

## Benefits

- Optimizes BAS programming
- Provides full control over coding and sequencing
- Modular programming (organized code)
- Cost effective programming tool
- Combines simplicity of GUI & power of code editor

## Features

### Supported Platforms

- LNS®
- Niagara AX Framework®

### Supported Controllers

- EC-4 Series, 8 Series, 12 Series, EC-67, ECU-88C
- EC-VAV-C, EC-RTU, EC-FC
- ECP-103, -203, -300, -400, -500 Series
- ECP-VAV, ECP-VAVS, ECP-PTU Series

### Hardware Enabled Features

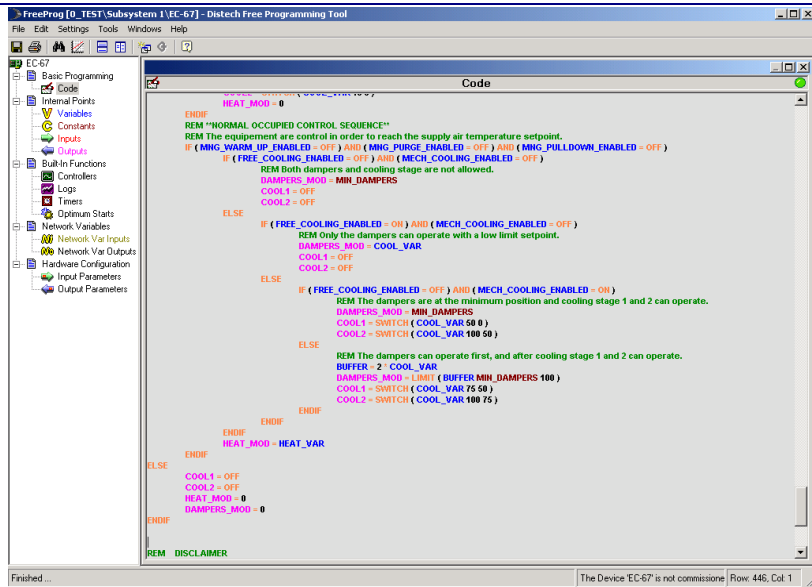
- Inputs (resistance, 0-10VDC, 0-20mA, digital, pulse)
- Outputs (digital, PWM, 0-10VDC, 0-20mA)<sup>1</sup>

### Software Features<sup>1</sup>

- 18 NVIs & 18 NVOs - changeable type and length (1 and 2 bytes)
- 2 NVI Fan-in bindings
- 50 Variables & 50 Constants
- 4 Schedules
- Real-Time Clock
- 10 PID loops
- 24 Logs (12288 events in total)
- 15 Timers (Counts in seconds, minutes or hours)
- 4 Optimum Starts

### Simplified User Interface (UI)

- Developed with unique and simplified version of BASIC
- Organized in 5 menu windows:
  - Basic Programming
  - Internal Points
  - Built-In Functions
  - Network Variables
  - Hardware Configuration
- Code analyzer and compiler allow users to detect syntax errors and execute code



```

FreeProg [0_TEST.Subsystem 1\EC-67] - Distech Free Programming Tool
File Edit Settings Tools Windows Help

EC-67
├── Basic Programming
├── Code
├── Internal Points
├── Variables
├── Constants
├── Inputs
├── Outputs
├── Built-In Functions
├── Controllers
├── Logs
├── Timers
├── Optimum Starts
├── Network Variables
├── Network Var Inputs
├── Network Var Outputs
├── Hardware Configuration
├── Input Parameters
└── Output Parameters

Code
HEAT_MOD = 0
ENDIF
REM "NORMAL OCCUPIED CONTROL SEQUENCE"
REM The equipment are control in order to reach the supply air temperature setpoint.
IF (MNG_WARM_UP_ENABLED = OFF) AND (MNG_PURGE_ENABLED = OFF) AND (MNG_PULLDOWN_ENABLED = OFF)
    IF (FREE_COOLING_ENABLED = OFF) AND (MECH_COOLING_ENABLED = OFF)
        REM Both dampers and cooling stage are not allowed.
        DAMPERS_MOD = MIN_DAMPERS
        COOL1 = OFF
        COOL2 = OFF
    ELSE
        IF (FREE_COOLING_ENABLED = ON) AND (MECH_COOLING_ENABLED = OFF)
            REM Only the dampers can operate with a low limit setpoint.
            DAMPERS_MOD = COOL_VAR
            COOL1 = OFF
            COOL2 = OFF
        ELSE
            IF (FREE_COOLING_ENABLED = OFF) AND (MECH_COOLING_ENABLED = ON)
                REM The dampers are at the minimum position and cooling stage 1 and 2 can operate.
                DAMPERS_MOD = MIN_DAMPERS
                COOL1 = SWITCH (COOL_VAR 50 0)
                COOL2 = SWITCH (COOL_VAR 100 0)
            ELSE
                REM The dampers can operate first, and after cooling stage 1 and 2 can operate.
                BUFFER = 2 COOL_VAR
                DAMPERS_MOD = LIMIT (BUFFER MIN_DAMPERS 100)
                COOL1 = SWITCH (COOL_VAR 75 0)
                COOL2 = SWITCH (COOL_VAR 100 75)
            ENDIF
        ENDIF
    ENDIF
ENDIF
HEAT_MOD = HEAT_VAR
ENDIF
ELSE
    COOL1 = OFF
    COOL2 = OFF
    HEAT_MOD = 0
    DAMPERS_MOD = 0
ENDIF
REM DISCLAIMER
    
```

Distech Controls' EC-Program, a powerful line-by-line programming tool, simplifies BAS programming by providing users the tools necessary to complete the job. EC-Program is distinct in the controls industry because it combines a user-friendly interface with the power and flexibility of a code editor and compiler.

EC-Program is designed to program all Distech Controls' programmable controllers.

EC-Program can be used by any LNS-based software such as Distech Controls' Lonwatcher 3 or by a multi-protocol platform software supporting LONWORKS® devices such as Distech Controls' EC-Net AX Pro powered by the Niagara AX Framework.

EC-Program uses a unique and simplified version of BASIC that has been developed in-house and that is custom made to suit controls requirements. EC-Program uses several menu windows to help users stay organized and program their systems efficiently. The Basic Programming window is a standard code editor where users can enter their program aided by such tools as color-coded components and a reserved words list. The Internal Points window displays data holders (variables, constants, inputs and outputs) that are used in coding. The Built-In Functions window features important utilities (PID loops, logs, timers and optimum starts) that are often required in increasingly complex codes. The Network Variables window presents the NVIs and NVOs that can be used to monitor and create bindings to and from other controllers on the network. Finally, the Hardware Configuration window allows users to configure the sensors and equipment that are physically attached to a controller.

Furthermore, EC-Program possesses a code analyzer and compiler that allow users to troubleshoot syntax errors and execute their codes.

EC-Program supports powerful features<sup>1</sup> that allow for lean, efficient and cost effective system design. Fan-in bindings help to reduce programming time by comparing several variables at once. Schedules can be used to save energy and resources. Many other features including a real-time clock, PID loops, logs, timers and optimum starts, make the EC-Program a complete BAS programming package.

Distech Controls' quality management system is ISO 9001:2000 certified

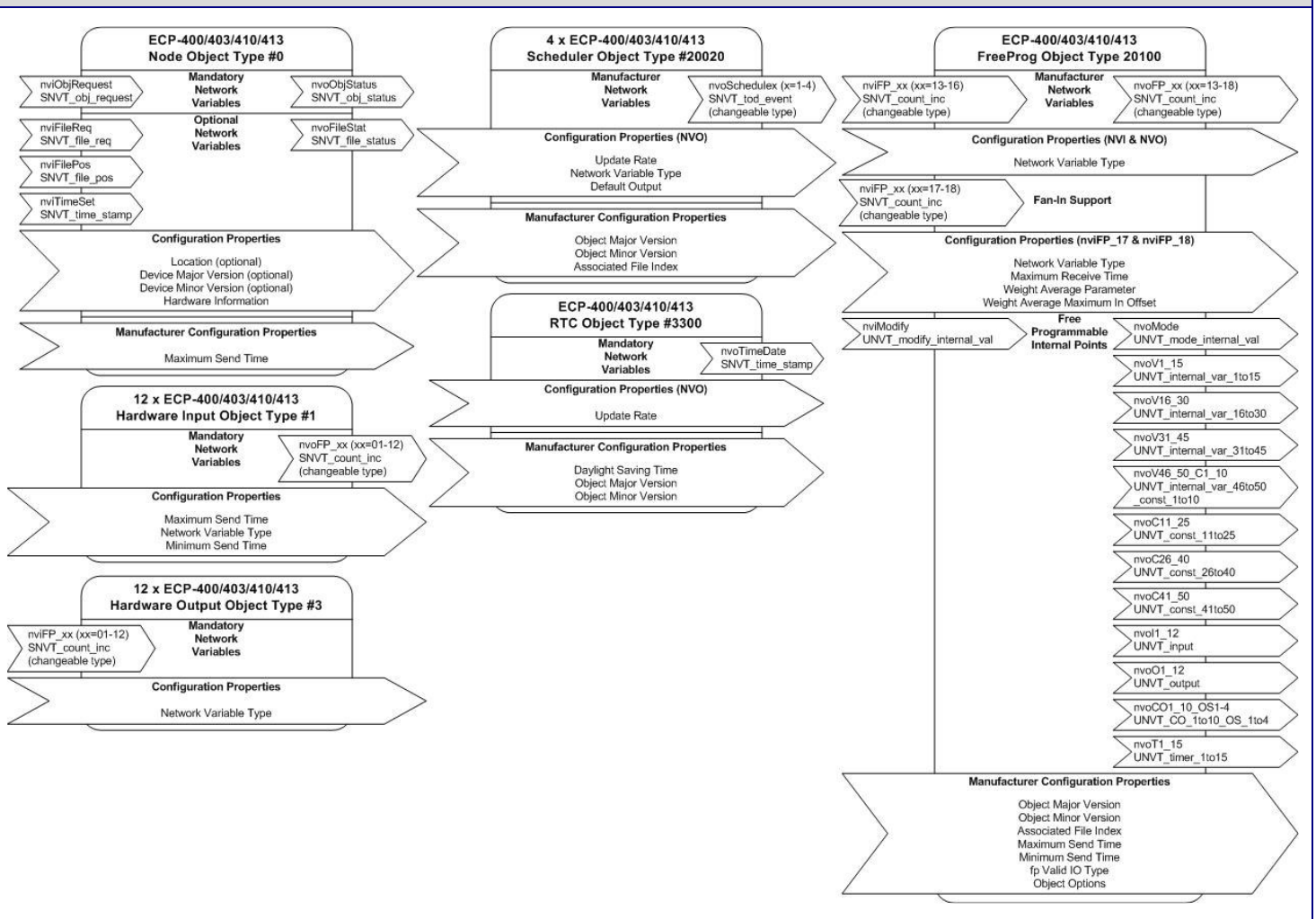
1. See relevant controller datasheets for further details on which controllers support these features.

# General Product Specifications<sup>1</sup>

Inputs - Hardware		Outputs - Hardware	
Supported Types	Thermistors: 10K Type II & III <sup>2</sup> , RTD 1K, PT100 Potentiometer: 10K, 100K Current: 0-20mA Voltage: 0-10VDC Digital: Maintained Contact, Pulse	Supported Types	Current: 0-20mA Voltage: 0-10VDC Digital: Relay, Triac, 0-12VDC PWM
Constants & Variables		Built-In Functions	
Constants (Quantity)	50	Schedules	4 Internal Schedules; 7 weekday & 4 holiday templates
Variables (Quantity)	50	Real-Time Clock	1 NVO (SNVT_time_stamp)
Network Variables		PID	10
Quantity	18 NVI & 18 NVO (Changeable type and length <sup>3</sup> )	Logs	24; 12288 events in total
Length	Support all SNVTs and UNVTs of 1 and 2 bytes	Timers	15; Counts in seconds, minutes or hours up to 32767
Fan-In	2 (1 High & Low Selection, 1 Weighted Average)	Optimum Starts	4

1. See relevant controller datasheets for further details on which controllers support these features.
2. For temperature type inputs it is recommended that a 10KΩ thermistor be used due to better accuracy over the PT1000 or PT100.
3. May require programming for NV type conversion.

## Functional Profile Example (ECP-400 Series)



Specifications subject to change without notice.

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EC-Program

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