Model 3000E-WL-TR Wireless Interface Node
Model 3000E-WL-BSR Wireless Interface Master

Functional description.

Revision History:
1.0 Original Document

Model 3000E-WL-TR

This unit operates as a node on the wireless network, inside the enclosure there are two rotary switches used to assign an address to the device. The current address maximum is 63. On Power-up, the decimal number produced by the rotary switches is associated with the units MAC id (media access control ID) and sent to the Master via a broadcast message.
The master will use this information to route data between the host application and the node. The host application will only need to know the decimal address of the reader.

Find-Master message = HDR+NODE_MAC_ID+NODE_DECIMAL_ADDRESS
Find-Master responds = HDR+MASTER_MAC_ID+NODE_MAC_ID

This unit has a serial port used to connect to our RFID reader MODEL-7000E. The reader has no knowledge it is on a wireless network. All addressing is handled by the nodes-master combination.

When the node receives data from the reader it sends it to the master along with the node's address. The master will pass that data to its serial port (host application) and append the nodes address before the data.

The host application will see something like this:
15 1234567890123456<CR><LF>

The first two digits are the nodes address followed by a space (ASCII 0x20) and data (16 characters) terminated by Carriage Return and Line Feed.

Model 3000E-WL-BSR

This unit operates as a Master on the wireless network. Inside the enclosure there are two rotary switches, they are ignored. Masters do not need a decimal address.

When the master receives a broadcast with the Find master message on it, it saves that node's MAC ID in a RAM memory slot that is pointed to by the decimal number (also included in the message) it then responds to the node with the master's MAC ID followed by the nodes MAC id. The node will not use broadcasts to communicate with the master after that.

Trough this process the master builds a table of up to 64 slots (0 to 63). Each slot may contain the MAC ID of one node. When the host application uses the decimal address to send a message to a node, the master uses this decimal address to retrieve the appropriate MAC ID

from its address table in RAM. The master then sends the message to the node and when the node receives the message, it relays it to the reader connected to its serial port.

Example addressed message from the host application:
[15W6543210987654321]

The first character is '[' used to start a message command, the next two characters are the address "15", the next character is the command 'W' used to write data to an RFID tag, the next sixteen characters are the data "6543210987654321" and last is the ']' character used to end a command message.

All command messages sent from the host to a node use that format. Please refer to the MODEL-7000E documentation for a list of commands and simply place the node address between the start character '[' and the command letter as in the above example.

Master/Node selection:
The hardware and software for both units is always the same. The thing that makes them act like a master or a slave is a dipswitch: S3 switch-1.

S3 dipswitches:

Switch-1		
	ON	OFF
	Device = Server	Device = Node

Switch-2		
	ON	OFF
	Reserved*	Reserved*

Note: Leave Switch-2 OFF in current version. Reserved for future use