

## Insight Control Panel for LBR SmartFilter

### Control Panel Assembly:

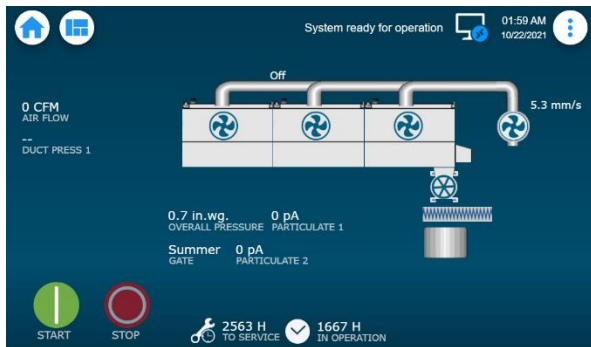


The Nederman Insight Control Panel comes in 8 versions – CP1D at 240/460V and 575V that can handle 1 Main fan, 1 Transfer fan, and 3 regen fans, CP2D at 240/460V and 575V can handle 2 Main fans, 1 Transfer fan, and 6 regen fans, CP3D at 240/460V and 575V can handle 3 Main fans, 1 Transfer fan, and 9 regen fans, and CP4D at 240/460V and 575V can handle up to 4 Main fans, 1 Transfer fan, and 12 regen fans.. The panel is designed to operate and monitor functions of the LBR SmartFilter series of collectors.

The panel controls the operation of the collector and external mounted fan controls. From the touchscreen (HMI) system operators are provided a visual interface to stop, start and monitor the collection system.

In addition, all panels can connect optional controls and sensors listed in the table below.

### User Interface Screen:



### Features:

- 7" color touchscreen user interface
- Animated graphics to allow for intuitive monitoring of system operation
- Configurable logic for specific needs
- Emergency stop
- Run hour \ service hour meter
- Non-fused disconnect for lock out/tag out procedures
- Controls interface for main fan controllers
- Lamp showing current conditions
- Interlock relays to machines
- Optional:
- Insight (cloud-based) remote monitoring system with cellular based portal

### Specifications:

Panel Power Supply –	3x208,230,480,575 VAC
Control Voltage	24 VDC
Phase\Frequency	3 Phase / 60 Hertz
Enclosure Ingress Protection	IP 54 \ NEMA 12
Fuse Protection (Field provided)	Max 150A, Class-J
Certification:	UL 698A / 508A
SCCR	10kA @ 500V
Controller	Nederman Insight Control
HMI Graphic User Interface	Nederman Insight Control (7")
Panel Mounting	Interior Wall Mount

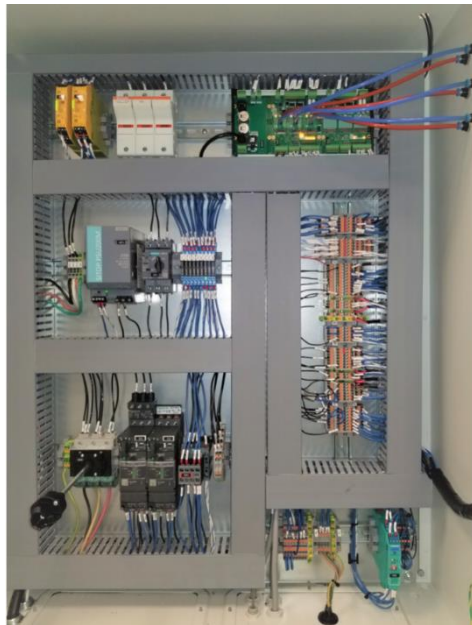
## Insight Control Panel for LBR SmartFilter

### Control Panel Dimensions:

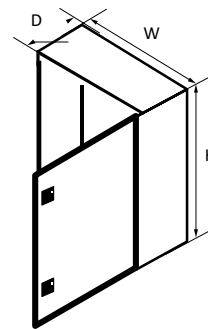
Model Descriptions:	Width (W) Inches (mm)	Height (H) Inches (mm)	Depth (D) Enclosure Inches (mm)	Estimated Freight Weight lbs. (kg)	Part Number:
LBR CP1D 208-230/460 w/Insight	40 (1000)	48 (1200)	12 (300)	180 (82)	89119015
LBR CP1D 575V w/Insight	40 (1000)	48 (1200)	12 (300)	190 (86)	89119016
LBR CP2D 208-230/460 w/Insight	40 (1000)	48 (1200)	12 (300)	200 (91)	89119017
LBR CP2D 575V w/Insight	40 (1000)	48 (1200)	12 (300)	210 (95)	89119018
LBR CP3D 208-230/460 w/Insight	40 (1000)	72 (1800)	12 (300)	300 (136)	89119019
LBR CP3D 575V w/Insight	40 (1000)	72 (1800)	12 (300)	310 (141)	89119020
LBR CP4D 208-230/460 w/Insight	40 (1000)	72 (1800)	12 (300)	320 (145)	89119021
LBR CP4D 575V w/Insight	40 (1000)	72 (1800)	12 (300)	330 (150)	89119022

### LBR installations

Internal Panel View:

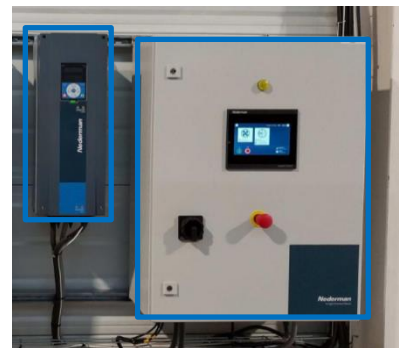


Sensor ports:



VFD

Control Panel



**Note:** Inside panel maybe different than pictured due to Model and updates that can occur at anytime.

**Standard control panel installation, showing from left to right:**  
Main Fan VFD and LBR Control Panel Supplied by Nederman

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Features:	CP1D	CP2D	CP3D	CP4D
Start/stop from HMI	X	X	X	X
Contacts for Remote Start/stop	X	X	X	X
E-stop	X	X	X	X
Contacts for External E-stop	X	X	X	X
1 lamp showing RUN – WARNING - ALARM	X	X	X	X
Duct static pressure sensor	X	X	X	X
Down time Cleaning (DTC)	X	X	X	X
Main filter dP sensor	X	X	X	X
Interactive communication with VFD	X	X	X	X
Interlock for machines	X	X	X	X
Run time schedule	X	X	X	X
Run time counter (hours)	X	X	X	X
Hours to next service	X	X	X	X
Fan vibration sensor (Main and Transfer)	X	X	X	X
<b>Optional available Sensors:</b>				
Bin Level Indicator (Up to two @120V)	X	X	X	X
Diverter (Up to two)	X	X	X	X
Summer Winter Gate	X	X	X	X
Bearing Temperature for Main Fan(s)	X	X	X	X
Bearing Temperature for Transfer Fan	X	X	X	X
<b>Sensors required for Combustible Dust Applications (EIFV sensors maybe quoted with CARZ N):</b>				
EX vent panel sensor	X	X	X	X
EIFV lock sensor	X	X	X	X
EIFV dust accumulation sensor	X	X	X	X
Particulate Monitor	X	X	X	X

**Note: Main System Fan Electrical VFDs \Starters are supplied as external components. Control panels include control circuits to start and stop these devices**




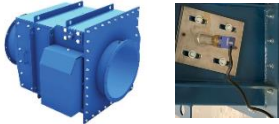
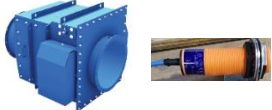

## Technical Documentation: Electrical Requirements Specification Data

Panel Type:	Field wiring diagram	Power requirements	Installation and Operating Manual
LBR CP1D 208-230/460 w/Insight	On request	20A	On request
LBR CP1D 575V w/Insight	On request	13A	On request
LBR CP2D 208-230/460 w/Insight	On request	20A	On request
LBR CP2D 575V w/Insight	On request	13A	On request
LBR CP3D 208-230/460 w/Insight	On request	20A	On request
LBR CP3D 575V w/Insight	On request	13A	On request
LBR CP4D 208-230/460 w/Insight	On request	20A	On request
LBR CP4D 575V w/Insight	On request	13A	On request






**Note: These standard documents are for planning purposes only. Project specific documents should be used as the guide for final installation and commissioning**

## Insight Control Panel for LBR SmartFilter

### Information on Standard Devices and Sensors

Image:	Description:	Part Number:
	<p><b>Main Fan Variable Frequency Drive</b> This application of a variable frequency drive allows for soft-start – reducing voltage at start up to ramp the fan up slowly, preventing a hard full voltage inrush on the motor and electrical system.</p>	<p><b>Nederman VFD 8911xxxx</b> Reference technical document for specific sizing</p>
	<p><b>Explosion door switch</b> The sensor will be placed on the explosion relief doors</p>	<p><b>89205116</b></p>
	<p><b>Access door switch</b> The switch is installed on the inspection doors.</p>	<p><b>89205038</b></p>
	<p><b>Main Fan Vibration Sensor</b> Installation in front motor bearing of direct drive fan allows for increased accuracy of vibration monitoring. 0-25 mm/s measurement range. Sensor records value measured; therefore, no adjustment is required.</p>	<p><b>89214047</b></p>
	<p><b>Rotary Valve zero Speed Sensor</b> Our rotational speed sensor combines our proprietary engineered initiator and inductive sensor to monitor speed rotation allowing for early detection of a blocked/stopped valve.</p>	<p><b>89117044</b></p>
	<p><b>Explosion Isolation Flap Valve (EIFV) locking switch</b> If an explosion occurs in the filter the pressure wave will cause the EIFV to close and lock. A switch on this lock is incorporated in the E-Stop and will immediately stop the system. The locks must be disengaged before the system can restart.</p>	<p><b>73007979</b> <b>(CARZ-N, CARZ-NS)</b></p>
	<p><b>EIFV Dust Accumulation Sensor</b> The sensor will monitor for dust built up in the valve and will issue a warning when a preset threshold is reached.</p>	<p><b>89213008</b> <b>(CARZ-N, CARZ-NS)</b></p>
	<p><b>Particulate Monitor Switch (Broken bag detector)</b> Pursuant to NFPA 652, a particulate monitor is required when returning air to the building, this transmitter also allows for reporting in compliance with local authority having jurisdiction requirement. It is installed in one of the following locations dependent on system orientation. 1. Negative - between the filter baghouse and main extraction fan inlet box. 2. Positive – between the filter baghouse and high speed abort gate.</p>	<p><b>FilterSense PM1</b> Reference technical document for specific probe length sizing dependent on duct diameter <b>8919905x</b></p>

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	<p><b>Airflow dP Sensor</b> External dP sensor measuring the pressure drop over one regeneration fan.</p>	<p><b>89199064</b></p>
	<p><b>Main Filter dP Sensor</b> External dP sensor measuring the pressure drop over the main filters (superb-bags).</p>	<p><b>89119010</b></p>
	<p><b>Chain Drive Zero Speed Sensor (LBR-C)</b> The sensor will monitor for rotation of the conveyor system.</p>	<p><b>89205125</b></p>
	<p><b>Transfer Fan Bearing Temperature Sensor</b> If the motor bearings are equipped with a temperature sensor (type PT100), the control system is designed so the power supply of the fan is switched off.</p>	<p><b>*Optional 89199058</b></p>
	<p><b>Current Transformer for DOL Starters supplying transfer fans</b> Measures the current being drawn by the Transfer fan motor.</p>	<p><b>*Optional 89199063</b></p>
	<p><b>Bindicator</b> The sensor will monitor the physical level of the dust material.</p>	<p><b>*Optional 89295137</b></p>