN BE TRIGGERED BY A KEY PRESS OR SET UP TO OCCUR AT SET TIMES DURING THE DAY OR WEEK. DATA MAY ALSO BE OUTPUT CONTINUOUSLY FOR DATA COLLECTION PURPOSES. DATA IS OUTPUT ON THE COM1 RS232 PORT. THE CONTENT OF THE PRINTOUTS IS FULLY PROGRAMMABLE USING MACROS.

设计功能可被用于自定义打印，也可用来执行算术计算。设计语言也包括更高级的编程条款。

MACROS ARE PROGRAMS USED TO CUSTOMISE PRINTOUTS, BUT CAN ALSO BE USED TO PERFORM ARITHMETIC CALCULATIONS. THE MACRO LANGUAGE ALSO CONTAINS CONDITIONAL TERMS FOR MORE ADVANCED PROGRAMMING.

显示界面自定义 DISPLAY CUSTOMISATION

键锁功能可被用来防止未经许可的仪表操作及限制进入操作菜单。可对任意键进行密码锁定，以防止未经授权的非法操作。当进行按键操作时，系统也可以提醒操作员进行操作确认。操作菜单可增添额外设置项或信号以满足用户自定义要求。

LOCKS MAY BE SET TO PREVENT UNAUTHORISED USE OF THE OPERATOR KEYS AND RESTRICT ENTRY TO THE OPERATOR MENU. THE KEYS ARE INDIVIDUALLY LOCKABLE AND OPTIONALLY A PASSCODE CAN BE USED TO ALLOW AUTHORISED OPERATORS TO USE THE KEYS. ALTERNATIVELY A CONFIRMATION OF THE KEY ACTION CAN BE REQUESTED. THE OPERATOR MENU CAN BE CUSTOMISED TO MAKE ADDITIONAL SETTINGS OR SIGNALS AVAILABLE TO THE OPERATOR.

显示屏显示内容自定义适用于不同现场要求，显示屏既可显示全部参数，也可仅显示基本参数。

THE CONTENTS OF THE MAIN DISPLAY CAN BE SET TO SUIT ANY CONDITION, FROM A COMPREHENSIVE DISPLAY SHOWING ALL OPERATING PARAMETERS TO A SIMPLE DISPLAY SHOWING THE BASIC SIGNALS.

与电脑连接 COMPUTER CONNECTIVITY

ActiveX 控制组件使得 ModWeigh 系统与计算机间的通讯变得更加简单，典型应用是编程及搜集 VB 程序来实现计算机控制。

AN ACTIVEX CONTROL IS AVAILABLE TO ALLOW PROGRAMMERS TO EASILY COMMUNICATE WITH A MODWEIGH INSTRUMENT. TYPICALLY THIS CAN BE USED WITH A VISUAL BASIC PROGRAMME TO COLLECT AND WRITE DATA TO THE CONTROLLER.

Feature Summary

Digital Inputs (includes pulse input)	Digital Outputs (includes pulse output)	Isolated Pulse Output	Isolated 4-20mA Inputs	Isolated 4-20mA Outputs	Corner adjustment and balancing for 4 load-cells	Trade approvals (planned)

MP2,MO3	1+4	2+4	✓	1	2	✗	✗
MP2	1	2	✓	0	1	✗	✗

技术规格说明 SPECIFICATIONS

称重传感器输入 AI1 LOADCELL INPUT

输入范围 INPUT RANGE	±4 mV/V (0-20mV)
激励 EXCITATION	5 Vdc ±20 %, 250 mA 最大电流 (MAXIMUM CURRENT)
信号处理率 SIGNAL PROCESSING RATE	100 Hz (重量采集时间设定≤ 0.5 s) (RESPONSE TIME SETTING)
输入灵敏度 INPUT SENSITIVITY	0.5 μV/最大分度 (DIVISION MAXIMUM)
零值范围 ZERO RANGE	±3 mV/V (±15 mV)
调零温度系数 ZERO DRIFT	±0.02 μV+0.0005 % 典型恒载/°C　(of deadload/°C typical)
满量程温度系数 SPAN DRIFT	±0.0005 %/°C 典型 (TYPICAL)
非直线性误差 NON-LINEARITY	‹0.002 % 之 FS (OF FS)
信号输入干扰系数 INPUT NOISE	0.15 μVp-p 典型 (TYPICAL)
滤波设置 FILTERING	0.04 s to 32.0 s 可调重量采集时间　(response time adjustable)
电压灵敏度范围 SENSE VOLTAGE RANGE	1-5 V

模拟量输入 AI2 ANALOG INPUT

4-20mA 输入电阻 4-20MA INPUT RESISTANCE	<60 Ω
0-10V 输入电阻 0-10V INPUT RESISTANCE	›100 kΩ
隔离 ISOLATION	在 50Vac 范围内电气隔离 GALVANICALLY ISOLATED TO 50VAC

模拟量输出 AO1 & AO2 ANALOG OUTPUTS

输出范围 OUTPUT RANGE	0 至 20 mA (-0.2 mA 至 21 mA, includes standard 4-20mA)
最大负载 MAXIMUM LOAD	1000Ω
数据采集率 RESOLUTION	0.4 μA
重量采集时间 RESPONSE TIME	称重传感器反应时间设置 + 20 ms (LOADCELL RESPONSE TIME SETTING)
电压输出 VOLTAGE OUTPUT	使用外置电阻器将电流转换为电压。 USE AN EXTERNAL RESISTOR TO CONVERT MA TO VOLTS. 例如，500Ω 电阻可将 20mA 转换为 10V。 FOR EXAMPLE 500Ω GIVES 10 V AT 20 MA.
非直线性误差 NON-LINEARITY	‹0.01 %
温度系数 DRIFT	‹2 μA/°C.
隔离	在 50Vac 范围内独立电气隔离
高电压 HIGH VOLTAGE	› 8 V
低电压 LOW VOLTAGE	‹ 4 V
最大电压 MAXIMUM VOLTAGE	32 V

输入负荷 INPUT LOAD	4 kΩ 近似	

开关量输入 INx DIGITAL INPUTS (EXCEPT IN0)

高电压 HIGH VOLTAGE	› 8 V
低电压 LOW VOLTAGE	‹ 4 V
最大电压 MAXIMUM VOLTAGE	32 V
输入负荷 INPUT LOAD	6 kΩ近似
输入类型 INPUT TYPE	PNP 输出传感器 PNP OUTPUT SENSORS

开关量输出 OUTx (EXCEPT OUT0)

最大输出电流 MAX OUTPUT CURRENT	$\Sigma\ I_{IOx} < 0.25$ A
输出电压 OUTPUT VOLTAGE	与电源电压相同 SAME AS SUPPLY VOLTAGE

接口格式 COM1, COM2 COMMUNICATIONS

COM1 连接 COM1 INTERFACE	RS232
COM1 同步交换 COM1 HANDSHAKE	CTS 能够使用 CAN BE ENABLED
COM2/COM3 连接 COM2/COM3 INTERFACE	RS485
波特率 BAUD RATES	9600, 19200, 38400, 57600, 115200 (230400 开启 COM2)
设置 SETTINGS	8 位数据，无奇偶，2 停止位(8-N-2) 8 DATA BITS, NO PARITY, 2 STOP BITS (8-N-2)
协议 ON	Modbus RTU (MWBUS 开启 COM2)

基本规格 GENERAL

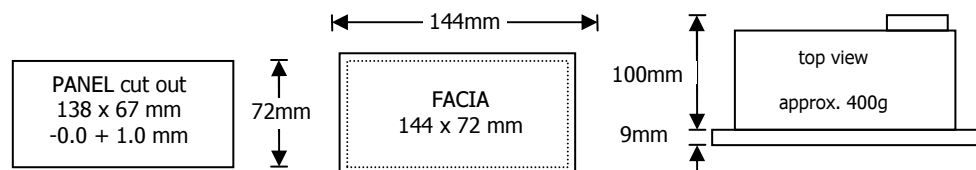|	
IP 等级 FACIA	IP20 (MP2 facia IP54)
工作温度 OPERATING TEMPERATURE	-10 至 45 °C
电源电压 SUPPLY VOLTAGE	10 至 32 Vdc
电源 MP2 TO	1.4 至 3.1 W
电源 MP2 + MO3 TO	3.4 至 5.0 W + P_{OUTx} + $P_{Tacho\ Excitation}$
MP2 Restrictions	$P_{Loadcell\ Excitation} + P_{AO1} + P_{AO2} < 1.5$ W $I_{Supply} < 0.5$ A

仪表尺寸 DIMENSIONS

以下是整套控制系统所需仪表组件的安装尺寸。
FOLLOWING ARE THE DIMENSIONS OF THE HARDWARE ITEMS THAT MAKE UP THE SYSTEM.

显示器/控制仪设计为电控箱内安装。
THE DISPLAYS/PROCESSORS ARE DESIGNED FOR PANEL MOUNTING.

MP2 Processor

|← 144mm →|

```
PANEL cut out
138 x 67 mm
-0.0 + 1.0 mm
```
72mm

```
FACIA
144 x 72 mm
```

100mm

```
top view
approx. 400g
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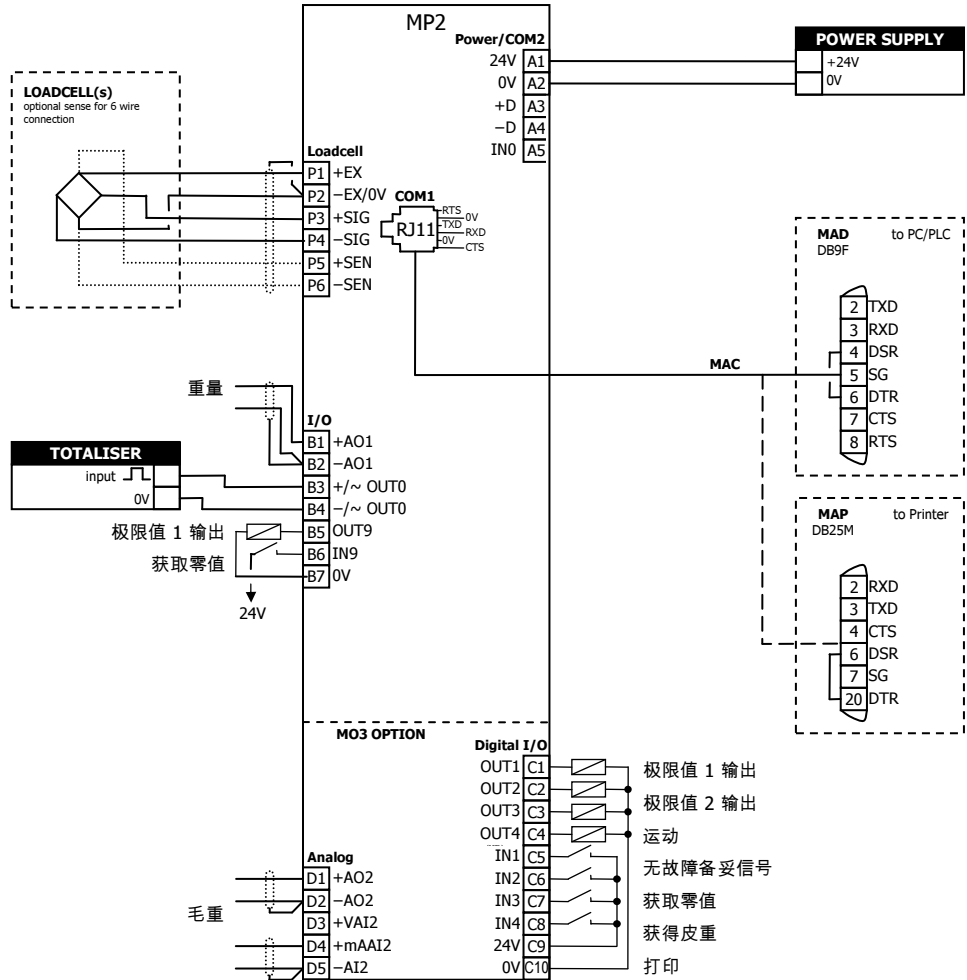9mm

线路连接 CONNECTIONS

连接原理 CONNECTION PRINCIPLES

ModWeigh 仪表可以多种不同方式连接以适应不同现场要求。

MODWEIGH INSTRUMENTS CAN BE CONFIGURED IN MANY DIFFERENT WAYS TO SUIT ANY GIVEN APPLICATION.

Connection Diagram – MP2

所有信号传输电缆须与电力供应电缆分开配线 KEEP ALL WIRING SEPARATED FROM MAINS WIRING

在标明处使用屏蔽电缆 USE SHIELDED CABLE WHERE INDICATED

订货 System Ordering

标准的 ModWeigh 系统是由一组不同的部件所组成。可以不同方式组成系统，但大部分应用都是从以下标准系统配置中进行选择。在订货时，须说明系统订货编号；如单独订购组件，则须说明所需部件名称。

A MODWEIGH SYSTEM IS A GROUP OF MODWEIGH PARTS THAT TOGETHER FORM THE SYSTEM. MANY POSSIBLE SYSTEMS CAN BE CREATED, BUT MOST APPLICATIONS WILL USE ONE OF THE SYSTEMS LISTED BELOW. WHEN ORDERING, JUST SPECIFY THE SYSTEM ORDER CODE. TO CREATE A CUSTOM SYSTEM, SPECIFY THE INDIVIDUAL COMPONENTS REQUIRED.

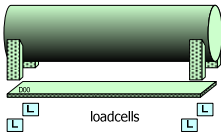| 静态秤系统	System Order Code
Product Key, Processor, IO	**MK61A,MP2,MO3**
Product Key, Processor, IO	**MK61A,MP2**

订购部件 Parts Ordering

以下是莫得威系统的部件订货编号列表。

FOLLOWING IS A LIST OF ORDER CODES FOR THE INDIVIDUAL PARTS OF A MODWEIGH SYSTEM.

The order code (and options) are shown below.

产品

select one of the following	
Product Key	**MK61A+CG**

Special Options

select any (or none) of the following	
Chinese manuals	**,CH**
Korean manuals	**,KO**
German manuals	**,DE**
Spanish manuals	**,ES**
French manuals	**,FR**
Italian manuals	**,IT**
Polish manuals	**,PL**
No manuals	**,NM**
Manufacturing certificate	**,MC**

Processor

select one (or none) of the following	
Loadcell processor	**,MP2**

IO Option

select one (or none) of the following	
digital IO - 4In 4Out, 1 x 4-20mA input & output	**,MO3**

附件

select one (or none) of the following	
RJ12 连线 2m (COM1 连线)	**,MAC**
RJ12 9 针 D-connector 适配器(ModWeigh 与 PC 连接)	**,MAD**
RJ12 25 针 D-connector 适配器(ModWeigh 与打印机连接)	**,MAP**
RS485 Line Terminator	**,MAT**

其它 ModWeigh 产品 OTHER MODWEIGH PRODUCTS

MW93 变重秤系统-适用于失重或增重流量控制系统。
WEIGHT CHANGE SYSTEMS – FOR LOSS-IN-WEIGHT AND GAIN-IN-WEIGHT FLOW CONTROL SYSTEMS.

MW94 冲板流量计系统-适用于测量连续流量的冲板计量系统。
IMPACT WEIGHER SYSTEMS – IMPACT WEIGHER PROCESSOR FOR CONTINUOUS FLOWRATE MEASUREMENT.

MW95 皮带秤系统-适用于连续性皮带物料称量系统。
BELT WEIGHER SYSTEMS – BELT WEIGHER PROCESSOR FOR CONTINUOUS FLOWRATE MEASUREMENT.

MW96 配料控制系统-应用于连续物料流量控制与称量。
WEIGHFEEDER SYSTEMS – WEIGHFEEDER PROCESSOR FOR CONTINUOUS FLOWRATE CONTROL APPLICATION OF A WEIGHING CONVEYOR.

联系方式: CONTACT DETAILS

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Email sales@modweigh.com.cn Web www.modweigh.com.cn

由于产品改进，实际功能可能与说明书有所差异。
AS WE ARE CONTINUOUSLY IMPROVING OUR PRODUCTS, CHANGES TO THIS SPECIFICATION MAY OCCUR WITHOUT NOTICE.

(Document Details: g0 g1 g2 g3 g4 g5 g6 g7 g8 g9 g10 g11 g12 g13 g14 g15   v1 v2 v3 v4 MP2))