

# Real-Time Analytics with Timeline View for Improved Analytics

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**INTERPHEX**

# Introduction

- Theory / Background
- Voice of Customer Interviews
- Insights
- Opportunities
- Solutions





Don't know *when*  
tasks are coming up

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Inefficient operators ▼



Don't know when  
something is delayed

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Production compromised ▼



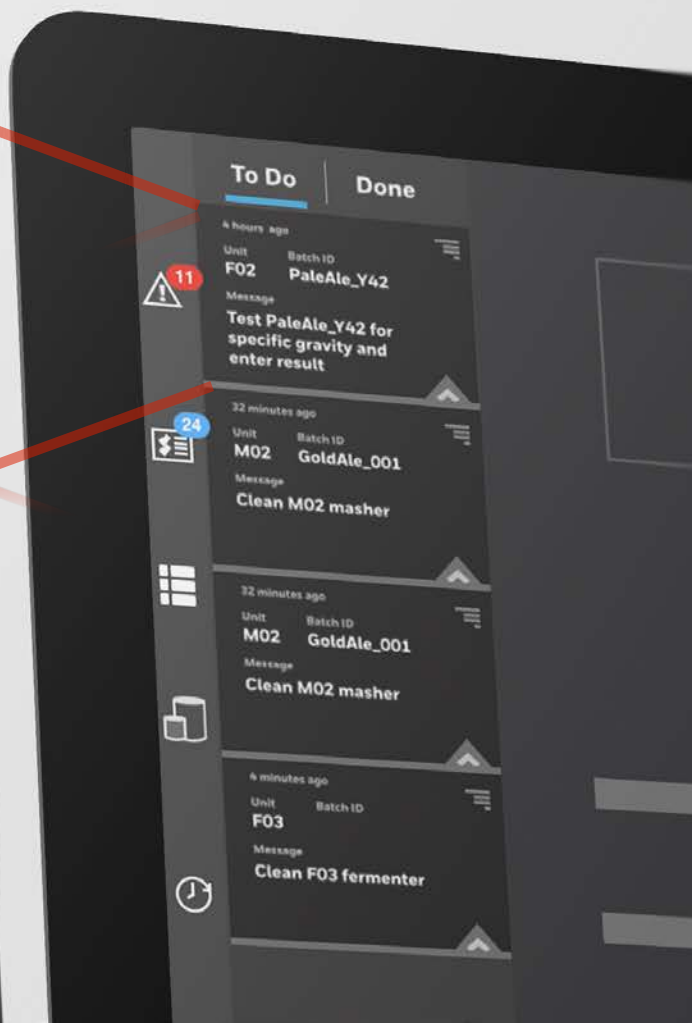
Troubleshooting is difficult

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Loss of quality ▼



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Know what's coming up and respond faster

Timely response delivers higher quality



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Troubleshooting is easier and faster

Better asset utilization and batch throughput ▲



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Introducing time based visualization



Know immediately when there is a delay



Know what's coming up and respond faster

Better asset utilization and batch throughput ▲

More efficient operators ▲



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Access the data I  
need on the go

More efficient operators

Reduced downtime

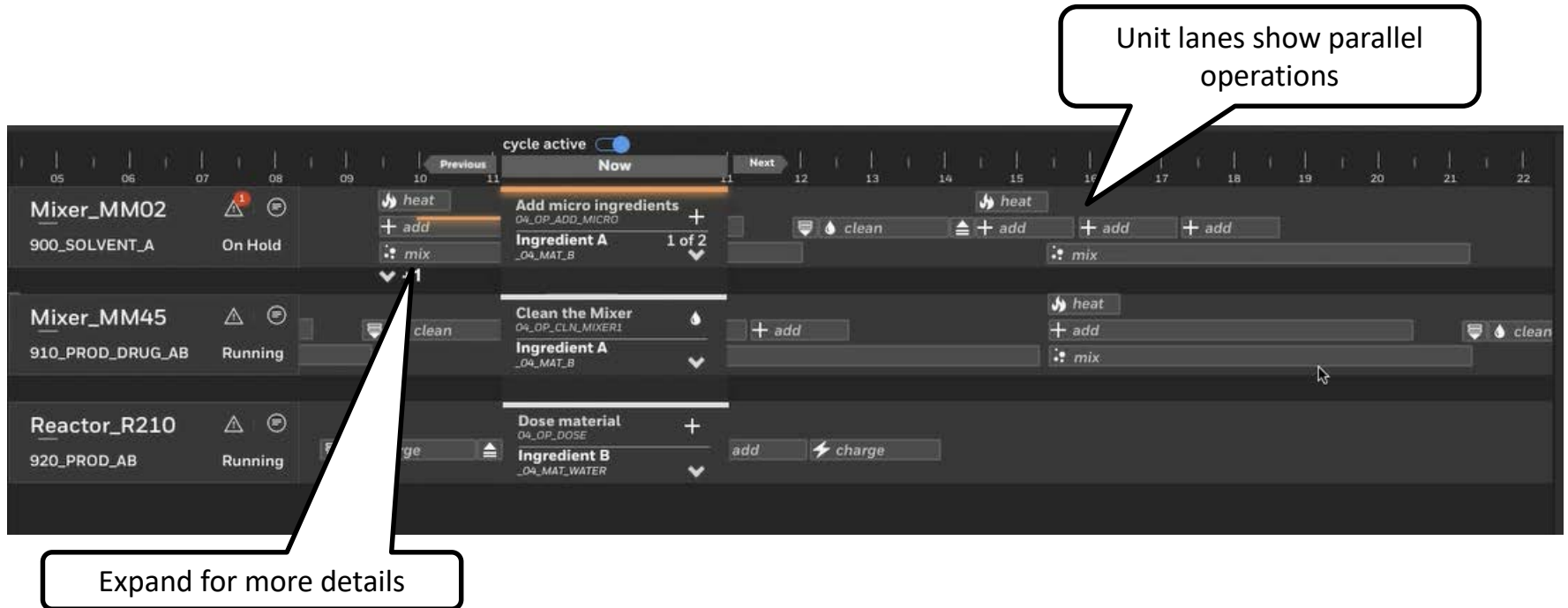


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THE POWER OF **CONNECTED**



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# Unit Timeline



***Broad situational awareness balanced with useful data***





# Show All Active Phases

Cycle through active operations and phases

The screenshot displays a process control interface with a timeline from 05 to 17. A 'cycle active' toggle is at the top. Three units are shown:

- Mixer\_MM02** (900\_SOLVENT\_A, On Hold): Shows operations including 'Add micro ingredients', 'Ingredient A', and 'Mix Ingredients'.
- Mixer\_MM45** (910\_PROD\_DRUG\_AB, Running): Shows operations including 'Clean the Mixer' and 'Ingredient A'.
- Reactor\_R210** (920\_PROD\_AB, Running): Shows operations including 'Dose material' and 'Ingredient B'.

Easily expand to reveal all operations and phases



# Procedure Explorer

The image displays two views of the Procedure Explorer interface. The left view, titled "Hierarchy", shows a list of steps for a procedure named "900\_CANDY\_A". The steps include "UP\_mixer", "OP\_open\_valve", "PH\_valve\_pos\_80", "OP\_xfer\_out", "PH\_acquire\_unit", "PH\_check\_tank", "UP\_heater", and "OP\_open\_valve". A blue arrow labeled "Select" points from the "PH\_check\_tank" step to the right view. The right view, titled "Active Steps", shows a detailed flowchart of the procedure. The flowchart includes steps such as "Initialize", "Fill\_tank\_220", "Add\_Material\_B", "04\_MatB\_Transfer", "REL\_Mixer", and "04YM\_Making2". A dropdown menu labeled "Active [2]" shows two active steps: "04\_MatB\_Transfer" (highlighted in red) and "REL\_Mixer" (highlighted in green). Below the flowchart, there are tabs for "Controls", "Details", and "Parameters". The "Details" tab is selected, showing expressions for "REL\_Mixer" and their descriptions.

**Hierarchy**

**toggle**

**Active Steps**

**Select**

Batch ID: 900\_CANDY\_A

Path: PR\_Choc\_Oy4\_proc > UP\_mixer > OP\_xfer\_out > PH\_check\_tank

show steps:  show:  show all:

UP\_mixer

OP\_open\_valve

PH\_valve\_pos\_80  
valve012\_pos: set valve position to open  
valve017\_pos: set valve position to closed  
valve019\_pos: set valve position to open  
valve026\_pos: set valve position to closed  
pressure\_condition: check pressure >220

OP\_xfer\_out

PH\_acquire\_unit  
check\_unit\_status: check receiving units status

PH\_check\_tank  
check\_level: check level <10

UP\_heater

OP\_open\_valve

PH\_valve\_pos\_100  
valve012\_pos: set valve position to closed  
valve017\_pos: set valve position to open

Initialize

Fill\_tank\_220

Fill\_Tank\_221

Fill\_tank\_220

Add\_Material\_B

Add\_Material\_B

04\_MatB\_Transfer

04\_MatB\_Transfer

REL\_Mixer

REL\_Mixer

04YM\_Making2

04YM\_Making2

Controls Details Parameters

Expressions for REL\_Mixer

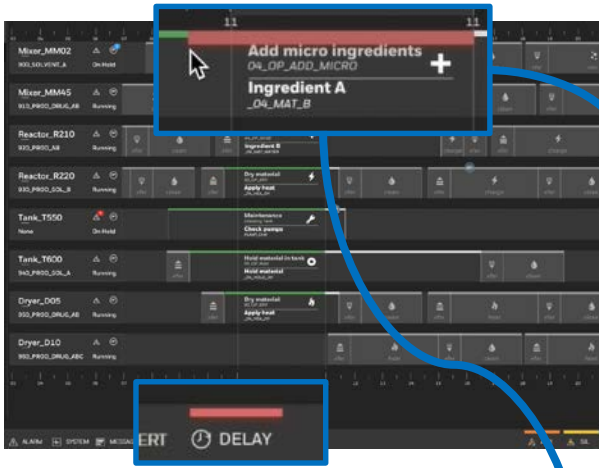
15HS203A.PIDA.MODE = 0  
15HS999.PIDA.MODE = 0

Description

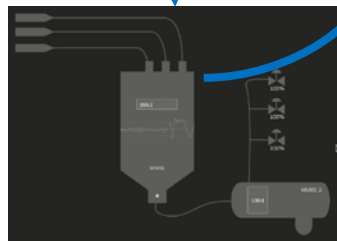
Check mode is MANUAL  
Check mode is MANUAL



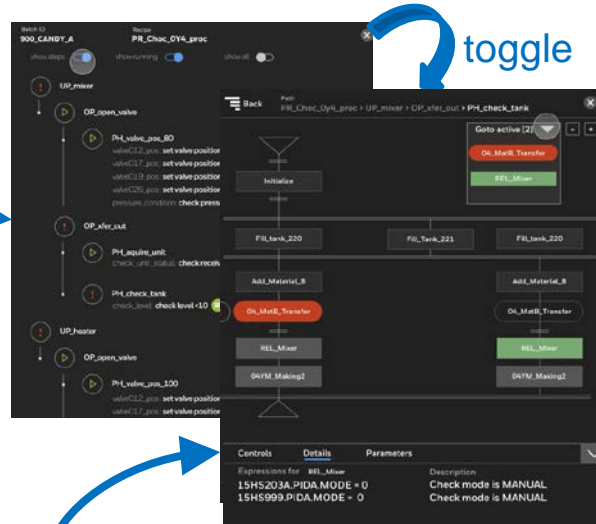
# Troubleshooting Workflows



**Unit Timeline**  
with indicator in Station



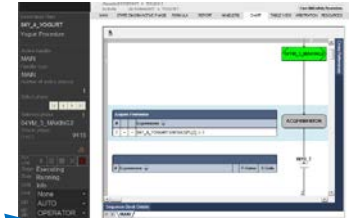
**Unit Graphic**



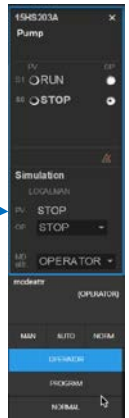
**Procedure Explorer**  
Procedural Hierarchy & SFC

**Parameters**

General	Header	Unit Selection		Formula		Report
		Master Values	Control Values	Units	New Value	
Amount of hops	118	32		KGS		
Boil temperature	147	165		Deg C		
Yeast add temperature	134	175		Deg C		
Fermentation temperature	874	176		KGS		
PH endpoint setpoint	947	879		PH		



**Point Detail**



**Faceplate**



# Unit Timeline

## Units in Scope of Responsibility

Unit status  
Alarm & message state

## Navigation

Procedural Control Display (SFC)  
Unit Graphic  
Unit Trend  
Detail Display

## Notification Center

Respond to messages in place  
List of future instructions

Actual times for all running batches

## Now line

Active Operation & Phase  
See active Step Desc

## Delay Indication

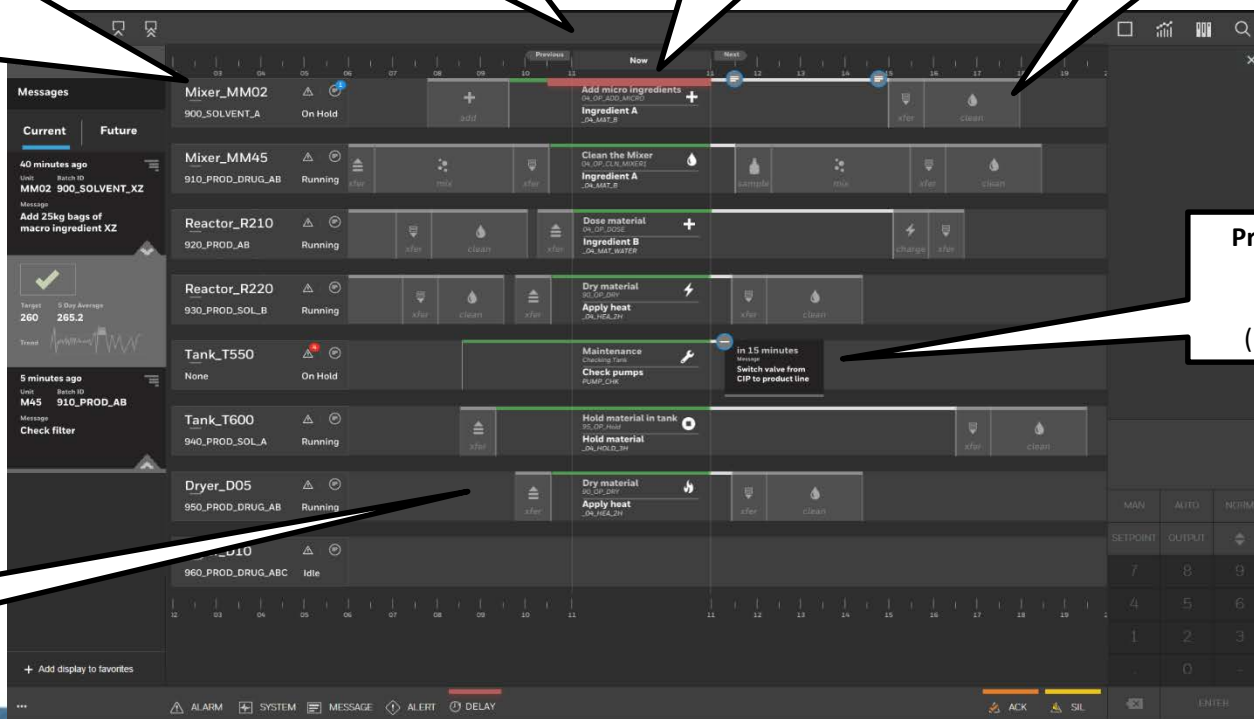
Time comparison to Reference Batch.  
Also in Station indicator bar

## Predicted batch times

All Operations for batch that has acquired unit

## Predicted instructions

Times of Batch Instructions  
Instructions (Info & confirmable)



# Cut to Demonstration



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# Summary



- Unit Timeline shows predicted (S88) Operation execution times with icons
- Shows when batch instructions occurred in reference batch and highlights 'busy' times
- Highlight deviations
  - Navigate to Unit Display & Batch Sequence View for troubleshooting
- Batch/MES Interface can query and select reference batch



# Thank You!

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