

Integrated Automation and Control Solution

Our smart factory platform offers a range of packaged solutions for optimized factory automation, ensuring a smooth and reliable experience from installation to operation. By harnessing data from individual equipment and inter-equipment processes, our integrated solution streamlines production management, equipment maintenance, and real-time monitoring. With instant processing capabilities, it helps customers make better use of their resources and achieve maximum operational efficiency.



rSPC

Real-Time Statistical Process Control

Field-oriented Optimized service



What does it do?

nexbe+ rSPC is an On/Off-line Real-Time Statistical Process Control (rSPC) system that collects production and measurement data in real time. By utilizing statistical data and analytical methods, it identifies anomalies early and provides warnings to prevent potential issues.

With **nexbe+** rSPC, You Can

"Real-Time Statistical Process Control"

Reference data management	Real-time rule check
 Control Rule, Control Chart, rSPC Spec modeling 	 Calculates statistical data and control parameters for each control target; runs rule violation checks and stores the results. OCAP interface (Interfaces with MES services to perform corrective actions)

Analysis

Manages statistical values through batch management

- Cp/Cpk Report, Simulation (Spec and Control Limit estimate), Index Report(Alarm, Cp/Cpk)
- CL (Automatically generate CLs based on raw data)

Product Configuration

- rSPC collects user-defined data, performs rule checks, and stores the results.
- When a Rule Out occurs, the system interfaces with MES or handles other events according to guidelines defined by the OCAP (Out of Control Action Plan).



Field-oriented Optimized service







Control Chart – Chart Spec 03



Control Chart – Chart Point Hide & Ignore 04







Ignore : Not calculate control limit data

05 Handle Control Data – Edit, Delete Control Data



06 Provides industry-common default rules and custom rules

Basic Western Electric Rule provided by default

- Zone rules for symmetric data (4 types)
- R-chart rules for asymmetric data (7 types)
- Trend rules (2 types)

Nelson Rule provided by default

• 8 types of symmetric & asymmetric rules

Supports custom rule definitions

- Limit out type
- Bias type
- Trend type
- Oscillation type
- Allows user customization of management limits by type, with runtime application.



07 Rules – Western Electric Rule

Cate	No.	Description
------	-----	-------------

Applicable chart

	R1	Any single data point falls outside the 3σ limit from the centerline (i.e., any point that falls outside Zone A, beyond either the upper or lower control limit)			
F Zone Rule	R2	Two out of three consecutive points fall beyond the 2σ limit (in zone A or beyond), on the same side of the centerline	– Symmetricdata 적용 (X-bar chart)		
	R3	Four out of five consecutive points fall beyond the 1σ limit (in zone B or beyond), on the same side of the centerline			
	R4	Eight consecutive points fall on the same side of the centerline (in zone C or beyond)			
	R5	Any single data point falling above the $+3\sigma$ limit			
	R6	Two consecutive points falling above the $+2\sigma$ limit (in the upper zone A or above)			
	R7	Three consecutive points falling above the +1 σ limit (in the upper zone B or above)			
R-Chart	R8	Seven consecutive points falling above the centerline (in the upper zone C or above)	 Smallsub- groupsample(<5) 		
Rule	R9	Ten consecutive points falling below the centerline (in the lower zone C or below)	- Asymmetricdata적용		
R10	R10	Six consecutive points falling below the -1 σ limit (in the lower zone B or below)	– (K-Chart,p-Chart,)		
	R2 Involution three of same side of the or same side of	Four consecutive points falling below the -2 σ limit (in the lower zone A)			
Turnel	R12	6 in a row trending up or down			
irena	R13	14 in a row alternating up and down	-		

08 Rules – Nelson Rule



09 Provides 7 types of default control charts based on data attributes

Category	Attribute	Defect type	Chart type	Sample Siz
			X, mR Chart (Individuals and moving range)	Sample = 1 per sub group (point)
Variable (Quality)	Measurable (thickness, temp., pressure)		Xbar, R Chart (Average and range)	Sample 2-10 per sub group (point)
	I		Xbar, S Chart (Average and STdev)	Sample > 10 per sub group (point)
		Defective Unit	np Chart (number defective)	Sample size constants (defects per 100 CST)
Attribute	Countable (defect,		p Chart (proportion defective)	Sample size varies (defects per CST)
(Defects))	Defects	c Chart (defects per subgroup)	Sample size constants (defect points per 100 samples)
			u Chart (defects per unit)	Sample size varies (defect points over a specific period)

10 Supports viewing and simulating Cp/Cpk reports for past and recent data.

Query conditions

- User-defined query conditions
- Supports up to 6 query conditions for filtering data by specific time periods.

Cp/Cpk Report

- Provides process capability index statistics for any user-defined period (daily, weekly, or monthly).
- Delivers statistical data for multiple items, not limited to single data points.
- Provides Cp, Cpk, Pp, Ppk, CA, CPM, Cnpk metrics

Simulation

- Provides simulation functionality for applying various control charts, control limits, and rules to the collected data.
- Estimates values for Spec Limit and Control Limit.

Excel out/print

- Saves raw data, stat. data into Excel file
- Chart print



11 Generates period-specific Cp/Cpk reports and alarm reports by grouping rSPC data

Cp/Cpk Index Report

 Groups user-defined conditions to generate daily, weekly, and monthly process capability index reports.

III Capability Data List											
Chart Name	Chart Name	Term	Target Term	Ср	Cpk	Cpm	Pp	Ppk	Start Time	End Time /	Deta C
Alarm_Test_Chart01	Xbar	Monthly	262007	0.458867	0.140416	0.333976	2 244167	1.336126	2020-07-01 00:00:00	2020-07-23 00:00:00	
Varm Test Chart01	Xbar	Monthly	202007	0.458867	0.140416	0.333976	2.244157	1.336126	2020-07-01 00:00:00	2020-07-24 00:00:00	
Nam Test Chart01	Xbar	Monthly	202007	0.458867	0.140416	0.333976	2.244167	1.336126	2020-07-01 00:00:00	2020-07-25 00:00:00	
Varm Test Chart01	Xbar	Monthly	202007	0.458867	0.140416	0.333976	2.244167	1.336126	2020-07-01 00:00:00	2820-07-26 00:00:00	



Alarm Index Report

• Groups user-defined conditions to generate daily, weekly, and monthly reports on alarm occurrence rates.



