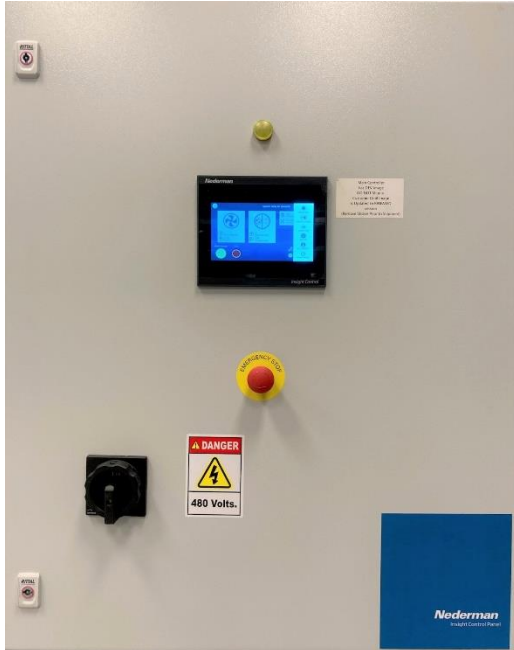


## Insight Control Panel for LBR SmartFilter

### Control Panel Assembly:



The Nederman Insight Control Panel comes in 4 versions – 1D that can handle 1 Main fan, 1 Transfer fan, and 3 regen fans, 2D can handle 2 Main fans, 1 Transfer fan, and 6 regen fans, 3D can handle 3 Main fans, 1 Transfer fan, and 9 regen fans, and 4D 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.

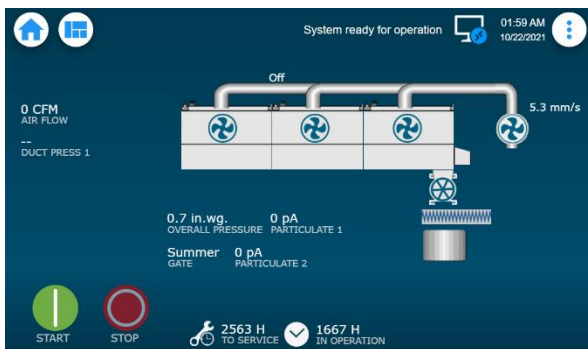
The panel controls the operation of the collector and external mounted fan controls. From the touchscreen (HMI) system operators are provided a visual interface to stop, start and monitor the collection system.

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

### 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 relay to machines
- Safety Torque off
- **Optional Features:**
- Insight (cloud-based) remote monitoring system with cellular based portal

### User Interface Screen:



### Specifications:

Panel Power Supply	3x208,230,480,575 VAC
Control Voltage	24 VDC \ 120 VAC
Phase\Frequency	3 Phase – 60 Hertz
Enclosure Ingress Protection	IP 66 \ TYPE 4X
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

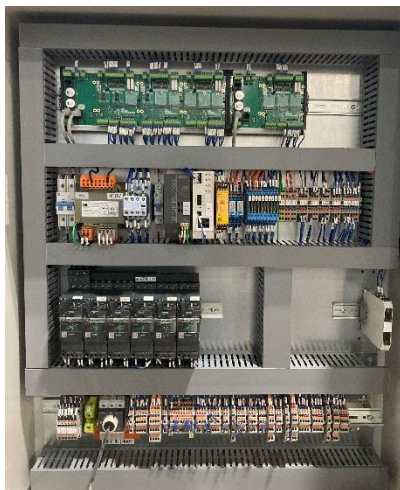
Model:	Part Number:
LBR 1D NA1/NA/NA3 w/ Insight	89119025
LBR 2D NA1/NA/NA3 w/ Insight	89119026
LBR 3D NA1/NA/NA3 w/ Insight	89119027
LBR 4D NA1/NA/NA3 w/ Insight	89119028

## Insight Control Panel for LBR SmartFilter

### Control Panel Dimensions:

Model Descriptions:	Width (W) Inches (mm)	Height (H) Inches (mm)	Depth (D) Enclosure Inches (mm)	*Actual Depth Enclosure Inches (mm)	Estimated Freight Weight lbs. (kg)
LBR 1D NA1/NA/NA3 w/ Insight	31.5 (800)	39.4 (1000)	9.8 (250)	11.4 (290)	142 (65)
LBR 2D NA1/NA/NA3 w/ Insight	31.5 (800)	39.4 (1000)	9.8 (250)	11.4 (290)	152 (69)
LBR 3D NA1/NA/NA3 w/ Insight	39.4 (1000)	47.2 (1200)	13.8 (350)	15.4 (390)	221 (100)
LBR 4D NA1/NA/NA3 w/ Insight	39.4 (1000)	47.2 (1200)	13.8 (350)	15.4 (390)	231 (105)

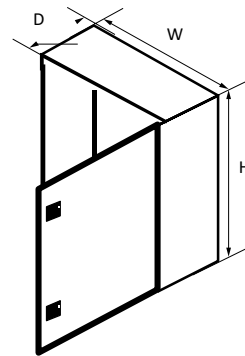
### Internal Panel View:



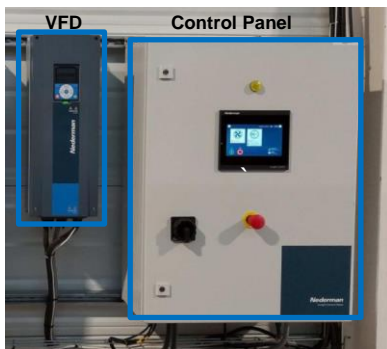
### \*Sensor ports:



### \*Actual Depth represents Enclosure with handle



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



### Filter Unit:



**\*Sensor ports are only installed if the filter is less than 20 ft from the control panel.**

# Insight Control Panel for LBR SmartFilter

Features:	1D	2D	3D	4D
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 @24VDC)	X	X	X	X
Diverter (Up to two)	2	2	2	2
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 1D NA1/NA/NA3 w/ <i>Insight</i>	On request	20A	On request
LBR 2D NA1/NA/NA3 w/ <i>Insight</i>	On request	20A	On request
LBR 3D NA1/NA/NA3 w/ <i>Insight</i>	On request	20A	On request
LBR 4D NA1/NA/NA3 w/ <i>Insight</i>	On request	20A	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 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 Kit</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 the 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>

## Insight Control Panel for LBR SmartFilter

	<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>89205125</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</b> <b>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</b> <b>89199063</b></p>
	<p><b>Bindicator</b> Used on the relay system, this shaft-driven paddlewheel sensor relays bin full indication to the PLC and alarms the customer when it is necessary to perform one of the following actions: 1. Dual system - Initiate bin emptying and diversion to second bin or shut down filter. 2. Single system - Shut down dust collection system and initiate bin switch.</p>	<p><b>*Optional</b> <b>89295137</b></p>