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MLAN PRE-SALES SUPPORT DOCUMENT
October 15, 1999

Computer Communications
MLAN – Maguire Local Area Network

COMPUTER COMMUNICATIONS
MLAN Pre-Sales

MLAN Software Pre-Sales Support Sheet

This sheet is intended to provide you with the information you will need to set up our MLAN programs in the field. These programs were designed to provide material usage tracking reports and remote access of the basic control settings, such as recipes (materials and settings), work order numbers, and operator numbers. For additional information on the MLAN software see www.maguire.com or call 610-459-4300.

Weigh Scale Blender controllers can communicate over two different protocols, MLAN and RS232. Both are available at the DB9 port on the WSB controller. MLAN should be used in all factory installations. RS-232 may be used in lab testing and limited applications but is NOT recommended for factory installations.

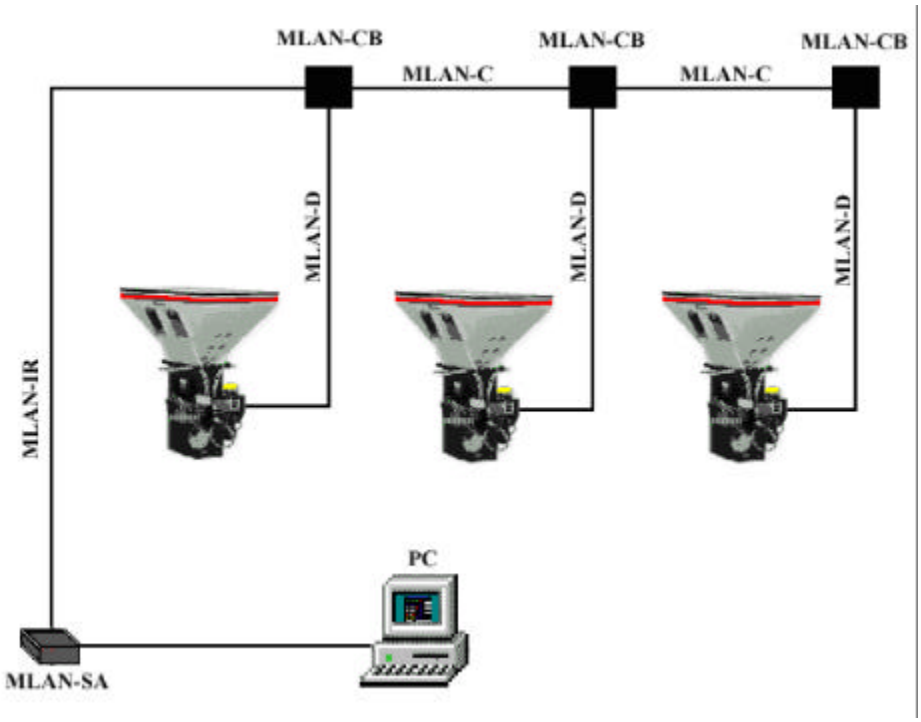
If you are communicating over a distance greater than 50 feet or with more than three WSB's then you must use the MLAN Signal Amplifier (MLAN-SA). It utilizes optically isolated couplers for all communication lines to reduce the potential of noise and other electrical interference from entering the computer circuitry.

Parts List for MLAN

Part Number	Description
MLAN-SK	MLAN for Windows Starter Kit This consists of the following items; MLAN-SA, MLAN-K, MLAN-SW, ehcc5, 1 MLAN-SL and a manual
MLAN-SA	Signal Amplifier for communication
MLAN-SW	MLAN/Windows Version
MLAN-K	MLAN Software Key
MLAN-SL	MLAN Software License (1 per blender)
ehcc5	DB9 F/F Test Cable, 6 foot
MLAN-IR	100' Initial Cable Run w/db9 Connector
MLAN-D	20' Cable Drop w/db9 Connector
MLAN-C	Cable (for run through ceiling)
MLAN-CB	MLAN Connector Box

Here is what you will need:

1. MLAN starter kit (MLAN-SK)
2. One initial run (MLAN-IR)
3. One 20' drop per blender (MLAN-D)
4. Enough MLAN cable to wire everything together (MLAN-C)
5. One connector box per blender (MLAN-CB)



For those of you that would like to make up your own cables follow these instructions:

MLAN TO CONTROLLER CABLE PINOUT

MLAN-IR DB9 Connector pin (or terminal strip)	Wire Color	MLAN-D DB9 Connector pin
1	Black	1
4	Red	4
6	White	6
7	Green	7
5	*Shield*	connected to hood

The **shield** is connected at all points **including** at the controller. At the controller the shield should be connected to the housing of the controller. This shield is intended to tie all external noise to ground at the MLAN-SA or the computer, while minimizing the chance of noise entering the WSB controllers. **The shield is not connected to pin 5 of the controller; however, it is connected at the computer.**

MLAN requires four (4) conductor cable with a shield for conveying information. Wire size should be 18 to 22 gauge. Use 18 gauge for the long runs (especially over 500 feet). Twenty-two (22) gauge is recommended for the “drops” to each controller. Twenty-two (22) gauge wire is used at each controller termination because it solders more easily to the DB9 connector required at each WSB controller location.

We recommend: CAROL WIRE, Part #C2555
or BELDON WIRE, Part #9402

Conductors are Black, Red, White, and Green, plus a shield.

Black	is the positive power supply (16 to 24 volts)
Red	is the neutral from the power supply
White	is communication from PC to WSB controller
Green	is communication from WSB controller to PC

Wiring generally requires a single cable run through the ceiling over all the process machines with "drops" to each controller. This main wire may "T" off to other locations if required for more efficient wiring.

RS-232 Communication (for limited applications)

RS-232 uses a direct connection from the computer to the WSB controller. This type of communication is reliable for short runs where little or no "noise" or static interference is present. This may be the case in a lab or another closely controlled environment. A low noise environment is not common in a factory and we do NOT recommend RS-232 for factory installation.

Other restrictions are that the computer must be close (less than 50 feet) to the WSB controller and can only communicate with a few units (maximum of three). If all three conditions are met, then you may cable directly to the RS-232 serial port on your computer without any other hardware interface. Under these circumstances, the MLAN-SA is not required. The proper pin connections are as follows:

RS-232 TO WSB CONTROLLER CABLE PINOUT

WSB DB9 Connector	**Computer Connector**		
pin #	**DB9**	**or**	**DB25**
3	3		2
2	2		3
5	5		7 and 1
	6, 7, 8 pins tied together		4, 5, 6

Do NOT use a standard off-the-shelf cable. Standard cables have ALL pins connected, or at least more than just those listed above. ALL pins connected will NOT work. You must wire a special cable according to the diagram provided.

Wiring Consideration

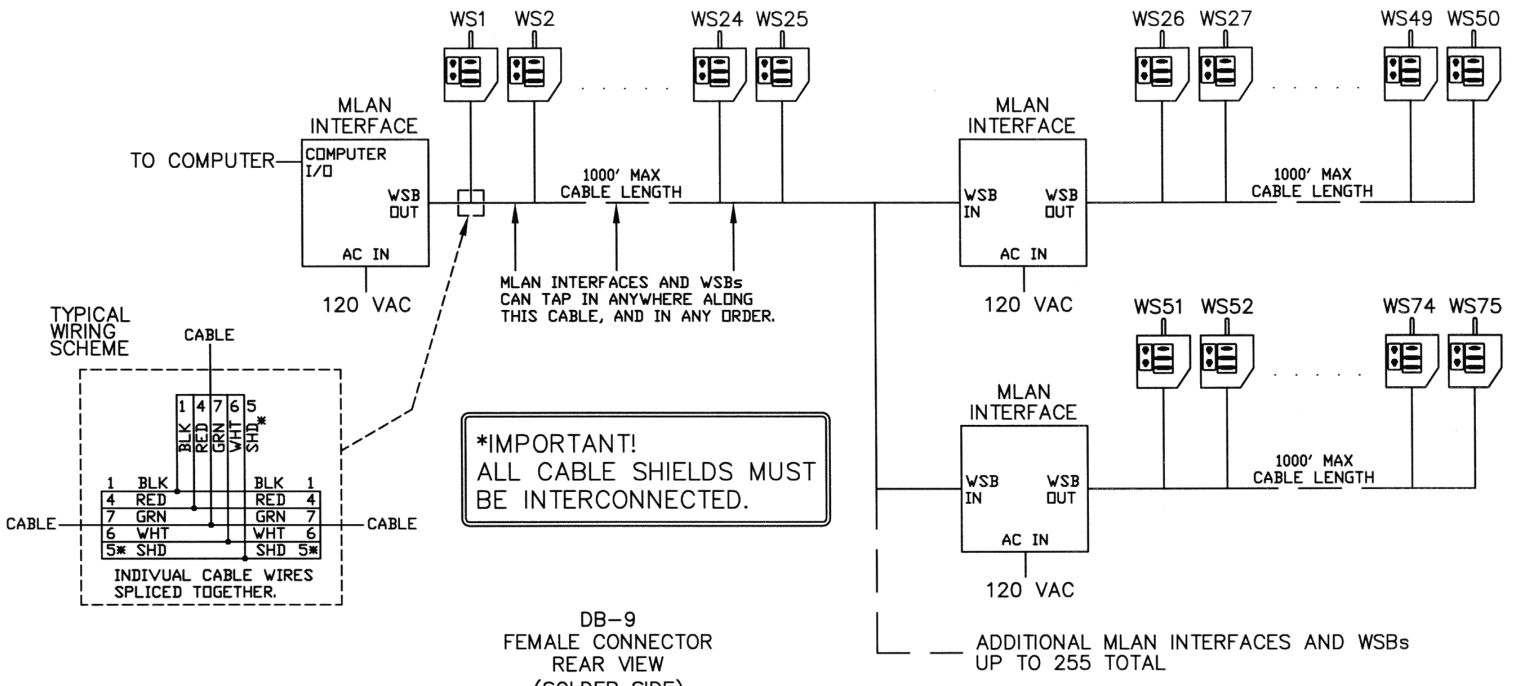
The wiring of your communication lines is very important for reliable operation. To minimize problems, consider the following:

1. Communication lines are **low voltage** lines. Be sure that these lines are not bundled to any high voltage lines. If you run them in conduit, do not run high and low voltage lines together.

2. It is not necessary to run this wire in conduit. If you do run cables without conduit, do not wire tie these lines to material conveying lines or other conduit containing high voltage or high amperage electrical lines.

3. Keep all **communication lines** away from all **vacuum loader-conveying lines**. Conveying plastic produces **extreme** static charges. An electrical line, even in conduit that runs next to a vacuum line can introduce extreme static pulses into the processor. Keep these lines **separated** from conveying lines.

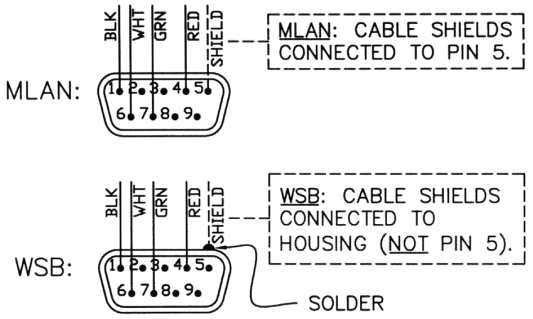
MLAN INTERFACE WIRING EXAMPLE



TYPICAL WIRING SCHEME

*IMPORTANT!
ALL CABLE SHIELDS MUST BE INTERCONNECTED.

DB-9 FEMALE CONNECTOR REAR VIEW (SOLDER SIDE)



DB-9 PIN#	CAROL WIRE #C 2555	BELDEN WIRE #9402
1	BLACK	BLACK
4	RED	RED
7	GREEN	GREEN
6	NATURAL (WHITE)	WHITE
5*	SHIELD	SHIELD

IBM DB-25	IBM DB-9	MLAN DB-9	FUNCTION
3	2	2	MLAN OUT TO IBM
2	3	3	MLAN IN FROM IBM
1,7	5	5	GROUND

NOTE:
ALL BULKHEAD CONNECTORS ARE MALE DB-9 ON BOTH MLAN INTERFACE UNITS & WSBs.

ALL CABLE ENDS ARE FEMALE DB-9 CONNECTORS.

mpi
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MLAN INTERFACE WIRING EXAMPLE

DRAWN BY:	DATE DRAWN:
JSH	5/17/95
SHEET: 1 OF 1	DATE CHANGED: 9/25/96