



AC Drive for HVAC Application



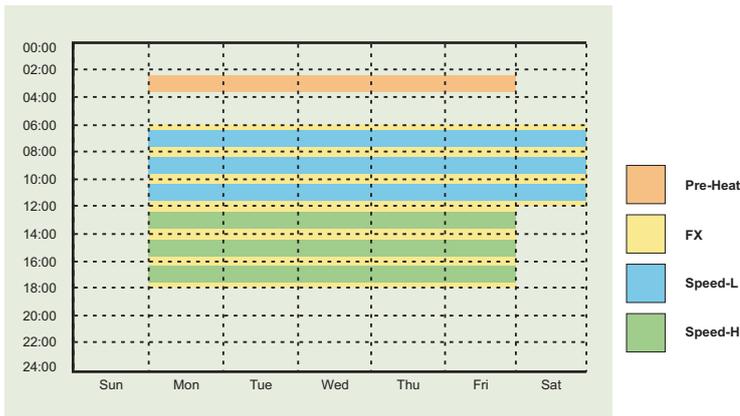
L&T's Hx2000 AC inverter drive sets the standard for the drive industry by introducing Innovative Energy Reduction, Environment friendly & HVAC System that incorporates the outstanding energy saving benefits of the Hx2000 for Fans & Pump application.

Hx 2000 : HVAC

• **Range:** 5.5kW to 90kW

• **Features:**

- V/F, Slip Compensation
- Built-in DC Reactor from 37 to 90kW
- Built-in EMC filter from 5.5 to 30kW as default (C3), optional for 37 to 55kW, 75 to 90kW satisfies EMC class 3 even without a filter
- Multiple-Motor Control (1 main motor and 5 auxiliary motors)
- Built-in 2 PID, RTC for Scheduling, Payback Counter
- Lubrication & Damper Control
- Dry Pump Detection
- Pump Clean, Flow Compensation & Fire Mode
- Password Protection
- Built-in Communication - BACnet, RS-485 Modbus-RTU, Metasys N2
- Global Specifications Compliant- CE, UL Plenum Rated
- Interface: 7DI, 5(R) + 1(TR) DO, 2AI, 2AO



Scheduling (Time Event: Real Time Clock (RTC))

RTC is used so that selected functions can be operated during set time (Possible to set different functions including Fx, Rx, Multiple Acceleration/Deceleration time, multiple frequency & PID, Pre-heat etc.)

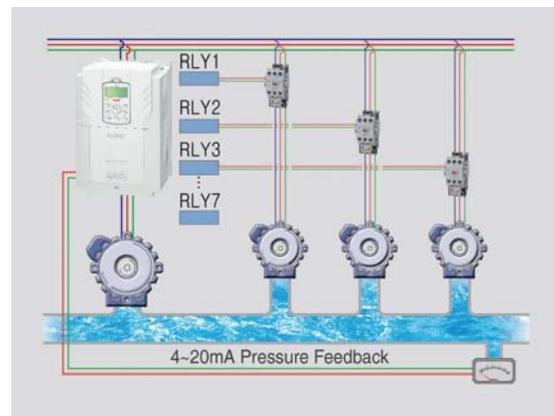
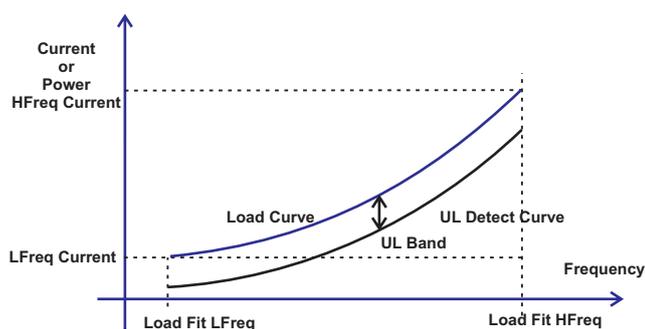
Using RTC, user can program following operating schedules for general or exceptional dates -

- 4 Time Period module (Weekly)
- 8 Exception Date module (Day)
- 8 Time Event module
- 29 Functions available (Fx, Rx, Step Freq., PID, etc.)
- Summer Time available (Start/End date setting)
- 3 Type of Date displaying available (EU / USA / ASIA)

Multi-Motor Control (MMC) : Booster Pump

MMC is used when a single drive is required to control multiple motors in pump systems.

It can control 1 main motor through PID and 5 auxiliary motors through Drive & Relays, an Ideal cost effective solution for constant pressure/ constant flow pumping application.



Dry Pump (Under Load Protection)

Prevents pump damage when there is insufficient water in the tank. If Actual load is under the Under Load (UL) Detect curve, Inverter will trigger warning or trip signal to protect the pump.

Payback Counter

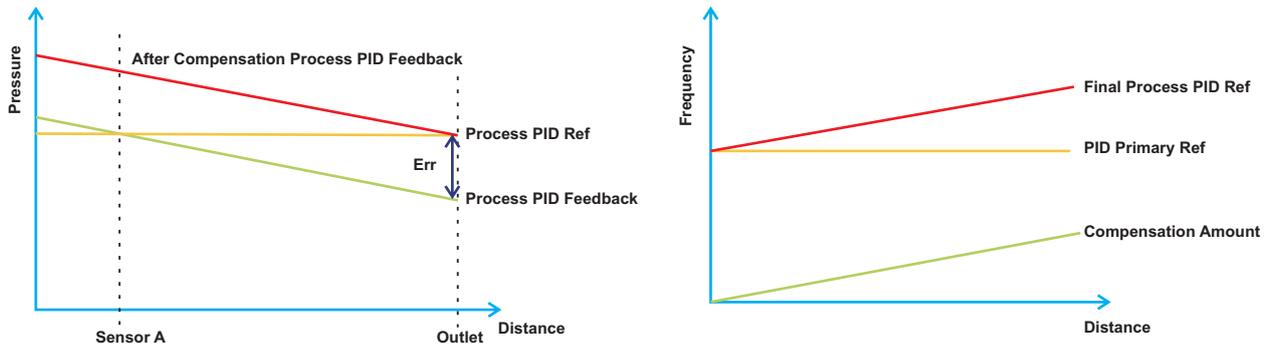
It displays energy saving information by comparing the average energy efficiency for operation with and without the inverter. The energy saving information is displayed as kWh, saved energy cost and CO2 emission level.

Fire Mode

When an emergency such as fire occurs at suction/exhaust fans, without any hardware failure or a critical defect, the drive continuously operates to protect other systems under the set frequency and direction.

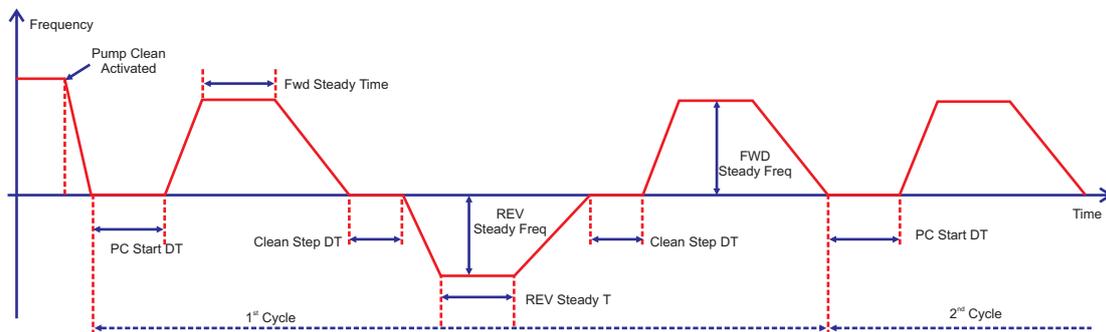
Flow Compensation

In a system for longer pipes & higher flow rate, causing great pressure drop, this feature helps to compensate for pressure drop by increasing the PID reference.



Pump Clean Operation

Scraps, that get built up in impellers of pumps, decreases the efficiency of motor performance. Through consecutive FWD/REV or ACC/DEC operation, the scraps get eliminated. This results in extension of pump lifespan and energy saving. The pump clean mode is initiated by- remote signal, current profile or power profile.



Keypad Exclusively for HVAC

Cancel (ESC) Key

- While in the Edit state, previously saved data is used
- When pressed while switching codes within the group, it is switched to the very first mode of the group
- When pressed while switching modes, it reverts back to the monitor mode

Program (PROG/ENT) Key

- When pressed once, it is changed to Parameter Edit state
- When pressed after changes, the changed data is saved

Left/Right Key

- It is used to switch between groups.
(Cursor is used under the Edit state)

Up/Down Key

- It is used to switch between codes and edit data values

Hand (HAND) Key

- It is used to select keypad (HAND) operation
- Speed control (HAND key-UP/DOWN)

Auto (OFF) Key

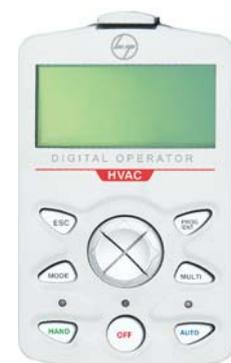
- Off mode or fault reset

Multifunction (MULTI) Key

- It is used to register user codes

Autot (AUTO) Key

- It is used to select AUTO operation



OTHER PRODUCTS

Cx2000 : Compact Series



- **Range:** 0.1kW to 11kW
- **Features:**
 - V/F Control, Sensorless Vector Control, Slip Compensation
 - Starting Torque 150% at 3 Hz
 - Built-in Potentiometer, PID, Safety Circuit
 - Built-in RS485 Modbus
 - RPM Display
 - Auto Tuning
 - 2nd Motor Operation
 - Interface: 5DI, 1DO, 1AI, 1AO
- **Applications:** Fan, Pump, Blowers, Compressors, AHU etc.

Sx2000 : Smart Series

- **Range:** 0.75kW to 90kW (IP20) & 22kW (IP66)
- **Features:**
 - V/F, Sensorless Vector Control, Slip compensation
 - Starting Torque: 150% at 3 Hz for V/F, 200% at 0.5Hz for Vector Control
 - Conformal Coating complying to IEC 60721-3-3 class 3C2
 - Built-in RS485 Modbus
 - Peer to Peer Communication to share I/O's
 - Component Life Monitor
 - Built-in PID, PLC Logic
 - Multi Keypad
 - No Motor Detection
 - Built-in DC Reactor from 37kW to 90kW
 - Interface: 7DI, 2DO (R) + 1DO (TR) , 2AI, 2AO
- **Applications:** Fan, Pump, Blowers, Compressors, AHU etc.



Product improvement is a continuous process. For the latest information and special applications, please contact CIC to reach our nearest branch office.



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