

OPERATORS MANUAL

HYDRA-CLEAN FLUID SCRUBBING SYSTEM 830-002.6

INTRODUCTION:

Hydra-Clean fluid scrubbing systems are high performance industrial filters designed to remove particulate and water from hydraulic and lubricating oil systems. Manufactured from durable, corrosion resistant materials, they are designed for constant, uninterrupted use without immediate supervision. The Hydra-Clean 830-002.5 system utilizes two elements in series to remove water, and then particulate from the working fluid. This system ensures a high degree of fluid purity with an absolute minimum of maintenance and service requirements.

This operating manual is designed to provide you with the basic information to economically and efficiently service your fluid scrubbing system. HTI Filtration welcomes your comments and our technical service staff is available to assist you in applying our equipment to solve your fluid purity problems.

SYSTEM OPERATION:

The Hydra-Clean filtration system uses two separate filtration elements in series to progressively clean the working fluid. Fluid is drawn from the reservoir up through a check valve by a rotary pump. The fluid is then pushed through the flow sensing and pressure switch assembly into the water removal bag element where the free and emulsified moisture is absorbed. The partially cleaned solution passes through the axial flow; media filter where both soft and hard particulate contamination are removed. The filtered oil then passes through a solenoid operated selector valve and back into the seamer or the pressurized lubrication system reservoir. If the contamination level in the oil is high, or if the filters are nearing capacity, several passes through the system may be required for total cleansing of the oil.

The gravity check valve at the pump inlet ensures adequate oil supply to wet the pump during start-up and prevents drain back when the system is shut-off. The vacuum gauge indicates the resistance to flow and has a manual bleed cock that should be cracked open for safety relief during initial start-up in case the motor is rotating backwards. Typical vacuum readings are from 3 – 10". The bleed cock on the outlet elbow of the pump is to relieve entrapped air from the pump chamber so that oil can be drawn in to restore pump suction.

An internal relief valve that is factory set at 90-100 PSI controls pump output pressure. We do not recommend changing this setting. Removing the acorn nut without proper tools may result in an intake air leak that will require a new gasket to correct.

Oil temperature is displayed by a digital gauge with high and low temperature alarm

settings available. The pump output and service life of the two filter elements are monitored by a series of 1 flow sensor and 2 pressure switches. The flow switch monitors the volume of oil being pumped through the system. It is used to indicate when flow through the system has dropped below the minimum level required for adequate oil cleansing and replenishment of the seamer lubrication pump reservoir. Adequate flow is indicated by the illumination of the indicator lamp inside the flow switch. If flow falls below .25 GPM the light will go out and a warning will appear on the operator panel. The flow switch is factory set at .22-.25 GPM (.83 -.95 l/min) and field adjustment is not advised. A pair of stepped pressure switches monitors the system pressure. The initial switch activates the amber "*Check Filter*" light on the main panel. The secondary pressure switch illuminates the "*Change Filter*" light. Pressure switch settings are field adjustable and must be set to reflect the type of oil used and operating temperatures the filter is working with to receive maximum use from the filters. The initial (right hand) switch typically activates at 15 PSI (1 Bar) above the start-up pressure and the Change Filter light illuminates at 10 PSI (.66 Bar) above that setting. Complete field adjustment instructions are included in this manual.

The selector valve is operated by remote sensing switches and timers in the seamer, which vary depending on which options are selected at the time of order. The maximum line resistance pressure on the diverter pump should be less than 25 PSI (1.75 Bar) when the valve is activated.

SYSTEM PRESSURES:

Pressure readings will vary widely with the oil viscosity, seamer operating temperature and temperature of the oil entering the filtration system. It is also not unusual for system pressures to rise substantially over normal levels when re-starting a system that has been left off for several days or when changing particulate filters. Typically, the system will return to normal levels after 45-60 minutes as the warm oil from the seamer flushes out the cooler oil from the filter elements and the filtration passages in the new element open under pressure. A timed delay in the pressure switch alarms has been programmed in for these reasons. In cold climates it may be necessary to heat the Hydra-Supreme axial filter canister to maintain the desired 90-100°F operating temperature.

Factory Set Warning Pressures and Change Out Pressures

Using 750 SUS (40 Wt.) lubricant @ 75°F

Warning Switch - 65 PSI Change Filter Switch - 75 PSI

Typical bag element change out is 10 -15 PSI increase over new element pressure. All measurements should be made when system is fully warmed to operating pressure.

OIL SELECTION INFORMATION:

HTI Filtration has tested many oils commonly used in seamers. While we do not recommend a specific brand or type of oil we do recommend that you use a high quality oil that has good hydrolytic stability. That is, an oil that can be exposed to water repeatedly and dried without deleting or precipitating the additive package.

The viscosity of the oil plays a major role in determining the operating pressure of the system. A 40 Wt. oil rated at 750 SUS at 100°F is actually 2,000 SUS at 75° F, a 260% increase in viscosity! Even small temperature changes can result in significant pressure variations in the system. It is not uncommon for a cold filter system to read higher pressures in the morning and then have them drop off as the system components warm over several hours to an even operating temperature.

Field Adjustment of Pressure Switches

Before changing any settings on a Hydra-Clean Fluid Conditioning System, run the seamer and filter until the oil is at the normal operating temperature (typically between 75-100°F). This normally takes several hours because of the relatively low flow volume and high metal mass of the components.

NOTE: Do not attempt to reduce or increase the operating pressure by adjusting the internal pressure relief valve on the pump. This safety devise has been set and locked into place at the factory. Attempting to adjust the pressure setting screw can jam the relief valve and prevent proper movement. Improperly removing the acorn nut may also result in air leaking into the system, which will require frequent system bleeding until the acorn nut seal is replaced.

1. Turn filter system on and allow oil to fill both canisters while venting the air through the bleed cocks on the canister lids.
2. As soon as fluid flows from bleed cock, close and secure.
3. Allow filter system to run for 60-120 minutes to flush cold oil out of the filters and bring entire system up to operating temperature. Note the operating pressures of the filters.

4. Slowly close the 1/4" ball valve at the base of the Hydra-Supreme (left hand side) canister until the system pressure is 10-12 PSI higher than the reading in Step 3.
5. Remove cover of warning pressure switch (right hand switch) and adjust it by rotating the SET ring until LED illuminates. The RESET ring should be set 5 PSI below the level of the SET ring. Place the cover back on the switch
6. Increase system pressure by 5 PSI by further closing the valve and then adjust the maximum pressure switch (left-hand switch) the same way as in Step 5.
7. Open the ball valve to relieve the pressure build-up and allow the system to run for 10-15 minutes before recording the pressures for future reference.

SYSTEM LOCATION:

Although the Hydra-Clean system uses a self-priming pump, it is advisable to keep the filter below, and as close to the reservoir as possible. A suction line vacuum condition no greater than 20"hg should be experienced during start-up or normal operation. Pump damage will occur at vacuum levels above 24" hg.

Where the filter is remotely mounted from the seamer, it may require a booster pump at the seamer reservoir to deliver the oil to the filter pump. The booster pump should deliver a maximum of 15-PSI pressure. Remote mounted filters will also experience higher-pressure readings due to the increased return line resistance. Pre-set booster pumps are available through PS-Angelus.

Set the filtration system cabinet on a solid, level surface. Allow a minimum of 24" of frontal clearance for service access. Locate filter away from sources of moisture and heat, filter system must be kept below 140°F, and be protected from moisture.

PLUMBING:

Inlet and return tubing should be 3/4" with a preferred maximum distance of 20'.

The two return ports utilize 3/4" JIC fittings; flow selection is determined by remote activation of the solenoid valve from the main control panel. Outlet lines to the main reservoir and lubricating system should be 3/4" or larger with a preferred maximum length of 20'-0". Ball valves can be installed at both reservoir connections for easy shut off during installation or service.

ELECTRICAL:

The motor utilizes 3 phase, 50/60 Hz power with a number of voltage options. Please check the nameplate on your motor if you are unsure of your power type.

The solenoid coil, pressure switches and flow sensor come standard using 24 VDC operating power. 110-volt power is optional for the solenoid.

The power source for the filter should be independent of the basic machine control, as the oil filtration system should run continuously for efficient contaminant control.

INITIAL START-UP PROCEDURE

Upon completion of the electrical and hydraulic connections, the Hydra-Clean system is ready for start-up. The 830-002.5 is factory adjusted to perform with a fluid viscosity of 750 SUS (164 C ST at 40°C) at 75°F. To use different viscosity fluids or to run at different temperatures, please make the recommended changes to the switch settings. See the previous section in this manual for further information on adjusting the pressure settings.

FILTER SYSTEM START-UP:

Turn the electrical power on to start the gear pump. Make sure the inlet and return lines to the reservoir are free of restriction and all valves are open. Crack open the bleed cocks at the top of both canisters. As soon as fluid starts to flow from the bleed hole, close the cock securely and wipe the fluid from the canister top. Let the system warm up to typical operating temperature.

When initially starting the Hydra-Clean system, air may enter the plumbing lines in sufficient quantity to keep the pump from priming itself or create a false reading in the oil flow sensor. Should this occur, you must bleed off this trapped air by opening the bleed cock located at the pump outlet elbow just above the union.

NOTE: Your Hydra-Clean fluid scrubbing system should have no occasion to exceed 95 PSI when properly installed and using the recommended type of fluid. Should a pressure condition exceed the recommended maximum, immediately shut off the filtering system and contact HTI Filtration for assistance.

FILTER ELEMENT REPLACEMENT

BAG ELEMENT:

A new bag element should be installed after the system has been in service for 6 months or shows a 10 -15 PSI pressure increase.

- Step 1: Turn off the Filter System. It is not necessary to turn off the seamer to service the filter.
- Step 2: Open the drain cock at the bottom of the bag (right hand) canister, then open the bleed cock at the top. The 3/8" hose can be used to direct the oil to a container where it can be poured back into the canister for re-use.
- Step 3: Remove the canister clamp ring and lift off the lid.
- Step 4: Examine the "O" ring for wear, replace this ring if it shows signs of wear or if the canister was leaking. A spare "O" ring is shipped with every system.
- Step 5: Slowly lift the bag out by the strap allowing the captured oil to drain back into the canister. Hang the bag over a receptacle if you want to reclaim the approximately 3 cups of oil entrained in the bag.
- Step 6: Slice open the plastic bag holding the new bag. Carefully remove the bag and straighten to its full length. Slide the new bag into the colander using the fabric strap to push the metal bag ring down firmly onto the seat. Do not use the fabric strips inside the bag to seat the filter or they will tear off.
- Step 7: Close the drain cock and fill the bag with the drained oil captured in Step 2.
- Step 8: Put the "O" ring back on the canister lip, replace the lid, clamp and tighten.
- Step 9: Start the motor and allow the air to escape through the bleed cock. Close the cock when fluid starts to come out, wipe off the unit, and check for leaks.

AXIAL ELEMENT:

- Step 1: Turn off the Filter System. It is not necessary to turn off the seamer to service the Hydra-Supreme filter.

- Step 2: Open the drain cock on the bottom of the lid, then open the bleed cock on the top of the canister. The 3/8" ID hose can be used to direct the draining oil to a receptacle. Drained oil can later be used to refill the canister.
- Step 3: Remove the canister clamp ring and lift off the canister lid.
- Step 4: Examine the canister "O" ring for cracks and wear spots. If the canister lid seal was leaking, or if the "O" ring shows signs of wear, replace the ring.
- Step 5: Unscrew the "T" handle assembly that holds the filter in place. The cup seal on the handle assembly should be smooth and free of rough spots or tears. Replacement seals are available.
- Step 6: Slice open the end of the plastic bag holding the new element. Remove the new element and set in a clean area. Lift used element off of center post and slide it into plastic bag.
- Step 7: Slide new element over the center post. Make sure the pull strap is at the top. Secure the element with the "T" handle.
- Step 8: Close drain cock and refill canister with oil.
- Step 9: Put the "O" ring back on the canister lip, replace lid, clamp and tighten.
- Step 10: Start the pump motor and allow air to bleed out through bleed cock on top of canister. Close bleed cock when fluid starts to come out. Wipe off unit and check for leaks.

CAUTION

Some hydrocarbon oils are not suitable for extended use after they have been mixed with water. These non-hydrolytically stable lubricants tend to precipitate out their additives, which are captured by the Hydra-Supreme axial filter element. These oils look acceptable, but no longer have the original anti-wear and anti-oxidization characteristics of new oil.

HTI Filtration recommends that you use a premium grade lubricant whenever you have an on-going water contamination problem and that you consult your lubricant supplier for specific information on your specified oil.

HTI FILTRATION INC.

SYSTEM SPECIFICATION SHEET

HC211-XP- B4POPE/ 050OWB-A-SS

System # 830-002.6

System Description: Hydra Supreme HC211 filtration systems are designed to remove water and particulate from lubricating oil circuits. Our Model 830-002.5 is an updated system designed to work with fillers and seamers where water intrusion is a problem. It is a direct replacement for the older, more cramped 830-002 systems. This system applies the patented Hydro-Fil water bag to absorb free and emulsified water in series with the Hydra Supreme series filter element, which removes both hard and soft particulate from the oil supply. The 830-002.5 is designed for use with lubricating fluids ranging from 350 to 1000 SUS (at 100 F). The system comes completely assembled and mounted inside a dedicated cabinet. Each system has dedicated motor, pump with internal relief valve, flow sensing switch, dual pressure switches, diversion valve and electrical connection box. An additional solenoid valve to facilitate an "Oil Boost" function is available also as system 8330-002.7. The canister assembly is designed to tilt outwards to facilitate filter exchanges.

Physical Data:

System Height: 42" (107 cm)
Width: 33" (84 cm)
Depth: 16" (341 cm)
Weight: 124 lb. (60kg)

Material:

Cabinet: 316 SS, water resistant
Canisters: Electroless Nickel coated steel
Frame: Epoxy coated mild steel
Pressure Gauges: SS body, Lexan lens

Performance Data:

Pump type: Rotary ring gear, internal relief
Flow: 0.5 GPM (oil: 750 SUS @ 100°F)
1.9l/min (oil: 108 Cs @ 37.7C)

Water Retention Capacity: 2.0 liter typical

Electrical Specifications:

Motor - 1/3 HP TEFC 50/60 Hz 3 phase 575V
Connectors and Rails: DIN EN 50 022, UK 2.5 B
Cables: Olflex 150 (Quatro Approval)

Connection Data:

Oil inlet - 3/4" male 37' JIC
Oil outlet - 3/4" male 37' JIC

Safety Switches:

Flow switch - 24 VDC
Pressure switch - 9.6-32 VDC Field adjustable, PNP 5 m PUR. LED switching and power status

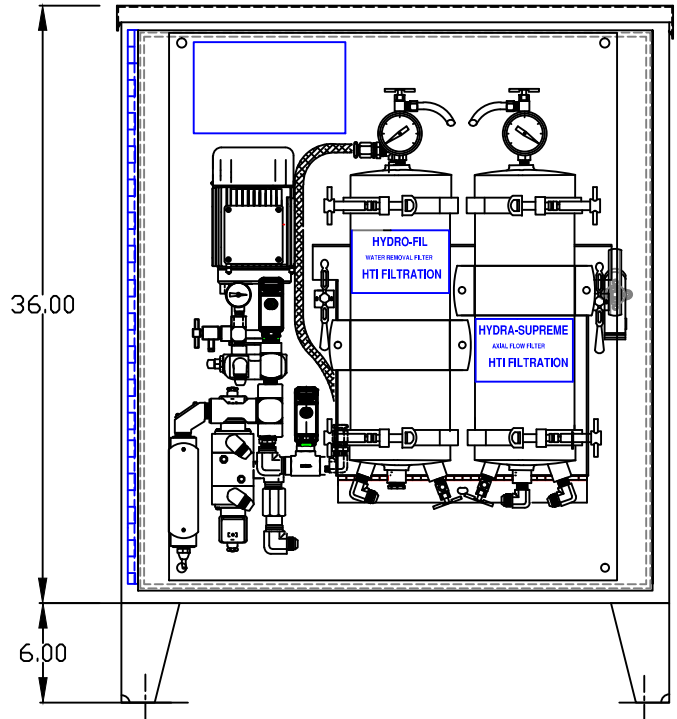
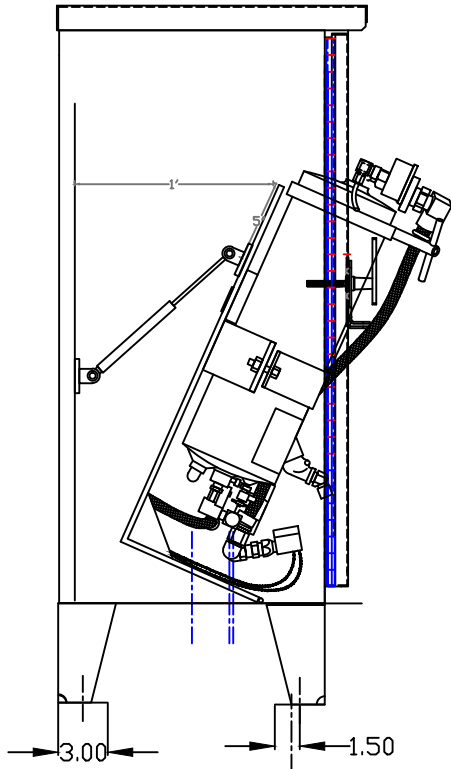
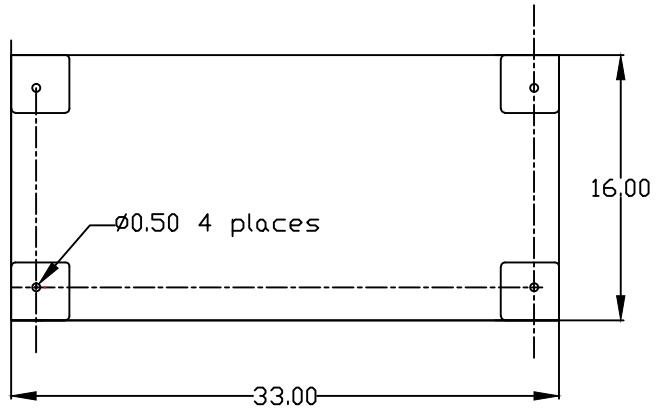
Filters:

Hydro-Fil - 800-004 Angelus Part # - F029H614 AAAI3
Hydra-Supreme - 800-016 - Angelus Part # - F029H614 AAAJ0

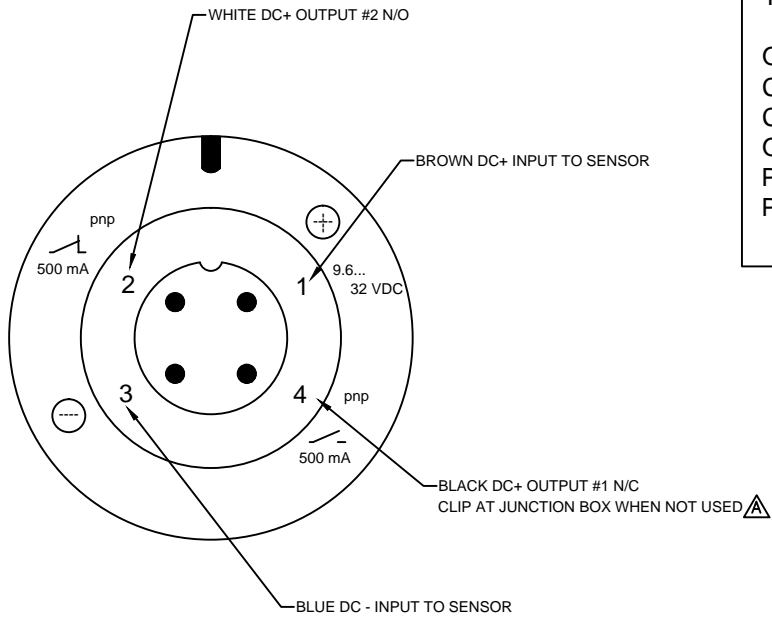
830-022.5 01-17-20



CABINET SPECIFICATION
 MATERIAL - #14 GA TYPE 302-304
 FINISH - BRUSHED
 SPECIFICATION- NEMA4R



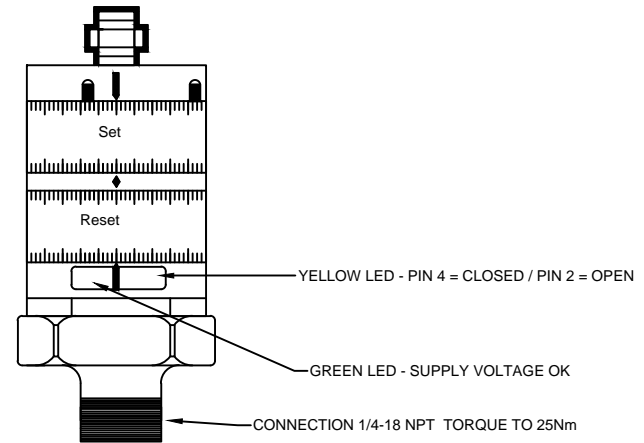
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CABINET MOUNTED FILTRATION						C	12-09-20	SP	SP	CHANGE TEMPERATURE SENSOR
JOB NO.	DRAWING NO.	REVISION	CUST. CONTR. NO.	CUSTOMER		REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION
-	830-002.6	D	-	CUSTOMER						



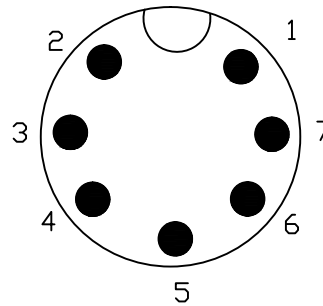
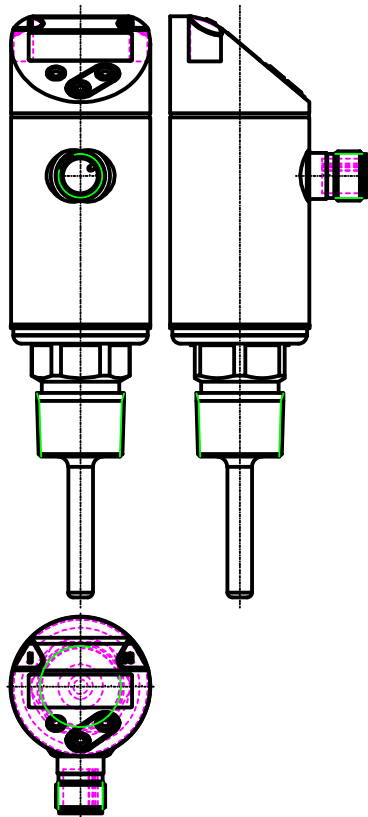
TECHNICAL DATA -	
OPERATING VOLTAGE -	9.6 TO 32 VDC
CURRENT RATING (mA) -	500
CURRENT CONSUMPTION -	<25
OPERATING TEMPERATURE -	-25 TO 80 C
PROTECTION -	IP 67 / III
PRESSURE RANGE-	0...10 BAR 0...145 PSI

NOTE:
 USE 620-005 RIGHT ANGLE CONNECTOR
 M12 micro DC (4 pin) 5m 22 AWG, Black
 PUR jacket

USE 620-006 CLEAR COVER



DWG. TITLE PRESSURE SWITCH ILLUSTRATION				HTI FILTRATION						
PROJECT DESCRIPTION PRESSURE SWITCH 620-004						7716 GARY WATSON PT COLORADO SPRINGS CO 80915		A	02-20-24	SP
JOB NO.	DRAWING NO.	REVISION	CUST. CONTR. NO.			0	08-10-12	SP	SP	ORIGINAL ISSUE
-	620-004	A	-			REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION
						CUSTOMER				



PROGRAMING OF SWITCH OUTPUTS:

Hno = HYSTERESIS IS / NO

Hnc = HYSTERESIS IS/ NC

Fno = WINDOW / NO

Fnc = WINDOW / NC

ELECTRICAL DATA-

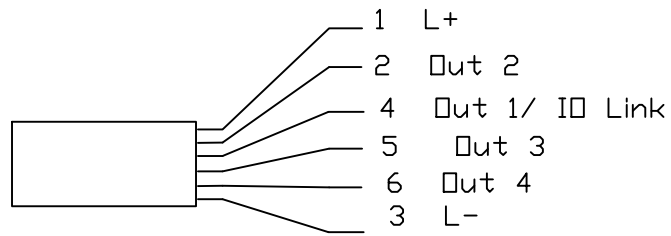
DESIGN - DC PNP

OPERATING VOLTAGE - 18..30 VDC

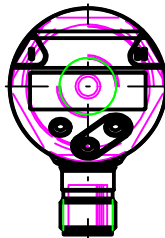
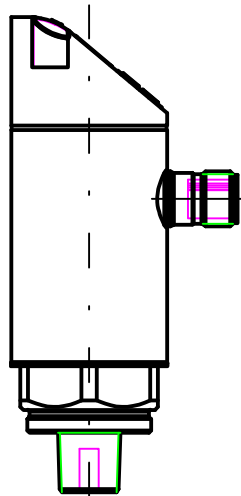
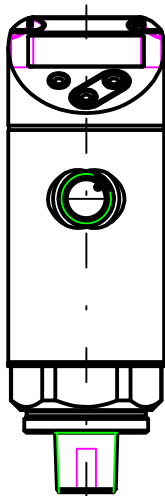
CURRENT CONSUMPTION I_{max} <80

PROTECTION CLASS III

REVERSE POLARITY PROTECTION - YES

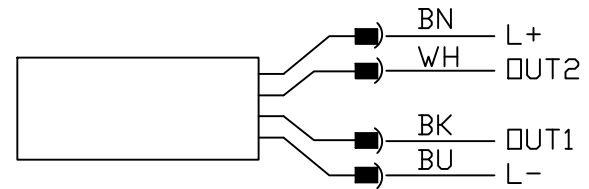


DWG. TITLE TEMPERATURE SENSOR ILLUSTRATION				HTI FILTRATION						
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JOB NO.	DRAWING NO.	REVISION	CUST. CONTR. NO.	REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION		
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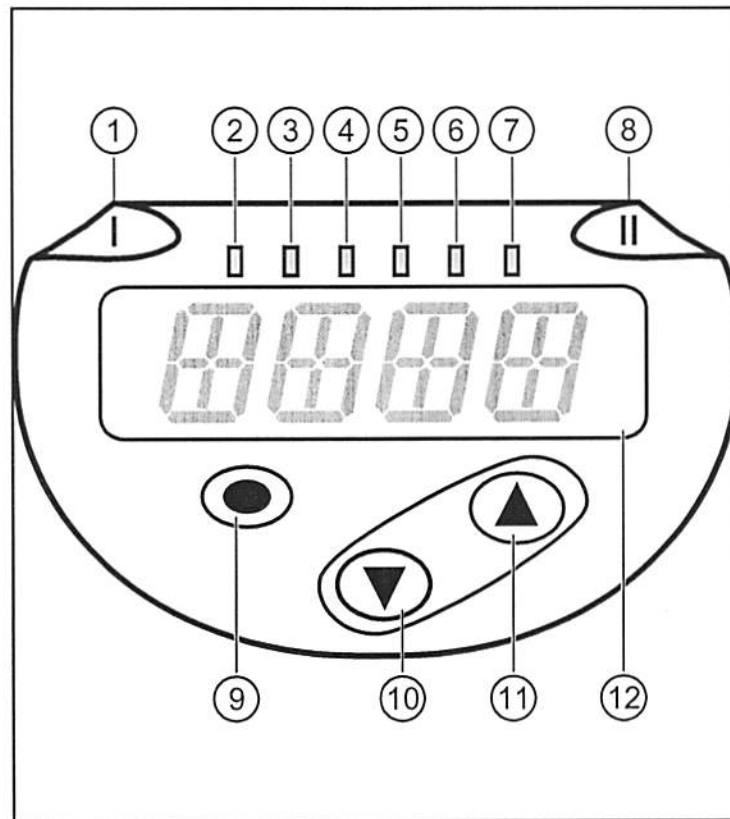
OPERATING VOLTAGE - 9.6 TO 32 VDC
 CURRENT RATING (mA) - 500
 CURRENT CONSUMPTION - <25
 OPERATING TEMPERATURE - -25 TO 80 C
 PROTECTION - IP 67 / III
 PRESSURE RANGE- 0...10 BAR 0...145 PSI



NOTE:
 USE 620-005 RIGHT ANGLE CONNECTOR
 M12 micro DC (4 pin) 5m 22 AWG, Black PUR jacket
 USE 620-006 CLEAR COVER

DWG. TITLE PRESSURE SWITCH ILLUSTRATION				HTI FILTRATION		ifm EFECTOR PN7694				
PROJECT DESCRIPTION PRESSURE SWITCH 620-018						7716 Gary Watson Pt Colorado Springs Colorado, USA, 80915		0	06-02-22	SP
JOB NO.	DRAWING NO.	REVISION	CUST. CONTR. NO.			REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION
-	620-018		-			CUSTOMER PS-ANGELUS				

7 Operating and display elements

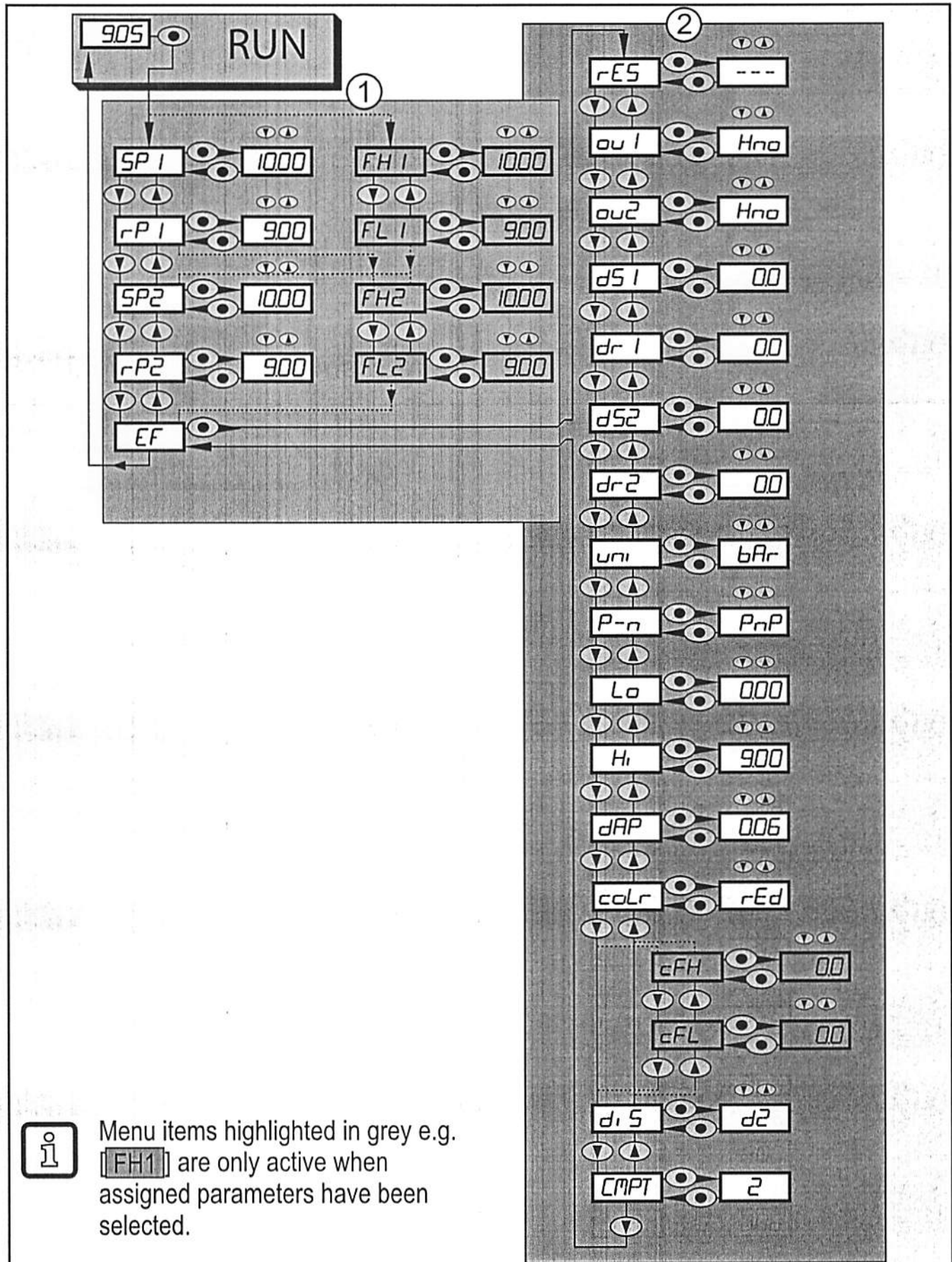


UK

1 to 8: Indicator LEDs	
LED 1	Switching status OUT1 (on if output 1 is switched).
LED 8	Switching status OUT2 (on if output 2 is switched).
LEDs 2 - 7	System pressure in the indicated unit of measurement.
9: [Enter] button [●]	
- Selection of the parameters and acknowledgement of the parameter values.	
10 to 11: Arrow keys up [▲] and down [▼]	
- Setting of the parameter values (scrolling by holding pressed, incrementally by pressing once).	
12: Alphanumeric display, 4 digits	
- Display of the current system pressure.	
- Indication of the parameters and parameter values.	

8 Menu

8.1 Menu structure: main menu



Menu items highlighted in grey e.g. **FH1** are only active when assigned parameters have been selected.


8.2 Explanation of the menu

8.2.1 Explanation of menu level 1

SPx/rPx	Upper / lower limit value for system pressure at which OUTx switches with hysteresis setting. SPx/rPx is displayed if the parameter [Hno] or [Hnc] for OUTx was set in the extended functions "EF" menu.
FHx/FLx	Upper / lower limit value for system pressure at which OUTx switches with window setting. FHx/FLx is displayed if the parameter [Fno] or [Fnc] for OUTx was set in the extended functions "EF" menu.
EF	Extended functions / opening of menu level 2.

UK

8.2.2 Explanation of menu level 2

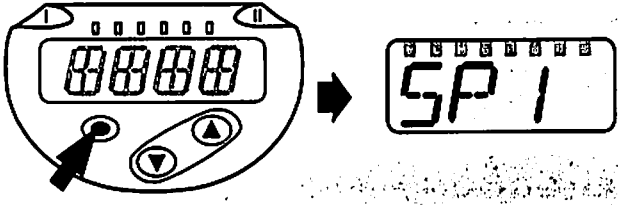
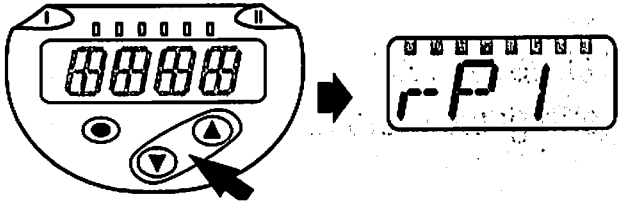
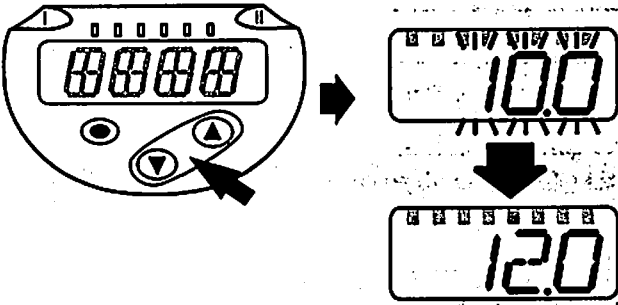
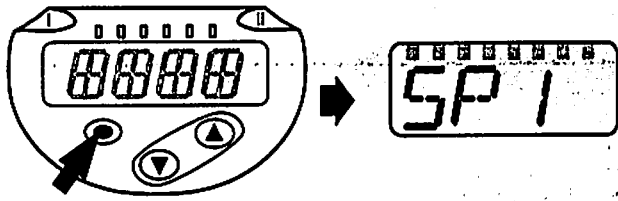
rES	Restore factory setting.
ou1	Output function for OUT1: <ul style="list-style-type: none"> • Switching signal for the pressure limits: hysteresis function [H ..] or window function [F ..], either normally open [. no] or normally closed [. nc]. • Output off [OFF] (function only available in operating mode [3]).
ou2	Output function for OUT2: <ul style="list-style-type: none"> • Switching signal for the pressure limits: hysteresis function [H ..] or window function [F ..] as normally open (. no) or normally closed (. nc) each. • Output off [OFF] (function only available in operating mode [3]).
dS1 / dS2	Switch-on delay for OUT1 or OUT2.
dr1 / dr2	Switch-off delay for OUT1 / OUT2.
uni	Standard unit of measurement for system pressure (display): [bAr] / [mbar] / [MPa] / [kPa] / [PSI] / [inHG].  The selectable units of measurement depend on the respective unit. See table with setting ranges (→ 11.1.1).
P-n	Output logic: PNP/NPN.
Lo	Minimum value memory for system pressure.
Hi	Maximum value memory for system pressure.
dAP	Damping of the measured signal.
coLr	Assignment of the display colours "red" and "green" within the measuring range.
cFH / cFL	Upper / lower value for colour change. Parameter only active after selection of a freely definable colour window in the coLr parameter: [r-cF] or [G-cF].
diS	Update rate and orientation of the display.
CMPT	Selection of the operating mode

9 Parameter setting

During parameter setting the unit remains in the operating mode. It continues its monitoring functions with the existing parameters until the parameter setting has been completed.

9.1 Parameter setting in general

3 steps must be taken for each parameter setting:

<p>1 Select parameter</p> <ul style="list-style-type: none">▶ Press [●] to get to the menu.▶ Press [▲] or [▼] until the required parameter is displayed.	 
<p>2 Set parameter value</p> <ul style="list-style-type: none">▶ Press [●] to edit the selected parameter.▶ Press [▲] or [▼] for at least 1 s.> After 1 s: setting value is changed: incrementally by pressing the button once or continuously by keeping the button pressed.	
<p>Numerical values are incremented continuously with [▲] or decremented with [▼].</p>	
<p>3 Acknowledge parameter value</p> <ul style="list-style-type: none">▶ Briefly press [●].> The parameter is displayed again. The new setting value is saved.	
<p>Set other parameters</p> <ul style="list-style-type: none">▶ Press [▲] or [▼] until the required parameter is displayed.	
<p>Finish parameter setting</p> <ul style="list-style-type: none">▶ Press [▲] or [▼] several times until the current measured value is displayed or wait for 30 s.> The unit returns to the process value display.	

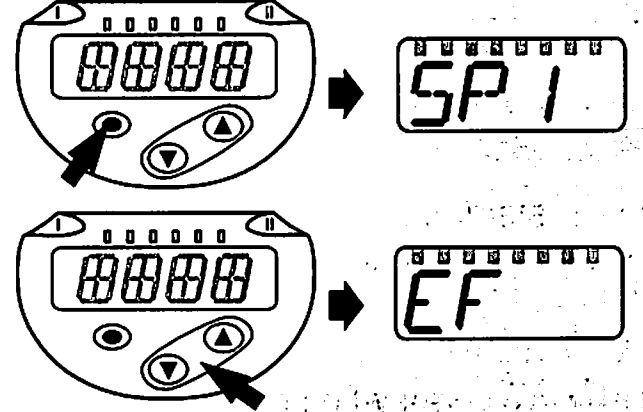
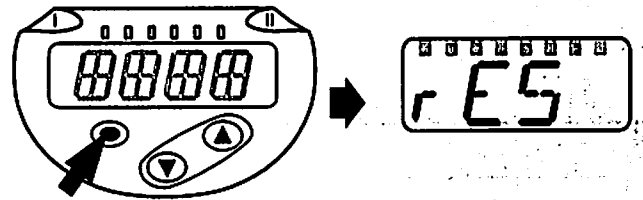


If [C.Loc] is displayed when an attempt is made to modify a parameter value, an IO-Link communication is active (temporary locking).



If [S.Loc] is displayed, the sensor is permanently locked via software. This locking can only be removed with a parameter setting software.

- Change from menu level 1 to menu level 2:

<ul style="list-style-type: none"> ▶ Press [●] to get to the menu. ▶ Press [▲] or [▼] until [EF] is displayed. 	
<ul style="list-style-type: none"> ▶ Press [●]. > The first parameter of the submenu is displayed (here: [rES]). 	

UK

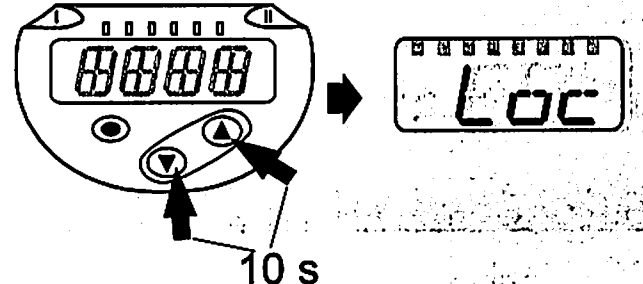


Change from menu level 1 to menu level 2 when a parameter setting software is used:

Activate the [EF] button.

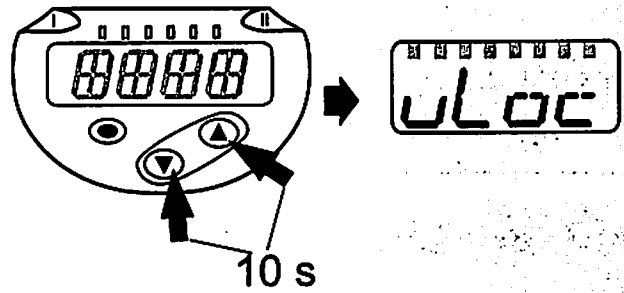
- Locking / unlocking

The unit can be locked electronically to prevent unintentional settings.

<ul style="list-style-type: none"> ▶ Make sure that the unit is in the normal operating mode. ▶ Press [▲] + [▼] simultaneously for 10 s. > [Loc] is displayed. 	
<p>During operation: [Loc] is briefly displayed if you try to change parameter values.</p>	

For unlocking:

- ▶ Press [▲] + [▼] simultaneously for 10 s.
- > [uLoc] is displayed.



On delivery: not locked.

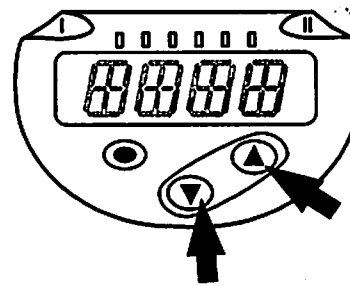
- **Timeout:**

If no button is pressed for 30 s during parameter setting, the unit returns to the operating mode with unchanged values.

- **Exit parameter without applying the settings**

To exit a parameter without applying the settings:

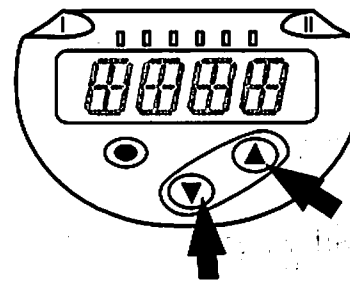
- ▶ Press [▲] + [▼] simultaneously.
- > Return to the menu level.



- **Exit menu level**

To exit the menu level:

- ▶ Press [▲] + [▼] simultaneously.
- > Menu level 2 changes to level 1 or level 1 changes to the display.

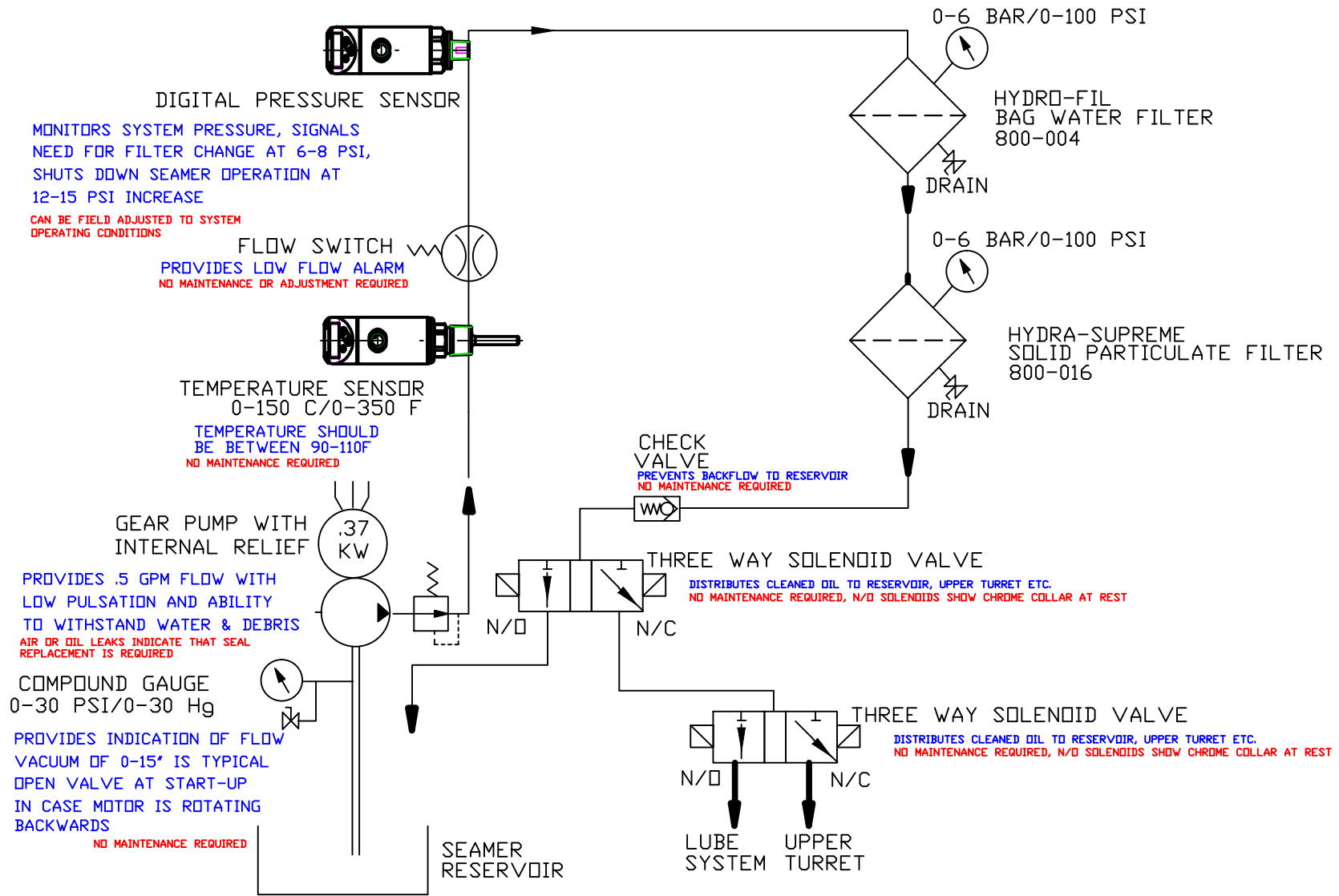


10.2 Self-diagnostics / fault indications

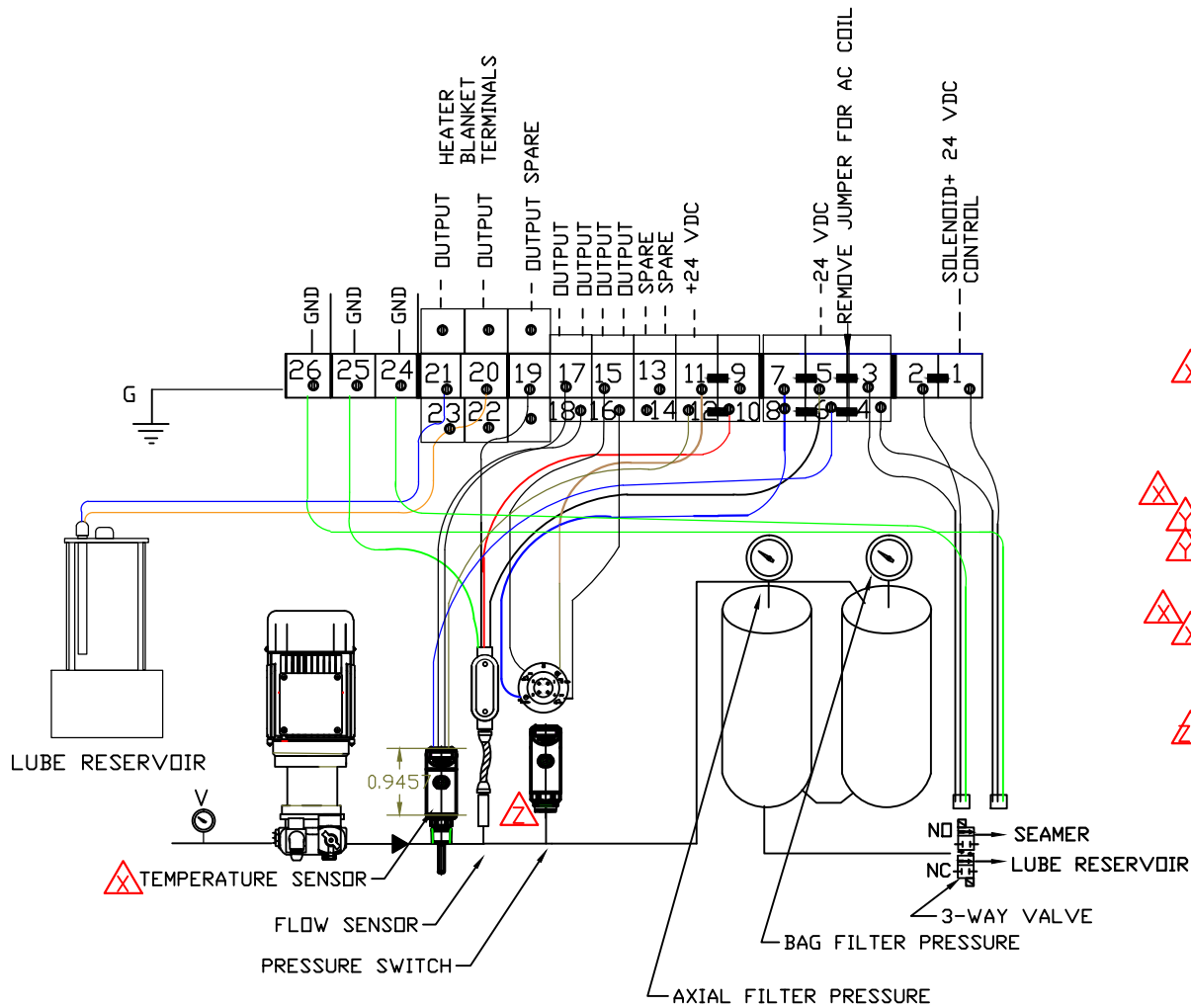
The unit has many self-diagnostic options.

- It monitors itself automatically during operation.
- Warnings and faults are displayed (even if the display is deactivated), in addition they are available via IO-Link.

Display	Status LED OUT1	Status LED OUT2	Type of fault *)	Fault / warning	Corrective measures
PARA			F	Parameter setting outside the permissible range.	▶ Repeat parameter setting.
none			F	Supply voltage too low.	▶ Check / correct the supply voltage.
SC Flashes	Flashes	Flashes	F	Excessive current on switching outputs OUT1 and OUT2 **).	▶ Check switching outputs for short circuit or excessive current; Remove the fault.
SC1 Flashes	Flashes		F	Excessive current at switching output OUT1 **).	▶ Check switching output OUT1 for short-circuit or excessive current; Remove the fault.
SC2 Flashes		Flashes	F	Excessive current at switching output OUT2 **).	▶ Check switching output OUT2 for short-circuit or excessive current. Remove the fault.
Loc			W	Parameter setting locked via buttons.	▶ Unlock buttons (→ 9.1 Parameter setting in general) → "Locking / unlocking".
C.Loc			W	Parameter setting locked via pushbuttons, parameter setting is enabled via IO-Link communication (→ 9.1).	▶ Wait until parameter setting via IO-Link is finished.
S.Loc			W	Setting buttons locked via parameter software. Parameter change is rejected (→ 9.1).	▶ Unlocking only possible via IO-Link interface / parameter setting software.



DWG. TITLE				HTI				830-001 - F029H614				
PSA FLOW & FUNCTION SCHEMATIC				FILTRATION INC.				C	5-16-2024	SP	AT	DIGITAL PRESS. SENSOR
PROJECT DESCRIPTION				7716 GARY WATSON PT COLORADO SPRINGS COLORADO CO 80915				B	5-14-2020	SP	RH	DIGITAL TEMP SENSOR
SEAMER PARTICULATE AND WATER REMOVAL SYSTEM								A	8-18-2010	SP	RH	ADD CHECK VALVE
JOB NO.	DRAWING NO.	REVISION	CUST. CONTR. NO.	REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION				
-	830-ASC FFS	C	-					CUSTOMER PNEUMATIC SCALE - ANGELUS				



WIRE COLOR CODE

- 1. BLACK #1 Boost Solenoid N/D +24VDC
- 2. BLACK #1 Boost Solenoid N/C +24VDC
- 3. BLACK #2 Boost Solenoid N/C -24VDC
- 4. BLACK #2 Boost Solenoid N/D -24VDC
- 5. BLACK Flow Sensor -24VDC
- 6. BLUE Temperature Sensor -24VDC
- 7. BLUE PSI Switch Max -24VDC
- 8. SPARE
- 9. SPARE
- 10. RED Flow Sensor +24VDC
- 11. BROWN PSI Switch +24VDC
- 12. BROWN Temperature Sensor +24VDC
- 13. SPARE
- 14. SPARE
- 15. WHITE PSI Switch Warning Output #2
- 16. BLACK PSI Switch MAXIMUM Output #1
- 17. WHITE Temperature Sensor Output , Out2
- 18. BLACK Temperature Sensor Output. OUT1
- 19. WHITE Flow sensor Output , N/D
- 20. ORANGE Trabon High Output N.C.
- 21. BLUE Trabon Low Output N.D.
- 22. Heater Band
- 23. Heater Band
- 24. GREEN/YELLOW ST Flow Sensor GND .
- 25. GREEN/YELLOW ST Boost Solenoid N/C .
- 26. GREEN/YELLOW ST Boost Solenoid N/D.

- 640-004 TEMPERATURE SENSOR-DIGITAL
- 620-018 PRESSURE SWITCH-DIGITAL DISPLAY

DWG. TITLE 830-002.6 WIRING LAYOUT				HTI FILTRATION INC		830-002.6								
PROJECT DESCRIPTION				7716 GARY WATSON PT COLORADO SPRINGS COLORADO USA 80915		z	05-16-24	SP	SP	PRESS SENSOR CHANGE				
						y	06-25-20	SP	SP	WIRING CHANGE				
DATE 04-16-24				DRAWING NO. 830-002.6 WS		REVISION Z		CUST. CONTR. NO. -		x	05-28-20	SP	SP	TEMP SENSOR CHANGE
										REV.	DATE:	DRWN BY	CHKD BY	DESCRIPTION
						CUSTOMER								

TROUBLESHOOTING GUIDE
ANGELUS SANITARY CAN SEAMER FILTRATION SYSTEM
HYDRA-SUPREME MODEL H-211-ASC R3-R6

When using this guide please remember that all pressure and flow readings are to be taken with the system at normal operating temperatures.

SYMPTOM	CAUSE	CORRECTIVE ACTION
ERRATIC FLOW RATE, BUBBLES IN OIL STREAM	AIR LEAK IN FITTINGS, BLEED COCK OR VACUUM GAUGE	CONFIRM THAT VACUUM BLEED AND GAUGE ARE AIR TIGHT, CHECK FITTINGS
	AIR LEAK UNDER RELIEF PUMP ADJUSTMENT NUT	MAKE SURE TORQUE STRIPE ON ACORN NUT IS INTACT, REPLACE SEAL IF BROKEN
	LOOSE OR PINCHED FEED TUBE CONNECTION	MAKE SURE ALL PLUMBING CONNECTIONS ARE TIGHT
	LOW FLUID LEVEL	CHECK FLUID LEVEL IN RESERVOIR
EXCESSIVE VACUUM (ABOVE 15")	FLOW RESTRICTION	CHECK INLET PIPING FOR RESTRICTION, BLOCKAGE
	INLET PIPING RESTRICTION	CONFIRM ¾"-1" INLET PIPING SIZE
	OIL TOO THICK (OVER 900 SUS @100°F)	CHANGE TO LIGHTER GRADE OF OIL
	ENVIRONMENT TOO COLD - LESS THAN 60° FARENHEIT	INSULATE FEED LINE TO FILTER, HEAT CANISTERS
	SEAMER RUNS TOO COLD-OIL DOESNT' GET OVER 80° F.	CHANGE TO LIGHTER GRADE OIL
	AMBIENT AIR AND SEAMER TEMPERATURE UNDER 80° F.	INSTALL HEAT BLANKET ON FILTER CANISTER
LOW FLOW RATE WITH LOW PRESSURE	AIR BUBBLE IN PUMP	OPEN AIR VENTS TO BLEED OF AIR
	INSUFFICIENT MOTOR POWER GENERATED	CHECK FOR PROPER PUMP VOLTAGE AND ROTATION
	OIL BYPASSING THROUGH RELIEF VALVE	CHECK RELIEF VALVE FOR PROPER SETTING

SYMPTOM	CAUSE	CORRECTIVE ACTION
LOW FLOW RATE WITH HIGH PRESSURE	LOADED FILTER	REPLACE FILTER ELEMENT
	RESTRICTED OUTLET LINES	CHECK AND CLEAR RETURN LINES
EXCESSIVE PRESSURE	RELIEF VALVE SET TOO HIGH	CHANGE FILTER AND RE-SET RELIEF VALVE TO 65 PSI
PUMP WON'T WORK AFTER ELEMENT CHANGE OR STRAINER CLEANING	VACUUM LOCK IN PUMP	BLEED AIR OFF AT BLEED VALVE ON PUMP OUTLET
UPPER TURRET OR LUBRICATOR WON'T FILL	FAULTY SOLENOID COIL	CHECK COIL ON SOLENOID, REPLACE IF DEFECTIVE
CANISTERS LEAK AT LID CLAMP	CUT OR ERODED SEAL	CHECK SEALS FOR DAMAGE
	LID NOT TIGHT	TIGHTEN CLAMP BOLT



HTI FILTRATION INC.

7716 Gary Watson Pt. • Colorado Springs, CO 80915 • 719.490.8800 • sales@htifiltration.com

STANDARD WARRANTY

This filter system was inspected before shipment from our plant. To the original purchaser of this system, HTI Filtration warrants its products free from defects in material and workmanship for a period of one (1) year from date of purchase.

HTI Filtration makes no other express warranty and excludes (and buyer waives) any and all implied warranties including, without limitation to, implied warranties in connection with the design, sale, merchantability or fitness of the goods for any particular use or purpose.

In order for any claim under this warranty to be valid, HTI Filtration must receive notice in writing from the buyer within a reasonable time period, not to exceed thirty (30) calendar days after any defect is discovered. The claim must include a detailed report of the conditions of use at the time of discovery of defect. Parts which fail or become defective during the warranty period (except as a result of freezing, melting, improper installation, use or care), shall be replaced or repaired at HTI Filtration's option at no charge within 90 days of the receipt of the defective part, barring unforeseen delays. HTI Filtration shall in no event be responsible for the repairs made by others without the express written permission and consent of HTI Filtration.

To obtain warranty replacement or repairs, defective components or parts should be returned, freight prepaid, to place of purchase or nearest authorized service center. HTI Filtration shall not be responsible for cartage, removal and/or reinstallation labor or any other such costs incurred in obtaining warranty replacements. In no event shall HTI Filtration be responsible for any incidental or consequential damage, whether foreseeable or not and whether or not such damage occurs, or is discovered before or after repair or replacement.

The forgoing warranty does not apply to wear components, seals or filtration elements.

This warranty extends only to the original buyer and HTI Filtration makes no other warranty, expressed or implied, to other persons or entities. If buyer makes any warranty or representation inconsistent with or in addition to the warranty stated hereinabove, the buyer shall, at their own expense, defend and hold HTI Filtration harmless from any claim thereon of any nature whatsoever.