



HanPHI provides **early warnings** of potential and hidden equipment failures in advance. The early warnings provide an indication of system abnormalities so that the user can avoid or reduce equipment failure. Rather than relying on alarm setpoints, HanPHI early warnings are based on the continuously calculated and dynamic health index.

With early warnings, organizations have **increased lead time** to identify potential and hidden failures, analyze the situation, and create an effective strategy to prevent the potential failure.

How It Works

HanPHI generates early warnings based on the health index. There are 3 levels of early warnings with the default warnings occurring at: 75% (priority 3), 50% (priority 2), and 25% (priority 1). If needed, an organization can further customize the early warning levels for the entire site or individual pieces of equipment. The health index is calculated by **comparing real-time values with the expected values**. Therefore, the early warnings indicate and highlight potential problem areas in the current operation and environment. Beyond **identifying potential and hidden equipment failures**, HanPHI also alerts organizations of potential sensor issues, including mismatched and failed sensors. When HanPHI generates an early warning, the user is notified of the need for further investigation through the software or via text and email notifications.

Description	Actual	Expected	Residual	LRA	Index	UPT Group
6888 BROW BR 00	6.38	6.11	-0.17	70	71.7	CTSR_Sen_Temp 1
CASING VALVE TEMP 0104 002	11.36	10.83	1.137	100F	74.8	CTSR_Valv_Temp
TP POWDER FACTOR	6.94	6.95	0.00	PCT	96.8	CTSR_Sen_Factor 2
EXTRACT DE PRESS 800P	68.54	68.41	-0.12	%	96.7	CTSR_Extractor Steam Flow
TP CONTROL VALVE EXTRACT...	47.04	46.05	-0.09	PCT	96.5	CTSR_Valv_Control Valve
HRSG 01P2 01P OUTDRW BR...	123.89	123.23	1.94	100F	100.8	HRSG_01P2_01
HRSG 01P2 01P INDRW BR...	148.19	146.20	0.01	100F	100.8	HRSG_01P2_02
HRSG 01P2 01P OUTDRW BR...	177.89	176.50	-1.23	100F	100.8	HRSG_01P2_03
HRSG 01P2 01P INDRW BR...	189.27	189.20	-0.03	100F	100.8	HRSG_01P2_04
HRSG 01P2 01P OUTDRW BR...	191.00	172.03	1.52	100F	100.8	HRSG_01P2_05
HRSG 01P2 01P INDRW BR...	138.57	136.55	-0.02	100F	100.8	HRSG_01P2_06
HRSG 01P2 01P OUTDRW BR...	123.51	123.52	0.01	100F	100.8	HRSG_01P2_07
676 1000000 BLADE INVA TR...	905.55	921.24	1.79	100F	99.7	CTSR_Blade_Path_Temp 0a
676 1000000 BLADE INVA TR...	905.36	917.49	-1.04	100F	99.8	CTSR_Blade_Path_Temp 1-2
676 1000000 BLADE INVA TR...	906.30	906.00	16.01	100F	99.8	CTSR_Blade_Path_Temp 1-2
676 1000000 BLADE INVA TR...	917.05	917.91	0.26	100F	99.8	CTSR_Blade_Path_Temp 3-4
676 1000000 BLADE INVA TR...	905.39	906.60	-0.82	100F	99.7	CTSR_Blade_Path_Temp 3-4
676 1000000 BLADE INVA TR...	911.46	912.29	1.14	100F	99.8	CTSR_Blade_Path_Temp 5-6
676 1000000 BLADE INVA TR...	901.26	901.60	0.34	100F	99.8	CTSR_Blade_Path_Temp 5-6
676 1000000 BLADE INVA TR...	905.70	905.05	0.15	100F	99.8	CTSR_Blade_Path_Temp 7-8
676 1000000 BLADE INVA TR...	905.22	902.70	1.57	100F	99.7	CTSR_Blade_Path_Temp 7-8
TURBINE SPEED INPUT NO. A	9405.24	9405.24	0.00	RPM	100.0	CTSR_TSR_Speed

In addition, users conveniently identify, search, and filter current or historical alarms in HanPHI Alarm. The user is able to acknowledge the warning, view historical warnings, and leave a comment. The comment feature allows an organization to keep its historical equipment memory in one centralized location. This enables users to view past early warnings, how they were resolved, and the result.

What's the Value?

HanPHI is capable of monitoring all of the equipment all the time, pinpointing areas where the plant should focus. With HanPHI, the plant can rest assured they are monitoring the real-time status of the plant and making decisions based on quality information. Instead of relying on alarm setpoints, HanPHI early warnings alert users of issues that, if not addressed, may lead to catastrophic failure.

As a result of the increased lead time from the early warnings, organizations experience improved operations, reduced costs, and increased overall safety. With HanPHI early warnings, you can utilize predictive rather than reactive maintenance strategies.