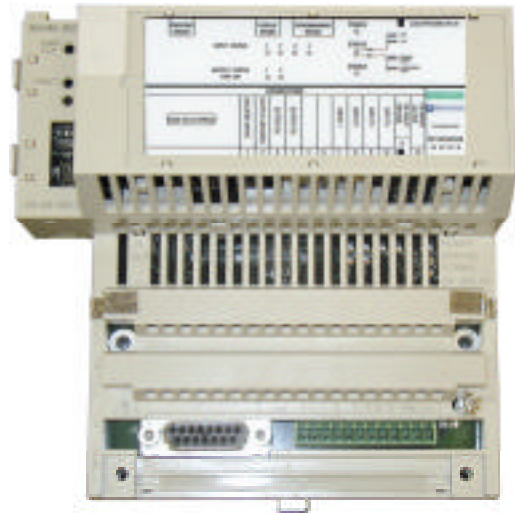


ISP Momentum Weighing Module Installation Manual



V 2.1, September 2001



Weighing Module Specifications

The Momentum **170 ISP 001 00** (**170 ISP 002 00** -With 2m cable and XBT Display) Weighing Module is an intelligent weighing instrument. The module accepts one 5VDC load cell input (summing up to 8 strain gauge 350 Ohms). Four discrete Inputs (Tare, Reset Tare, Reset Zero, Print) and two discrete outputs are independently configurable.

Two serial communication channels, one RS485 (for connecting to the XBT display) and one RS232,(for access from a PC using the ISP weighing configuration, calibration and runtime software *373 SPU ISP 01/05*) are provided. A serial printer port allows direct printing from the weighing module. Momentum field bus adapter Modbus Plus, Modbus TCP/IP, Interbus, I/O bus and CPU's (M1 and M1E) are also supported, providing a powerful, flexible, and cost effective solution for both stand alone and embedded weighing applications.

General Specifications

	Minimum	Maximum
Operating Temperature	-10 °C	+40 °C
Storage Temperature	-40 °C	+70 °C
Power Supply	+18VDC	+30VDC
Amp	---	0.7

Communication

ATI Interface for Communication adapters and CPU's

RS 232 non-isolated

RS 485 non-isolated

Indicators

Power On LED

System Status LED

System Fault LED

Stable LED

Discrete Output LED's

Discrete Input LED's

Firmware Data Storage

Flash EEROM

Module Processor

16-bit, 20MHz, Digital Signal Processor

Data Sampling

Data Sampling Rate Programmable @ 50, 100, or 200 Hz

170MCSER200: Cable for serial connection between a PC and the Momentum weighing module, 2 meters

170MCXBT200: Cable for connection between the ISP XBT and the Momentum weighing module, 2 meters

Product Specifications

- Power Supply to Load Cell: 5VDC
- Min Load Impedance: 40 ohm (Eight 350 ohm cells in parallel)
- Differential Input signal: 0 – 15 mV
- Input impedance: > 1 Meg ohms
- Resolution: 1.0 uV @ 5mS update 0.5uV @ 20mS update
- Zero Drift: < 0.2uV/ °C
- Gain Drift: < 10 ppm/ °C

DISCRETE REFLEXIVE OUTPUTS

- Number of Points: 2, positive logic
- Nominal Voltage: 24VDC
- Current per point: 500mA
- Isolation: 2KV impulse 500V continuous

DISCRETE INPUTS (non-isolated)

- Number of Points: 4, positive logic
- Active High Logic Level: 5 VDC or 24 VDC
- Input Impedance: 120K ohm (0 - 5VDC) 30K ohm (5 - 24VDC)

WEIGHT INDICATOR DISPLAY OUTPUT

- Physical Interface: RS 485 non-isolated
- Data rate: 9600 BAUD
- Max Cable Length: 30m

CONFIGURATION DATA INPUT

- Physical Interface: RS 232 non-isolated

SERIAL PRINTER PORT

- Physical Interface: RS 232 non-isolated
- Data rate: 1200 min 19200 max

Momentum Weighing Module LED Indicators

BASE:

- D43, GRN: D43 indicates the presence of 5VDC bias power when illuminated
- D49, GRN: D49 is used as a stable data indicator. D49 is illuminated whenever the weight measurement data is stable.
- D4, Bi-color: D4 is used to indicate system operating mode status as follows:
 - SOLID GREEN – normal operating mode
 - BLINKING GREEN – calibrating and/or initializing upon power-up
 - BLINKING RED – uncalibrated or over-range or under-range
 - SOLID RED – system fault
- D33, D34, Yellow: These are illuminated whenever discrete outputs Q0 and Q1, respectively, are active.
- D45, D46, D47, D48, GRN: These are illuminated by the hardware whenever inputs 1 through 4 are active.

Option adapter:

- D1, GRN: D1 indicates the presence of 5VDC bias power and real time clock operation via 2 Hz blinking green LED. A solid green indicates that the real time clock has not been initialized by the user.
- D2, RED: D2 indicates the status of the option adapter processor, as well as the charge status of the batteries. A solid red indicates either a hardware fault or low battery voltage.

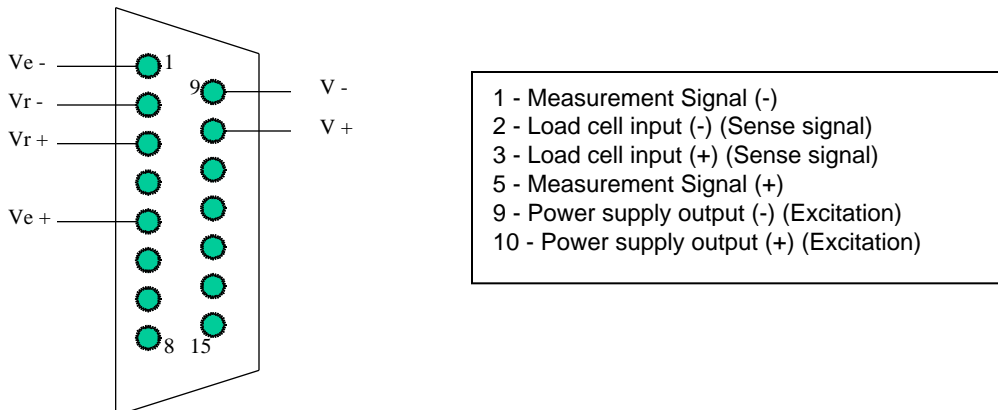
Connections

Connecting the measurement system

The **module** and the Sub-D connectors may be connected and disconnected while powered up.

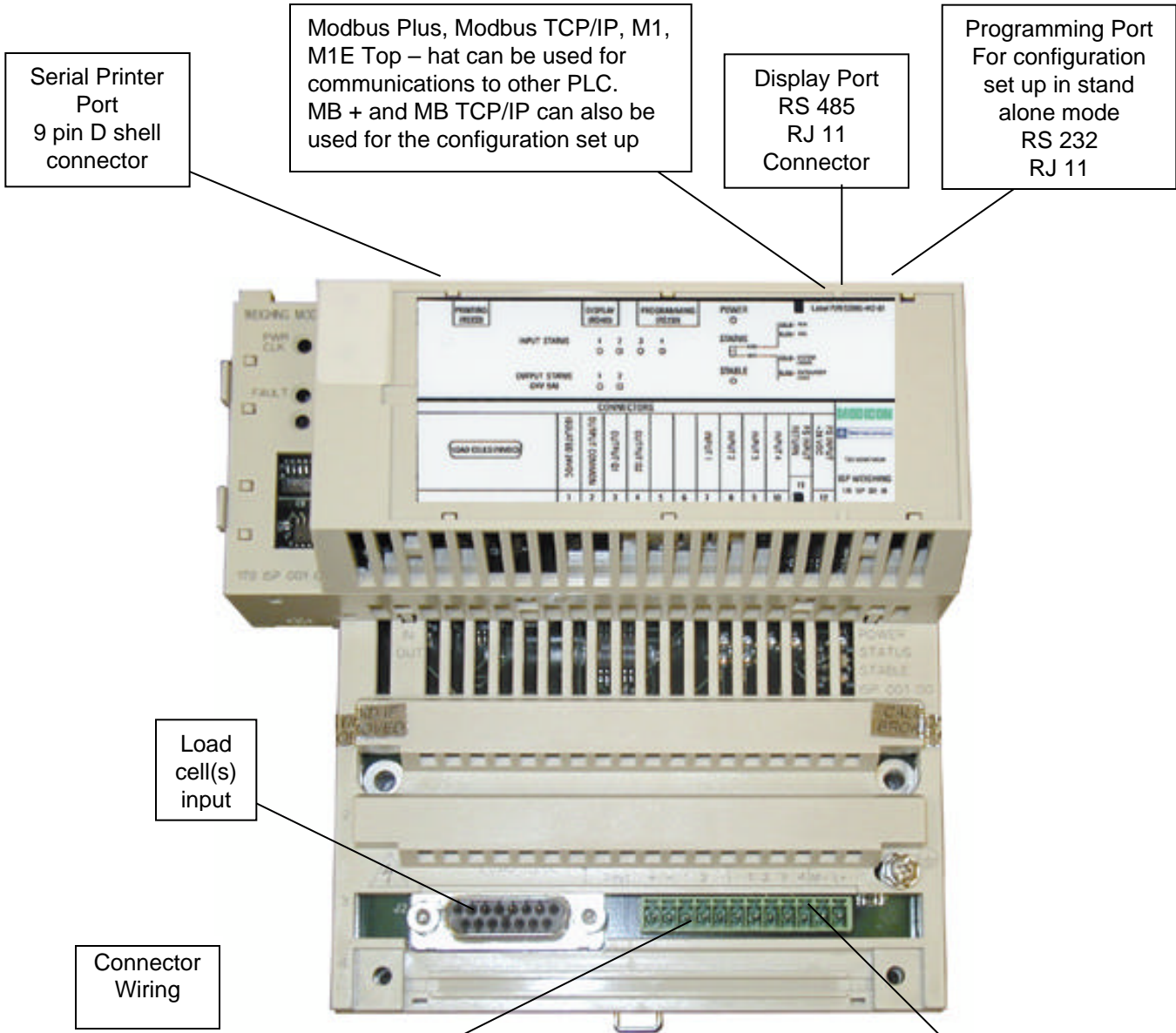
Pinout for the Load cell connector

The load cells are connected via a 15-pin female Sub-D connector at the module end. The load cells are powered exclusively by the module.



View from Module: Connecting the Discrete Outputs/ Inputs

The 24V transistor outputs are connected via a screw terminal as shown below.



Terminal Number	1	2	3	4	5	6	7	8	9	10	11	12
Function	Isolated 24VDC	Isolated Output common	Output Q1	Output Q2	Not Used	Not Used	Input 1 Tare	Input 2 Reset Tare	Input 3 Zero	Input 4 Print	PS Input Return	PS Input +24VDC

View from Module: Connecting the Discrete Outputs/ Inputs

The discrete Inputs are configurable.
The discrete outputs are electrically isolated from ground.

Discrete transistor outputs Characteristics

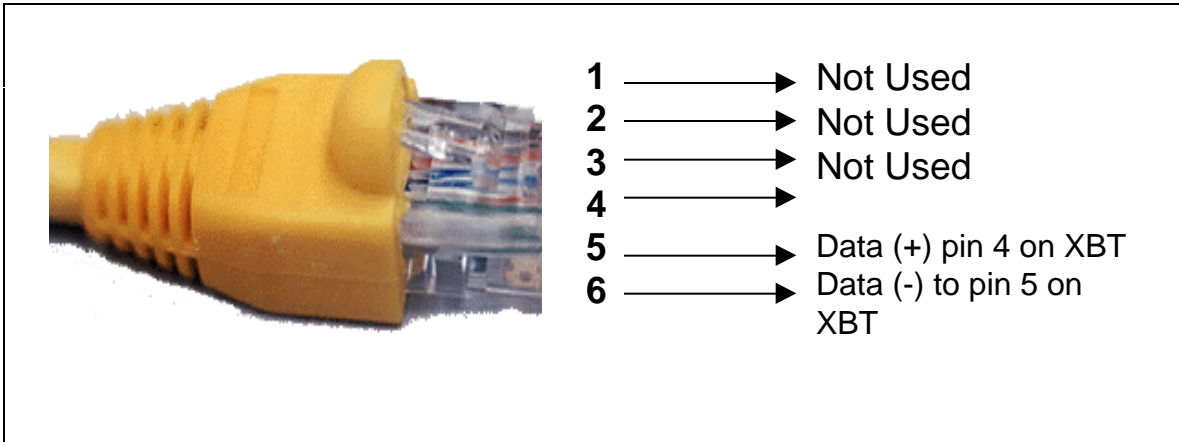
Number of channels: 2

Nominal supply voltage 24 V, Maximum current 500 mA, Protection Polarity inversion and short-circuit

Pin-out for the display unit serial link:

Allows the weight to be displayed on an external unit 170MCXBT200

The terminal is connected via a RJ 11 connector at the module end,
RS485 link : connections are as follows



The TSX XBT H200 Display Unit

- The TSX XBT H200 is connected to the weighing module, and is the principal weight indicator display. It is a simple plug and play unit.
- The display unit must be connected to the module via a screened 2-wire cable. It has a 25-pin female Sub-D connector.

Electrical characteristics

- Serial line RS485, 2 isolated wires
- Transmission speed 9600 baud
- Connection Via sealable Sub-D port
- Power supply 3-pin plug-in terminal block from 24 VDC external source
- Voltage limits 18 V to 30 V
- Ripple 25% maximum
- Consumption 10 W
- Display unit Backlit liquid crystal display (2 lines of 20 characters)
- Refresh period Every 100 ms

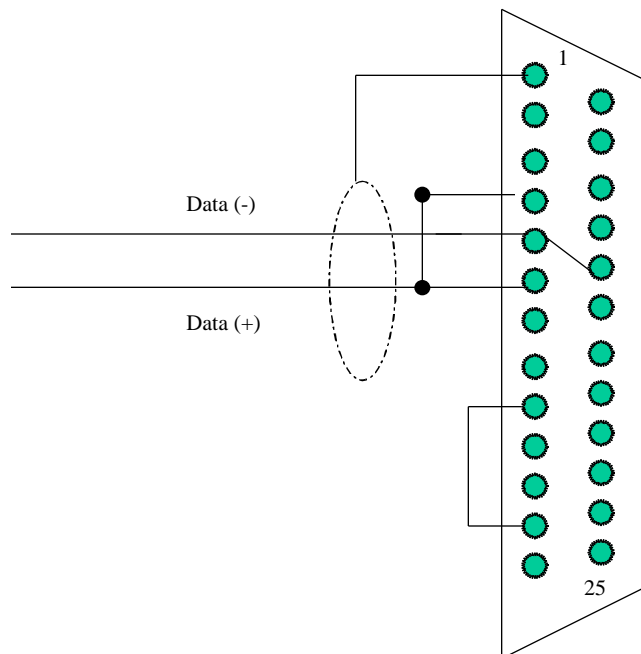
Note:

For more details refer to the "Magelis Range / user's guide" documentation.
The serial link is isolated at the TSX XBT H200 end.

Connecting the Momentum Weighing Module to the XBT Display Unit

- The cable connecting the weighing module to the TSX XBT H200 must not exceed 100 meters.
- The screening must be connected to the connector ground at the module end.

TSX XBT H200



- Viewed from solder side. Jumpers are required between pins 5 and 18, and between pins 10 and 12 .

Momentum Weighing Module Programming Cable Specification For RS-232 Communication from PC to Module 170MC SER200

- Cable type: 6 conductor shielded , Square D P/N 7900064, C&M Corp. P/N P-10227 or equivalent
- Length: 2 meters (+/- 20 mm)
- Connectors: RJ-11 shielded modular jack male, 6 positions, AMP P/N 5-555174-2
- DB-9, 9 pin sub-D type female, AMP P/N 747905-2
- Backshell, metal, AMP P/N 748676-1

Connections:

RJ-11 Pin #Signal

- 1 GND
- 2 TXD
- 3 RXD
- 4 None
- 5 None
- 6 None

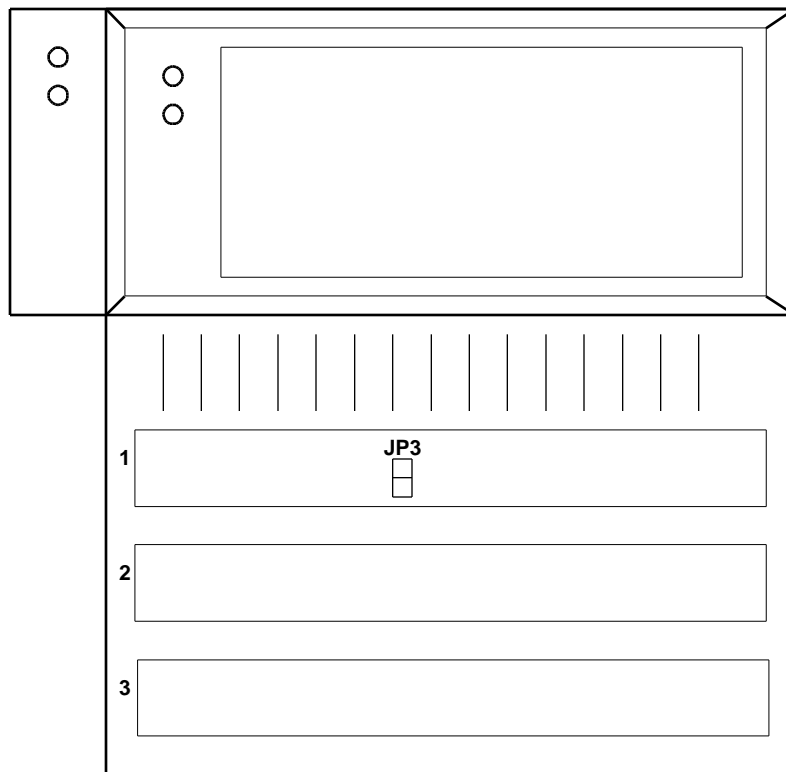
Verify continuity of shield to jack exterior plating

DB-9 Pin # Signal

- 1 No Connection
- 2 TXD
- 3 RXD
- 4 No Connection
- 5 GND
- 6 No Connection
- 7 No Connection
- 8 No Connection
- 9 No Connection

Applications in Lock Mode: Weighing Module Locking

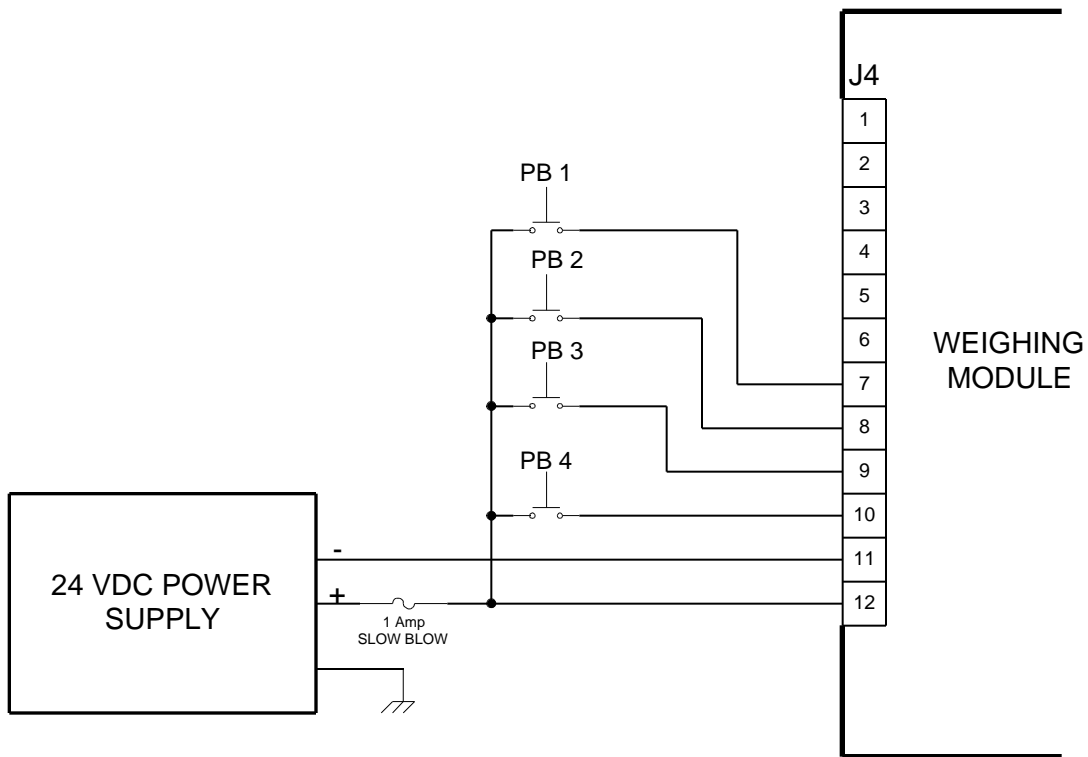
The Momentum Weighing Module is capable of operation in either the locked or the unlocked mode. The locked mode provides compliance to legal requirements for point of sale applications. In unlocked mode, the user or host processor has access to all of the configuration and calibration settings, and may modify them. In locked mode, the user or host processor may not access or modify any parameters of the system. This includes tare, flow calculation, and threshold settings. Locking the module is accomplished by removing jumper JP3. JP3 is located under I/O slot cover #1 as depicted below. The cover of I/O slot must then be replaced, and two calibration seals P/N 52045-285 must be applied.



Wiring Diagram for Power and Discrete Inputs to the Momentum Weighing Module

A typical installation of the ISP Momentum Weighing Module will include a standard industrial power supply and readily available push buttons to stimulate the discrete input functions of the module. The power supply is used to convert the AC mains power available at the installation site to the industrial control standard 24 VDC required by the Momentum Module. The discrete input functions of the Weighing Module are activated by the momentary application of 24 VDC to the appropriate location on the module's terminal block. This may be accomplished via push buttons (PB1 through PB4) wired as shown in the wiring diagram below.

NOTE: All wiring AWG 20 or 22



PUSHBUTTON REQUIREMENTS (PB1 – PB4)

- Normally Open Contact
- Telemecanique Part # ZA2BA1 or equivalent is acceptable
- UL,CSA,CE approved
- Marking requirements as specified below
- -10 C to 40 C operating temperature range
- 30 VDC, 0.1A minimum make and break rating

POWER SUPPLY SPECIFICATIONS

- 24 VDC nominal output
- 18 VDC minimum, 30 VDC maximum
- -10 C to 40 C operating temperature range
- 0.7 Amp minimum output current capacity
- 5% maximum ripple
- Schneider Automation Part Number 170 CPS 111 00 or equivalent
- UL,CSA,CE approved



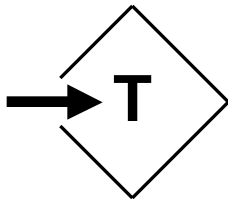
**POWER SUPPLY
170 CPS 111 00**

Regulations

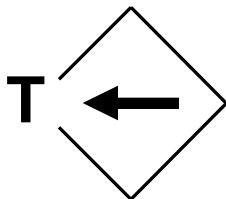
North America: Applications in lock mode

The Graphical User Interface Software Package, P/N 373SPUIISP01, may be used to calibrate and configure the weighing application. After the application is calibrated and configured, the module must be locked and sealed (refer to sealing procedure section of this document). Once the module is locked and sealed, it will no longer communicate with the Graphical User Interface Software.

The discrete inputs of the weighing system may be used in a lock mode application provided that the user supplied input controls (i.e. buttons or switches) are clearly, definitely, and permanently marked. The acceptable function marking symbols are as shown below.



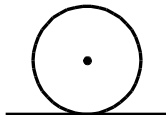
TARE ENTER



TARE CLEAR



ZERO RESET



PRINT

An identification label, P/N 52045-284, must be applied to both the 170 ISP 001 00 Weighing Module and to the TSX XBT 200 display in the locations depicted below.

