



SHOP FLOOR DATA COLLECTION

IMPAX TSS-NET Software Provides Data Collection for Shop Floor Management

IMPAX TSS-NET links **IMPAX TSS-4, TSS-6, TSS-8 and TSS** screenless units to a personal computer or network. A maximum of up to ninety (90) units of the **IMPAX TSS** series can be connected to any one PC on the network.

This data collection system provides instant access to information that has traditionally taken days or weeks to compile. **IMPAX TSS-NET** enables the user to get up to the minute information about the shop floor machinery and fine-tune the manufacturing process as needed, resulting in increased productivity and improved quality.

In addition to using the **IMPAX TSS-NET's SETUP MODE** to specify and set IMPAX TSS Units operating parameters, data handling is at the heart of the **IMPAX TSS-NET** Production Networking System. Data handling can be divided into three areas:

VIEWING MODE

This type of activity gives "Snapshot" Tracking of each machine's status, each operator's status, and each part's status at the Central Computer. Real Time Shop Floor Information is shown including:

DAILY INFORMATION

- Machine Name or Number and Status
- Parts Made Count
- Tool Usage Counts
- Maintenance Counts
- Speed of Production (PPM) and Efficiency
- Uptime and Downtime Minutes by Shift
- Response Times to Machine Faults by Shift
- Downtime Reasons-Occurrences and Minutes
- Current Job Information
- Operating Efficiencies and Effectiveness (OEE)
- Production Potential

WEEKLY, MONTHLY, YEARLY INFORMATION

- Parts Made Counts by Shift
- Uptime Minutes and Percents
- Downtime Minutes and Percents
- Downtime Reasons-Occurrences and Minutes
- Response Times to Machine Faults

COLLECTION MODE

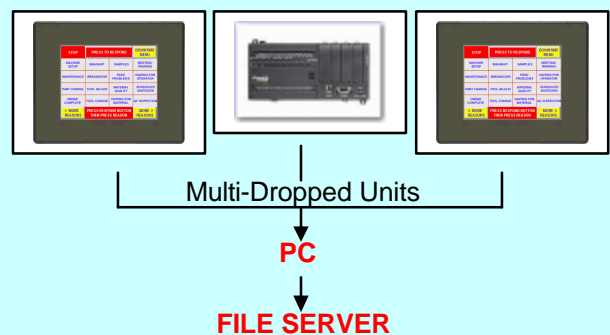
IMPAX TSS NET supports automatic data collection. Machine data and the Downtime Log are collected once daily, and the Part and the Operator data are collected as parts are completed and operators log in. Data can be collected automatically across a serial or Ethernet network, or by directly connecting to each TSS unit once daily. After collection, the data can be analyzed and reviewed via the TSS-NET program.

This data is stored in a comma-delimited format so that it can be imported into EXCEL or other programs for further analysis and evaluation.

Machine data may also be streamed to other database programs, depending on the required format, and the specific program type that the customer uses.

REPORTING MODES

When a supervisor is in Viewing Mode, he can use the Print Screen function to print the screen report that he is viewing. For some users this may be more than adequate. Alternatively, the user can import the common delimited files or streamed files into their own programs of choice. The user then has total flexibility to do further analysis and report writing. Once data is in a database that is normally kept on a file server, the data can also be made available to all users on the network.



REQUIREMENTS

- IBM compatible Pentium PC
- Minimum 6-gigabyte hard drive
- 128 Meg of memory
- Windows 95, 98, 2000, NT, XP

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TSS-NET SAMPLE SCREENS

IMPAX TSS-NET runs in Microsoft Excel, allowing any PC with Excel to run the software. All TSS units can be configured from a central location using a PC. TSS-NET features a series of screens that show live shop floor data, continuously updated over the network. An overview of the shop floor can be presented, along with detail views that show complete data for any machine. All machine data can be logged to Excel data files. Built-in reporting functionality can present this data, or the data can be used for custom user analyses or imported into a database.

System Setup

Machine Setup

TSS machine names may be changed, along with machine settings and downtime reasons.

Buttons: Edit Machine Names, Edit Machine Settings, Edit Downtime Reasons

Machine Scheduling

Schedules can be edited for each machine.

Machine CROGS (Downtime): Edit Machine CROGS

Machine Start/End Times: Edit Start/End Times

Link Status

Number	Machine Name	Link
1	Header 1	Good
2	Header 2	Good
3	Header 3	Good
4	Header 4	Good
5	Header 5	Good
6	Roller 1	Good
7	Roller 2	Good
8	Roller 3	Good
9	Roller 4	Good
10	Roller 5	Good

Data Collection

Part saving is ON
Operator saving is ON
Daily saving is ON

Buttons: Setup Data Collection, Edit Saved Data Data

Data Collection Messages:

Part saving enabled. Operator saving enabled. Daily saving enabled.
Save path is C:\IMPAX TSS System

Edit Downtime Reasons

Downtime Reasons can be edited, or can be copied and pasted to other machines. Reasons can be saved to individual machines or to all machines at once. Select "Done" to exit without saving.

Choose a machine to access its Downtime Reasons: Header 1

Buttons: Load from Selected Machine, Save to Selected Machine, Save to Multiple Machines

Header 1: Loading downtime reasons: Done

Downtime Reasons

Codes 1-16

Code	Reason	Code	Reason
1:	MACHINE SETUP	9:	SAMPLES
2:	MAINTENANCE	10:	FEED PROBLEMS
3:	PART CHANGE	11:	MATERIAL QUALITY
4:	ORDER COMPLETE	12:	WAITING FOR MATERIAL
5:	SMASHUP	13:	MEETING/TRAINING
6:	BREAKDOWN	14:	WAITING FOR OPERATOR
7:	TOOL ADJUST	15:	WORKING ON OTHER MACH
8:	TOOL CHANGE	16:	SCHEDULED SHUTDOWN

Buttons: Copy Reasons, Paste Reasons, Clear Reasons, Done Editing Reasons (Exits without saving)

Shop Floor Summary

Machine Name	Machine Status	Current PPM	PPM Efficiency	Current Production	Today's OEE	View OEE Details	View Machine Details
Header 1	UP	95	95.0%	92%	33.06%	View Details	View Details
Header 2	UP	97	97.0%	95%	30.15%	View Details	View Details
Header 3	DOWN	0	0.0%	12%	11.43%	View Details	View Details
Header 4	UP	102	102.0%	99%	92.66%	View Details	View Details
Header 5	UP	82	82.0%	90%	80.75%	View Details	View Details
Roller 1	UP	54	54.0%	62%	68.52%	View Details	View Details
Roller 2	DOWN	0	0.0%	59%	65.65%	View Details	View Details
Roller 3	DOWN	0	0.0%	1%	1.23%	View Details	View Details
Roller 4	UP	87	87.0%	90%	89.54%	View Details	View Details
Roller 5	UP	90	90.0%	97%	87.78%	View Details	View Details

Detail View for machine: Header 1

Up/Down Times

Shift	Daily Minutes		Weekly Minutes		Monthly Minutes		Yearly Minutes	
	Up	Down	Up	Down	Up	Down	Up	Down
Shift 1	100	21	0	0	0	0	0	0
Shift 2	0	0	0	0	0	0	0	0
Shift 3	0	0	0	0	0	0	0	0
Total	100	21	0	0	0	0	0	0

Production Counts

Order Counters: Order Quantity: 1608 Minutes Left: 70
Parts Made: 248 Parts To Go: 178
Percent Made: 24 Percent To Go: 76

Tool Counters

Chart Area

Data Copied from TSS Viewer:

Day	Series1	Series2
1	11051	15420
2	12435	15200
3	14435	15707
4	12483	15254
5	14734	15225
6	17248	15420
7	20080	15320
8	21576	15620
9	22547	15528
10	23391	15430
11	23080	15991
12	25089	15303
13	24985	15841
14	23489	15774
15	24516	15220
16	21788	15592
17	19637	15440
18	17283	15490
19	16573	15932
20	12613	15754
21	14225	15420

Reporting

Buttons: Generate New Report, Clear Report, Print this Page

Uptime/Downtime Report

Report data from 1/1/2009 to 12/31/2009

Date	Machine	S1 DT	S2 DT	S3 DT	Total DT	S1 RT	S2 RT	S3 RT	Total RT
01/01/2009	Header 1	447	1175	940	3562	0	0	0	0
01/01/2009	Header 2	447	447	447	1341	0	0	0	0
01/01/2009	Header 3	447	447	447	1341	0	0	0	0
01/01/2009	Header 4	447	447	447	1341	0	0	0	0
01/01/2009	Header 5	447	447	447	1341	0	0	0	0
01/01/2009	Roller 1	447	447	447	1341	0	0	0	0
01/01/2009	Roller 2	447	447	447	1341	0	0	0	0
01/01/2009	Roller 3	447	447	447	1341	0	0	0	0
01/01/2009	Roller 4	447	447	447	1341	0	0	0	0
01/01/2009	Roller 5	447	447	447	1341	0	0	0	0