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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Revision 2.0 December 2012

Overview

The Universal Bowler Terminal performs the following functions.

- Replaces an AMF bowler terminal in Accuscore I, II and Plus systems.
- Allows the use of later keypads with earlier systems. For example you can use a Plus keypad on an Accuscore I system. Relays for cycling and the drinks light are on-board.
- Allows the use of a variety of keypads with A.K.Microsystems Touch Score, including Magicscore single, Magicscore triple, Accuscore I, II, Plus and XL.
- Also supports dual Accuscore Plus, Brunswick AS80/90, and dual XL keypads via adapters.

Installation

The Universal Bowler Terminal (**UBT**) has the same footprint as an Accuscore Plus bowler terminal board, but has connectors compatible with both Accuscore I, II & Plus. For these systems, simply secure the board within the console, set the switches and jumpers as below and connect the cables.

For use with Touch Score, see the Touch Score manual, as several configurations are possible for both data and power connections.

Always ensure the board is properly grounded via the mounting holes to a reliable ground!

Connect the keypads as follows –

P6,P7 & P8 - Magicscore Triple keypads for center, left and right respectively.

P5 - Magicscore single keypad, or an Accuscore 1,2 or Plus keypad

P11 - XL keypad (Revision F and later **UBT**s only)

With appropriate adapter - AS80/90, dual Accuscore Plus and dual XL keypads.

For Accuscore I, relays for machine cycling and the drinks light are located on the board, and may be used in preference to those on the keypad itself. This is required when using later keypads without relays. A seven pin strip connector is located on the board, and is identical to the strip connector on an Accuscore I keypad.

Switch & Jumper Settings

The jumper is set as follows –

All AMF systems	422 (AMF)
Connected to any AMF port on TS2	422 (AMF)
P10 on UBT connected to TS MIU	422 (AMF)
Connected to RS232 port on any system	232 (AKM)
Connected to J40 on TS2	232 (AKM)
Connected to TS MPA Legacy Port	232 (AKM)

The function of each switch is detailed below:

SWITCH	Function	OFF	ON
1	BAUD RATE	9600	19200
2	RELAYS	Disable on board relays	Enable on board relays
3	MAPPING	See below	
4	MAPPING	See below	
5	MAPPING	See below	
6	Reserved	Leave OFF	
7	Reserved	Leave OFF	
8	Reserved	Leave OFF	

Switches 3-5 control the mapping of the keypad to the scoring system codes as below –

Sw 3	Sw 4	Sw 5	Function
OFF	OFF	OFF	Direct - no mapping. Use with most Touch Score systems
ON	OFF	OFF	Accuscore Plus
OFF	ON	OFF	Accuscore I & II
ON	ON	OFF	Accuscore Plus keypad on Accuscore I or II *
-	-	ON	Reserved

* requires BT V1.1 or later

Below is a summary of how to set the switches depending upon the type of keypad, and the type of scoring system:

Keypad → System ↓	Magiscore Triple	Magiscore Single	Accuscore I	Accuscore II	Accuscore Plus
Touch Score	0000-0000	0000-0000	0000-0000	0000-0000	0000-0000
Accuscore I	N/A	0001-0000	0001-0000	0101-0000	0111-0000
Accuscore II	N/A	1001-0000	1001-0000	1001-0000	1011-0000
Accuscore Plus	N/A	N/A	N/A	N/A	0010-0000

Note: Switch settings are in order 1234-5678. 0 = Off, 1= On. N/A = not available.

For dual Accuscore Plus keypads connected to a single BT, set all dip switches to OFF, even if connected to the Accuscore Plus BT port on TS2.

Touch Score Connector

All the connectors on the board except the Touch Score connector (**P4**) and the Touch Score connector (**P10**) are AMF compatible, and are not detailed here.

The pinout for **P4**, including details of connection to a standard 9 pin serial port as used on Touch Score 1, and a 25 pin on Touch Score 2 are shown below.

Touch Score Connector (P4)	Function	DB9 Pin COM1 TS1	TS2 J40
1	GND	5	7
2	TXD to PC	2	2
3	RXD from PC	3	3
4	+12VDC IN		22

Note that PIN 4 on P4 is not connected to a standard com port, but to a +12VDC supply, usually from the PC. However, TS2 does provide +12VDC on pin 22.

P10 (Revision F and later boards only) connects to a **TS MIU** with standard Ethernet cabling. See the **Touch Score** manual for details.

Universal Bowler Terminal

Bowler Terminal Interface Board for Touch Score and AMF Systems

User's Guide

By A.K. Microsystems International
www.touchscore.com