Specifications	nCompass LC Single & Dual Loop	nCompass CM Multiloop
Display Hardware		
Display Size & Type	4.3" TFT Color	4.3" and 7" TFT Color
Active Display Area (W x H mm)	95mm (W) x 54mm (H) (3.7"x 2.1")	4.3" 95mm (W) x 54mm (H) / 7" 152mm (W) x 91mm (H)
Display Resolution	480 x 272	4.3" 480 x 272 / 7" 800 x 480
Maximum Colors	65,356	
Backlight Type / Life	LED 30K hours	
Processor / CPU Speed	Arm Cortex-A8, 1Ghz	
Operating / Storage Temperatures	0 to 50C (32F to 122F) / -20 to 60C (-4F to 140F) (extended temperature limits available - contact factory)	
Connections - Ports	1 Serial RS232, 1 Serial RS485, SD Slot, USB Host and Ethernet 10/100 Base	
Memory	256MB SRAM / 128MB Flash	
SD Card Data Storage	2GB SD card	
Graphic User Interface		
Navigation / Menu System	Icon with finger navigation similar to Smart Devices (iPhone/Android) or traditional Windows® style Menu Bar (User Configurable to utilize Icon or Menu Bar)	
Loop and Monitor Views; Single, Dual & Overview	Single & Dual Views	Single, Dual and Overview Views
Trend Views (walk by view) Trend value configurable for L/R axis, trend time and auto or set scale per axis	4 Trend Views of 6 values each view (loop PV, SP, PID% out and Monitor Points) Trend View Time Configurable 6 to 1,440 seconds (24 hours)	8 Trend Views of 8 values each view (loop PV, SP, PID% out and Monitor Points) Trend View Time Configurable 6 to 1,440 seconds (24 hours)
Access Loop Control SP, Alarms, AT, etc.	Access Loop controls, change SP, view/acknowledge Alarms, and much more in an intuitive format	
Profiles (ramp/soak)	Manage, create, edit, start, hold, stop, etc. profiles in an intuitive format	
File Management	View, copy & export Profile, Alarm, Data Log and Audit Trail files. Files exported via USB, email or FTP (Profile files exported only via USB)	
Setup & Configuration	View, access and setup/configure the menu system type, appropriate menu items shown, alarms, limits, LAN, email/SMS on alarm, Web page, FTP settings & more	
Supervisory Control and Data Acquisition (SCADA)		
Data Log Values	Data Log loop control PV, SP & PID percent output for one or two loop controls	Data Log up to 10 control loops PV, SP & % output & up to 15 optional Monitor Points (up to 45 values)
Data Log Interval	Configurable 2 seconds to 31 minutes	
Data Log Start / Stop	Configurable: operator on-demand, on profile start /end, system boot or digital input (DI) (DI CM only)	
Data Log File Name	Operator entered name (16 characters max) with all data log file names appended by time/date to the second. If running a profile the data log file name is the same as profile name. Batch & Lot data may be entered into file prior to log start.	
Data Log File Interval	Data log file configurable to auto end and start new file with the same name with appended time/date. Configurable time interval is from 1 to 31 days.	
Data Log Operator Comments	Unlimited operator comments/events linked to each file entered manually; 16 character maximum per event. nCompass CM supports optional Bar Code Scanner input via optional RS232 to auto insert operator comments	
Data Log File Type	Data Log files are saved as .csv format	
Data Log Digital Signatures	Automatic System (end of file) and operator entered digital signatures for each data file. Digital Signatures meets the need for data file integrity validation required by regulatory requirements	
Alarm Files	Alarm file (.csv) are created every day an alarm occurs showing alarm name & time	
Security	4-level security (user rights based, System, User, Supervisor, Administrator) supporting up to 30 users, password aging, re-authentication and more to comply with regulatory requirements.	
Operator Audit Trail Files	A Component of Security, an encrypted audit trail is created daily of every operator action.	
Regulatory Requirements for Data Logging and Loop Control / Monitor Point Accuracy	FDC Loop Controls and Monitor Input accuracy as well as data log features comply with NADCAP AMS2750E, FDA CFR21 Part 11 and JCAHO requirements	
Local Area Network Features (LAN)		
VNC: Allows Remote Access & Control from PC & Smart Devices (Phones, Tablets, etc.)	Yes	
Web Page View only: Loop Control's PV/SP, Monitor Points PV, DI, DO, Alarm and Profile Status	Yes	
SMS and/or email on Alarm	Yes	
email Data Log, Alarm and Audit Trail files	Yes (operator manually email files as they are opened on display)	
FTP Data Log, Alarm and Audit Trail files	Yes (FTP all files at once on demand and/or every day at 2AM)	
Time Synchronization with National Time Servers	Yes	
Eamil and FTP Port Assignment	Configurable ports 0 through 65,535	Fixed: email port 25 and FTP port 21
Loop Control		
Maximum number of loops	Two (2) B42 Single Loop PID Control Boards	Ten (10) FDC 300 or 100/C Series PID loop controls
Loop Control Models and Brand	FDC B42 Single Loop Board Level Control (Custom proprietary versions may be available)	FDC 300, 100, C and B41 Series loop controls (Custom proprietary versions may be available)
Analog Input & Output Resolution & Scan Rate	All FDC loop controls offer 18-bit Input, 15-bit output and 200ms scan rate	
Loops Configurable as Cascade	Not Available	Yes
Outputs (control & auxiliary)	B42 maximum of 4: 1 or 2 PID outputs, up to 3 outputs configurable as alarms or events per control board. Up to 2 Aux outputs, TRX PS (2) or Retrans (1).	1 or 2 PID outputs (heart/cool) per loop with optional TRX PS. The CM offers up to 32 system DO configurable as alarms, events and other logic
Number of configured PID sets	FDC 42: Two, selected by DI on the B42 control board (requires optional display board to configure PID#2). PID #2 is not configurable from HMI other than as an event out to the B42 DI	Varies with model. FDC 300 Series offer two PID sets selected by DI; the 100/C/B41 offers 1 PID set. PID #2 is not configurable from HMI other than as an event out to the 9300 DI.
Alarm Types	FDC B42 offers Process, Deviation & Deviation Band; all Alarms configurable High or Low. Configurable as alarms with annunciation or silent (control logic output).	CM offers Process, Deviation, Deviation Band and Percent Out, all High, Low or Both. Alarms may be Soft or mapped to DO, configured to defeat digital input & outputs as well as alarms with annunciation or silent (control logic outputs).
Event Inputs	B42 board: 1 DI with multiple mutually exclusive functions: Profile: Run, Hold, Run/Hold, Step Advance & Abort. Other: PID#1/#2, Manual Mode & Failure Transfer Configurable & wired to B42 board. The B42 DI functions are not accessible from HMI	CM: up to 16 inputs configurable for multiple functions: Profile: Run, Hold, Stop/Abort, Step Advance Previous Other: Digital Outputs, System Start, Alarm, Data Log Start/Stop, Defeat DI/DO logic, Disable Loop SP/all Comms. FDC 300 loop controls may have DI for control functions, i.e. PID #1 or #2 as well as other mutually exclusive DI functions

Specifications	nCompass LC Single & Dual Loop	nCompass CM Multiloop
Profile Ramp / Soak Loop Control		
Profile Naming Convention	Free form alphanumeric 16 character maximum	
Maximum number of Profiles	Unlimited	
Number of Steps (segments) per Profile	64	99
Events (DO) per Profile Step	Maximum of three per B42 Single Loop Control Board. With dual PID loop system the 2 B42 control boards offer up to 6 event outputs.	Maximum of 32
Profile Type: Step Time or Ramp Rate (Ramp Rate applies to single loop only configuration)	Yes	No (Step Time only)
Segment Jumping & Nested jumping	Yes	
Guaranteed Ramp & Soak Band (global by profile) configurable by Profile Step	Yes	
PID Settings per Profile Step	Two, configurable by B42 loop DI (DI function is mutually exclusive to other options) (requires optional display board to configure PID#2) (DI functions not configurable from HMI)	Varies with model and brand. FDC 300 Series offer two PID sets selected by DI with the PID selection not configurable or directly selected by HMI other than thru an Event out to loop DI
Wait For Logic per Profile Step	Yes: 1 DI available activated by external device (DI function is mutually exclusive to other DI options)	Yes: configurable for multiple DI (16 maximum) and/or Loop / Monitor points PV achieving a "wait for" SP
Delta SP Logic per Profile Step	Not Available	The Delta offset SP, enabled per step, is added to the configured highest or lowest loop or monitor PV (configurable high or low) is sent to target loop control(s) .
Digital Input (DI) Profile Functions	1 DI available (mutually exclusive to other DI options). Run, Hold, Run/Hold, Step Advance and Abort; Not configurable or directly selected by HMI	Configurable for multiple DI (system max is 16 DI) Start, Hold, Continue, End, Step "Wait For", (end is all CM outputs off, loop control's at last SP)
Profile Start by Day of Week/Time or Time and Date	Not Available	Day of Week at HH:MM or Date & Time
Profile End Relay Output	Yes	Yes
Profile End Logic	"Current (static) Control SP" reverts to SP value and event status set prior to profile start or "Final SP of Profile" with all events off. With Final SP configuration profile must be ended by operator or clear the profile end relay output in order to change SP and/or enable events	Final SP of Profile with all Events active as configured in final Step
Profile Power Fail / Profile Recovery Logic	Continue from last SP, Continue from current PV or abort profile returning control to Static Mode using the previous SP as well as event status prior to starting the profile.	Hold*, Continue, Restart, Resume* and Off** logic if power off time exceeds configured time (0 to 32,760 seconds). (** Off all CM outputs are off) *(Hold: loop controls at last SP) (Resume jumps forward)
Countdown Batch Timer Function		
Countdown Batch Timer Function	When enabled the easy to use Countdown Batch Timer is on the Single Loop View controlling and event relay. When the timer is active the relay is closed and opens at the end of the time	Not Available
Control Module (CM)		
CM Digital Inputs and Digital Outputs	No Control Module provided. B42 DI / DO described in Loop Control and Profile sections	Standard 8 Digital Inputs (24VDC) and Digital Outputs (6 relay & 2 24VC). Optional 8 additional DI & 16 DO either 24VDC or relay
CM Digital Output Logic (8 standard 32 max)	No Control Module provided. B42 DO described in Loop Control and Profile sections	Alarms for Loop, Monitor or DI, Profile Step Events, Profile status (run, hold & step change), DO event via a DI, Defrost and/or precool are active, Redundant#1/#2 active. All DO configurable w/cycle times, time delay & counter
CM Digital Input Logic (8 standard 16 max)	No Control Module provided. B42 DI described in Loop Control and Profile sections	Alarm input, Data Acquisition start/stop, Profile functions (start, hold continue & end), Defeat Logic to disable specific DI and/or DO, Disable Loop SP Comms (loop SP changed at control, Data Log not affected), Configurable time delay (timers) for all DI
CM Alarms: Unique Alarm Logic	No Control Module Provided. B42 Alarms described in Loop Control section	All Alarms may be configured as High, Low or Both (the "both" logic N/A on single loop nCompass). Unique Alarm types: loop control PID Percent Output and System Alarms with Callback.
CM Loop Control Configuration; Cascade Logic	No Control Module Provided. Not Available	Loop Controls may be configured via operator interface as single loop controls or as components in Cascade Control Logic.
Defrost and Redundancy Control Logic	No Control Module Provided. Not Available	Defrost: Configurable Timed Defrost or Timed Process. Redundancy: Configurable as Concurrent or Alternating
Monitor Input	No Control Module Provided. 1 or 2 depending upon B42 configuration. B42 control boards configurable as PID loop controls or Monitor Points.	15 Monitor Inputs maximum. Two Monitor Input Cards, loop control input #2 (FDC 300 Series) or combination of input cards & loop input #2
Profile (ramp/soak) features unique to CM	No Control Module Provided. B42 Profile features described in Profile section	Regardless of Loop Control model, Profile offers up to 99 segments, configure up to 4 DI profile functions, up to 32 event outputs, Step advance logic on Loop/Monitor "wait for" SP value and/or DI and "Delta SP" Logic.
Analog Input and Output (AI / AO)	No Control Module Provided. (B42 control board offers optional Retrans of PV or SP)	Maximum of 7 AI / AO cards with each card: Remote SP: 2 AI transmitted as SP values via serial link to specific loop controls. Retrans: 1AO of specific loop control PV, SP or % out.
Serial Communication	No Control Module Provided. RS232 port (Modbus) on the display is standard for 3rd party software (master) and is easily converted to RS485. Modbus Registers configurable as either FDC standard or to emulate like equipped Watlow F4	RS485 port (Modbus) on the display is standard for 3rd party software (master) with optional RS232 port for serial bar code reader input. (bar code input configurable as data logging operator event input or profile selection).
Monitor Inputs (optional)		
Maximum number of Monitor Points	up to 2 B42 control boards may be connected with one or both configured as Monitor Input instead of PID control	15 (fifteen) from combination of monitor input cards and FDC 300 Series loop controls input #2 (linear mA or VDC).
Monitor Input from Loop Control Input #2	Not Available	The 2nd analog input on FDC 300 Series loop controls may be used as Monitor Inputs
Maximum number of Monitor Cards	Not Available	Maximum of 2 Monitor Input Cards
Monitor Inputs per card and Type	Not Available	T/C, mA & VDC cards max of 8 inputs RTD card max of 6 inputs
Monitor Input Alarms	B42 control boards configured as Monitor Inputs may have up to 3 process alarms assigned	Process Alarm high or low, active or silent, soft or mapped to DO, config to defeat digital input & digital outputs
Monitor Input - Logic	Not Available	Profile Step "wait for" start until Monitor input's achieve a configured Step SP as well as used for "Delta SP" logic