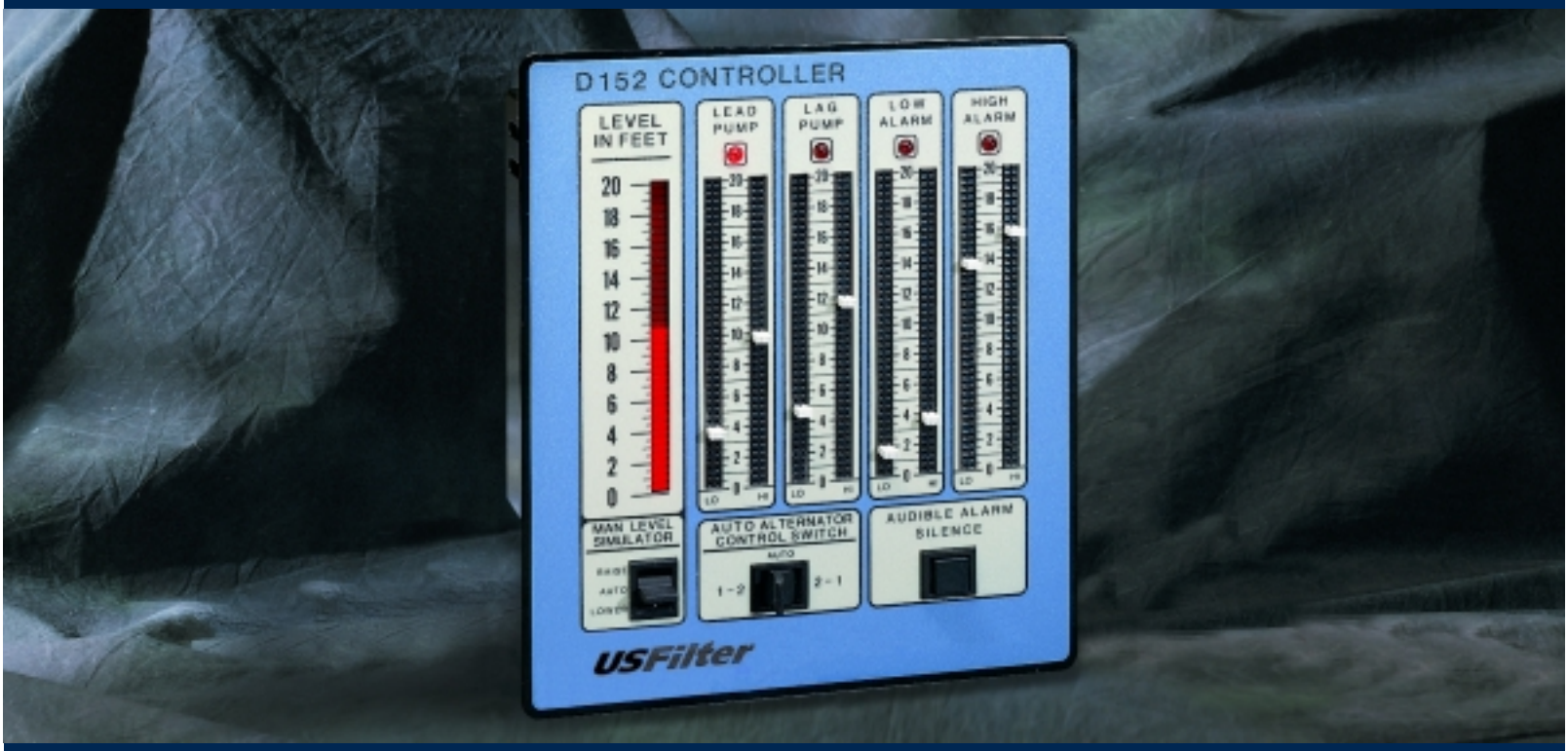


USFilter

VIEW-AT-A-GLANCE™ CONTROLLERS: EFFORTLESS CONTROL, ADVANCED CAPABILITIES.

D150-SERIES VIEW-AT-A-GLANCE

CONTROLLERS

Features In Brief

- *Simple*
- *Reliable*
- *Cost-effective*
- *Field configurable*
- *No programming*
- *Alarm annunciator logic*
- *Manual level simulation*

Some things just get better with age and our patented D150 series "View-At-A-Glance™" family of controllers is no exception. These controllers offer robust, tried-and-true technologies that have been used successfully for more than 15 years on several thousand applications.

The D150 series controllers are designed specifically for pump station applications and offer a simple, reliable, and cost-efficient pump control platform that has become a favorite with operators across the country.

The controller comes in several configurations, allowing a specialized controller that is designed specifically for your application, whether it is 1, 2, 3 or even up to 8 pumps. Because controllers can be selected for pump up or pump down applications, they can be used for both water (typically pump up) and wastewater (typically pump down) applications.

Each controller works with a wide range of available level/pressure sensors such as general purpose gauge or differential pressure transducers, submersible level/pressure transducers, air-purge "bubbler" transducer level-sensing systems, ultrasonic level transmitters or any other sensor that produces a linear level-proportional analog (1-5 VDC or 4-20 mADC) output.

Each controller has built-in scaling and offset adjustments permitting control over the desired operating range of the measured process. Each controller provides adjustable analog input filtering (quelling) that eliminates the effects of undesirable signal surges that can result from electrical or process disturbances.

The process variable (Level) is displayed on a pre-scaled, 4-inch high, 40-segment LED vertical display that gives quick, accurate level reference, even from a distance. Each controller can be furnished with a 0-10, 0-20, or 0-40 increment pre-scaled display range, allowing the resolution required for precise level and alarm control.

Each controller derives control and alarm signals through the use of easily adjustable programming pins plugged into 40-position setpoint columns that run parallel to the level display. Each control and alarm point has two setpoint

columns (separate on and off) providing full ranging adjustable differential. The activation of a control or alarm setpoint illuminates an LED showing the associated setpoint status.

Because everything is viewable from the front of the controller, an operator can gain quick and easy setpoint reference without scrolling through multiple displays or performing complicated multi-step sequences to make setpoint adjustments.

Each D150 series controller has built-in analog signal forcing capability, providing a unique diagnostic tool that allows simulation of the process variable to verify proper controller operation. The signal forcing function is easily enabled from the front of the controller. To prevent inadvertent level simulation, the unit automatically returns to normal when not in use.

To round off the D150 series controllers, each features built-in alarm horn logic with a front-panel-mounted silence push button. This logic can also work with remote push button stations that may be mounted on the exterior of an outdoor-rated control panel, allowing silencing of an external alarm horn without having to open an outdoor-rated control panel or gain access to a secured structure.

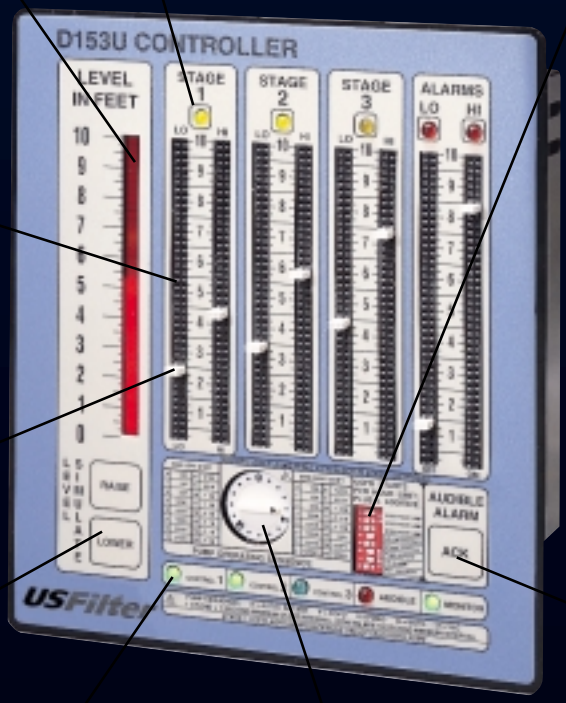
(See the Model Selection Guide at the end of the brochure to assist you in determining the best controller for your application.)

THE FRONT DISPLAY DEFINED

Stage Operation LED Indicators: The five LED's across the top of the controller show the operation of the differential level pump control and abnormal level alarm stages.

40-Segment LED Bar Graph Display: Indicates level over a range of 0-10 feet, 0-20 feet or 0-40-feet in 3-inch, 6-inch or 12-inch increments, respectively. (Calibration in other engineering units divisible by 40 also available.)

DIP Switches (D153U Only): These are used to enable and disable controller modes of operation, permitting necessary expanded functionality for proper operation of pumps.



Programming Receptacles: The pins plug into these 8 tracks to control 3 pumps and high and low alarm levels. The receptacles are calibrated to align with the LED display.

Setpoint Pins: Programming pins for adjusting pump and alarm operating levels are easy to set and easy to see, even at a distance.

Level Simulation: "Raise" and "Lower" push-buttons allow safe, convenient testing of station pumps and level alarms without the danger of leaving the controller in non-automatic mode.

Audible Alarm ACK Button: Allows the operator to silence the audible alarm output circuit.

Pump Operating Sequence Selectors: Controls the choice of pump operating sequences, allowing fixed and alternating modes of operation.

Control/Alarm/Monitor LED Indicator (D153U only): The five LED's at the bottom of the display show the operation of pump control, alarm and monitor relay driver circuits.

D152 TWO-CIRCUIT

CONTROLLER/ALTERNATOR

D152 Features In Brief

- *Duplex pump down control*
- *Duplex alternator*

D152 Product Specifications:

Power Supply Input: 120 VAC @ 20 VA (can be configured for 12 VDC operation)

Power Supply Output: 13.8 VDC @ 250 mA w/120 VAC input

Analog Input: 4-20 mA (250 ohm load), 1-5 VDC (0.5-6 VDC)

Calibration Adj: 10-100% of analog input range for full scale display; 0-90% of analog suppression/offset

Quelling: 0-90 second full range input excursion

Control Inputs: Active low w/Passive Pull-up (Return to input common)

Alarm Horn Outputs: Open collector 30 VDC @ 250 mA

Dimensions: $8^1/_2$'' high x $7^1/_2$'' wide x $3^1/_2$'' deep

Environmental: Operating temperature 0 to 165° F

Humidity: 10-95% non-condensing

The D152 is simplicity at its best with 'View-At-A-Glance™" design that allows quick and easy indication of system configuration/status and adjustment of operational parameters.

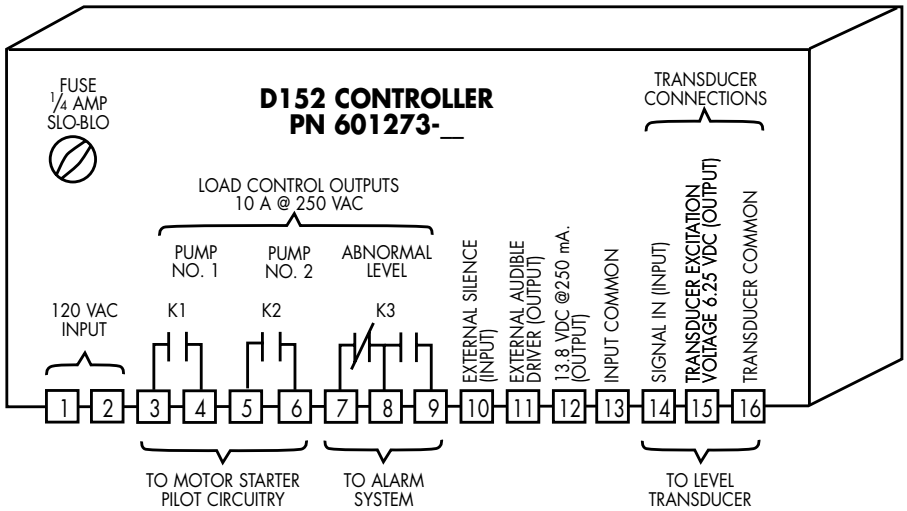
The D152 pump and alarm controller is an excellent choice for control of duplex sewage or stormwater lift pump stations or other similar process applications requiring pump down control. Because of its built-in capabilities and compact design, the controller is economical, space-saving, and easily integrated into new pump stations or retrofitted into existing pump station control systems.

The D152 provides full-range, differential control of two pumps plus High and Low (Abnormal) level alarm in response to a 1-5 volt DC or 4-20 mADC level-proportional signal as provided by an external sensor. The controller works with a wide range of available level sensors such as a submersible level transducer, an air-purge "bubbler" transducer level-sensing system, ultrasonic level transmitter or any other sensor that produces a linear, level-proportional analog output.

The D152 comes complete with built-in duplex alternator allowing pump sequencing in fixed or alternating modes. Sequence selections allow equalization of pump usage or, in conjunction with setpoint positioning, can be used to take a pump out of service. Pump sequence selection is viewable and adjustable through the front-mounted 3-position toggle switch.

The D152 controller is easily interfaced with motor starter pilot or station alarm circuitry through built-in relay contact closure outputs rated at 10 amps @ 120 VAC.

The D152 controller operates on 120 VAC power and provides 13.8 VDC @ 250 mA off-board power to power peripheral devices including alarm horns or interposing relays. All wiring terminations are located on the back of the controller with compression-type terminal blocks capable of securing two or fewer 12 AWG wires. The controller is UL-listed.



SUGGESTED SPECIFICATIONS

D152 DUPLEX PUMP CONTROLLER

The wet well control system shall provide automatic duplex pump down mode control and level alarm detection based on wet well level excursions as sensed by remote sensor.

The pump/alarm Controller shall accept a single, level-proportional analog input signal (1-5 VDC or 4-20 mADC) and provide level-differential automatic operation of the pumps and alarms. The Controller shall include: signal spanning, offsetting and adjustable "quelling" (rate-of-change limiting).

The Controller shall display the sensed control level on a forty-segment LED bar graph display. The level shall be displayed in a *(0-10)(0-20)(0-40)* foot range with *(3")(6")(12")* resolution.

Directly aligned with the calibrated LED bar graph display shall be eight vertical receptacles with programming pins and adjacent range scales to match the calibrated bar graph giving full-range, level-differential, On/Off operation of 2 pumps and high and low level alarms from the sensed level excursion. The receptacles and programming pins shall be gold-plated to ensure reliable, long-term operation. A front mounted LED indicator shall be provided in conjunction with each differential control/alarm stage to show when the stage output is activated.

A three-position, spring-return-to-center "raise-auto-lower" level simulation switch shall allow the manual creation of a simulated level signal when the switch is raised or lowered from the center "auto" position. The switch shall automatically return to normal mode to eliminate the possibility of leaving the station in a "non-automatic" condition.

The Controller shall include abnormal level alarm annunciation circuitry with a front accessible alarm silence pushbutton and rear terminal block connection for an external audible alarm and silence pushbutton.

Upon power-up, the Controller shall go through a timing routine which allows the analog signal and display to stabilize before any control or alarm outputs are enabled. After the stabilization period, the control circuits of the Controller shall be sequentially enabled on a timed-step arrangement, providing staggered starting of the pumps.

The Controller shall have built-in front panel accessible three position (1-2, Auto, 2-1) pump sequence selection switch allowing both fixed and alternating sequences.

The Controller shall operate on 120 VAC power and shall be protected from over current through a rear-accessible, extractor-type input power fuse and power line transient protection. The input power and the control outputs shall be wired to screw/clamp barrier-type terminals on the back of the controller housing able to accept one or two AWG 12 or smaller conductors per terminal. The Controller shall incorporate the pump control output load relays and a common abnormal level alarm output load relay with dry contacts wired to terminals rated 10 amp. at 240 VAC.

It is the specific intention of this specification that the control system offer simplicity and reliability without the need of specialized tools or programming knowledge. Systems utilizing controllers that do not allow viewing of all specified operational parameters or generic programmable logic controllers with custom software are specifically precluded by this specification and will not be acceptable.

The controller shall be a USFilter Control Systems Model D152 Duplex Pump Controller.

D153 TWO- OR THREE-CIRCUIT CONTROLLER/ALTERNATOR

The D153 Pump and Alarm Controller provides level-responsive automatic pump control for up to three pumps and automatic alternation for two of them. The D153 is similar to the D152 except that the High and Low level alarm circuitry is separated and available either for independent High/Low use or for control purposes. The third control stage (used for Low alarm in the D152) operates relay K3 (otherwise used as a failsafe common alarm output device). Each pump control circuit has a 10 amp at 250 VAC-rated control contact brought to job connection terminals. The D153 operates on 120 VAC or 12 VDC power.

D153U TWO- OR THREE CIRCUIT

CONTROLLER/ALTERNATOR

D153U Features In Brief

- *Triplex Controller/Alternator*
- *Pump up or pump down modes*
- *Output activation and controller health indicators*
- *Output activation and controller health indicators*
- *Battery backup w/charger*

The D153U (universal) controller is the most sophisticated and capable controller in the D150 family. Even though it is capable of performing many different functions, with more than 64 selectable modes of operation, it shares the "View-At-A-Glance™" characteristics of simple and user-friendly configuration and operation. You can't find this much functionality in any other controller in its class.

The desired functionality is easily configured through the placement of front-panel-mounted switches and setpoint pins. The unit requires no programming knowledge or any special testing, calibration or diagnostic tools. You just set it up and go. The controller has additional built-in indicators and controller monitoring diagnostics that tell you if the controller is operating properly.

The D153U pump and alarm controller is a workhorse that provides full-range, differential control, pump up or pump down mode operation of 1, 2 or 3 pumps plus High and Low level alarm in response to an 1-5 volt DC or 4-20 mADC level-proportional signal as provided by an external sensor. This makes it the preferred controller for booster pump stations, lift stations with two or three pumps or other similar process applications. Because of its built-in capabilities and compact design, the controller is economical, space-saving, and easily integrated into new pump stations or retrofitted into existing pump station control systems.

The D153U gives you more choices to operate the pumps in the mode or sequence that best meets your needs. The controller has a built-in alternator providing 5 basic modes of operation with 32 selectable pump-sequencing schemes that can be changed on the fly. The operation mode and pump sequencing scheme are viewable and easily adjustable through the front-panel-mounted 16-position rotary switch. The following operating modes are supported by the D153U:

Fixed. The pumps operate in the same sequence during each cycle.

Auto-Rotary. This mode automatically advances by one the operating sequence of the selected pumps each time all pumps shut off.

FOFO (first on, first off): This operating sequence minimizes the starting frequency of each pump and equalizes usage of the pumps. When the program calls for an additional pump, the controller automatically turns on the pump which has had the longest "rest." When the program calls for one less pump, it automatically turns off the one which has run the longest.

UOFO (utilize one, favor others): This sequence uses a selected lead pump up to a designated number of rated starts per hour (ranging from four to 18, in increments of two). If the lead pump has been used to its maximum SPH, the other pumps are brought in and automatically alternated. Each pump serves in the lead position once every 24 hours to keep it "fresh."

VLC (variable level control): This capability provides variable-start level control in a responsible, level-limited fashion. It uses Control Stage 1 as a low-level "enable" function and Stage 2 as a high-level "must run" control, and it turns on the lead pump at varying times after its last operation. This prevents "bathtub ring" on the wet well walls. In a three-pump program, the third pump operates at the same elevation as the high level alarm.

The D153U controller accepts unpowered input contacts to advance the automatic pump alternator a single step and to inhibit automatic pump control from remote devices that detect and produce outputs representing power failure, low level/suction pressure and high pressure lockouts, to name a few.

The D153U controller can be powered by an off board 12 VAC or 10.5-15 VDC power supply and provides 13.8 VDC @ 500 mA for powering off board peripheral devices including alarm horns or interposing alarm and control relays. The controller is suitable for use in panels that requires UL 508 or 913 industrial control panel label.

The controller can be battery backed up through built-in battery interface circuitry allowing automatic switch over when AC power fails. To ensure the battery is always fresh, the controller has built-in automatic battery charging circuitry.

All wiring terminations are located on the back of the controller. To facilitate field service, the terminal blocks are removable plug-in compression-type terminal blocks capable of securing two or fewer 14 AWG wires.

Front-Accessible Dip Switches

One of the beneficial features of the D153U is the placement of the configuration switches on the front panel. Eight dip switches are included and their functions are described in the table.

SWITCH	FUNCTION
SW1-SW3	These three switches combine to allow a starting frequency limit of the lead pump in the UOFO mode from 4 to 18 starts-per-hour.
SW4	Determines whether the D153U operates in a Pump-UP or Pump-DOWN mode. Pump-UP relates to a "keep full" need of a water reservoir while Pump-DOWN relates to a "keep pumped down" use in a sewage lift station wet well level-responsive situation.
SW5	Operates Control Stage 3 in the opposite mode from the rest of the Controller. This may be used, for example, in a water system ground reservoir situation where the D153U DIP Switch 4 would be "off" to provide "Pump-UP" control for two well pumps delivering water to the reservoir while the Switch 5 would be "on" to make Control Stage 3 "opposite" and used to provide low level cutout and higher-level "return-to-service" protection for the high service pumps taking suction from the reservoir.
SW6	Determines whether or not the pumps are shut down in the event of AC power failure. This is used in situations where the level display and alarms might be battery-backed and continue in operation under power outage conditions. The pumps are starting interval limited (10 or 1 second) upon being returned to service.
SW7	Disables the low level alarm function in applications where a low level condition might be normal for extended periods of time, such as in stormwater pumping station collection sumps which are normally dry.
SW8	Determines whether the LEFT/RIGHT selection tables of the rotary PUMP OPERATING SEQUENCE selector are in service. This provides 32 selections when used with the 16-position rotary switch.

D153U Product Specifications:

Power Supply Input: 12 VAC @ 30 VA or 10.5-15 VDC @ 300 mA

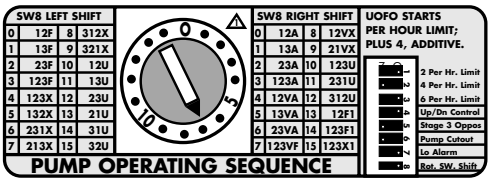
Power Supply Output: 13.8 VDC @ 300 mA w/12 VAC input

Analog Input: 4-20 mA (250 ohm load), 1-5 VDC (0.5-6 VDC)

Calibration Adj: 10-100% of analog input range for full scale display; 0-90% of analog suppression/offset

Quelling: 30-300 second full range input excursion

Control Inputs: Active low w/Passive Pull-up (Return to input common)

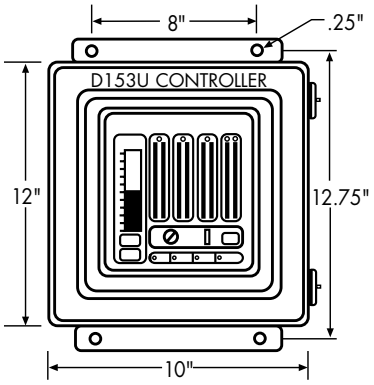


Control Outputs: Open collector 30 VDC @ 150 mA

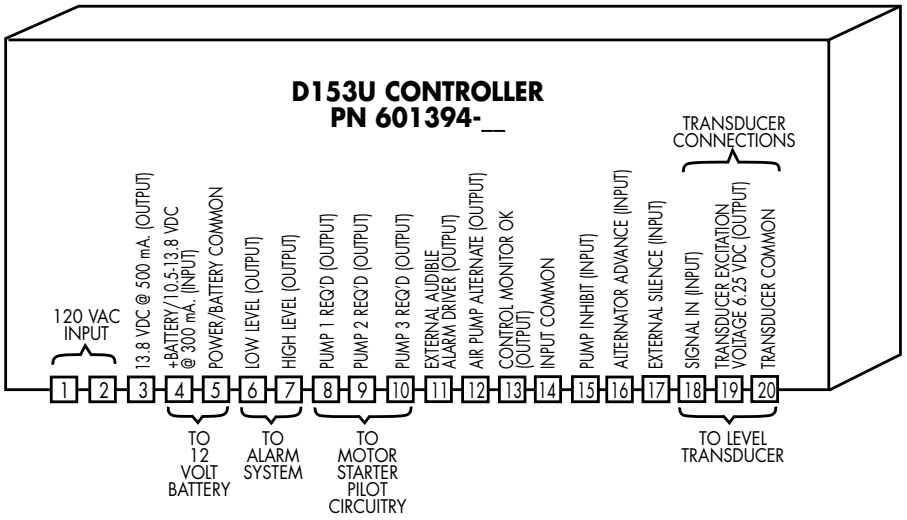
Dimensions: 8½" high x 7½" wide x 2½" deep

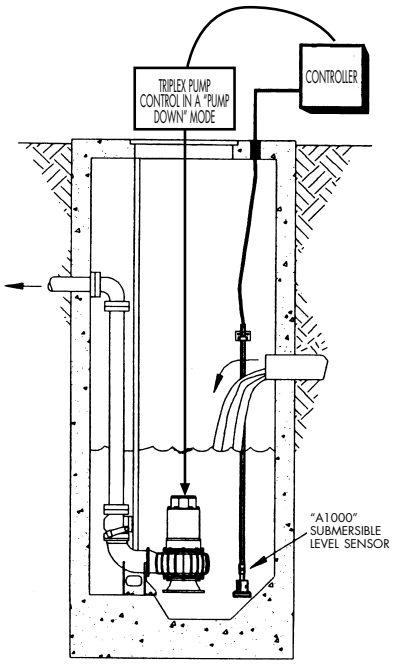
Environmental: Operating temperature 0 to 165° F

Humidity: 10-95% non-condensing



D153U Controller with power supply and output load relays mounted inside a NEMA 4X padlockable weatherproof enclosure.





Sewage or Stormwater Wet Well Level-Responsive 3-Pump Control

The control system shall provide automatic *(simplex/duplex/triplex)(pump up/pump down)* mode control and alarm level detection based on _____ level excursions as sensed by remote sensor.

The pump/alarm Controller shall accept a single, level-proportional analog input signal (1-5 VDC or 4-20 mADC) and provide level-differential automatic operation of the pumps and alarms. The Controller shall include signal spanning, offsetting and adjustable "quelling" rate-of-change limiting.

The Controller shall display the sensed control level on a forty-segment LED bar graph display. The level shall be displayed in a *(0/10)(0-20)(0-40)* foot range with *(3")(6")(12")* resolution.

Directly aligned with the calibrated LED bar graph display shall be eight vertical receptacles with programming pins and adjacent range scales to match the calibrated bar graph giving full-range, level-differential, On/Off operation of 1, 2 or 3 pumps and high and low level alarms from the sensed level excursion. The receptacles and programming pins shall be gold-plated to ensure reliable, long-term operation. A front mounted LED indicator shall be provided in conjunction with each differential control/alarm stage to show when the stage output is activated. To help facilitate system troubleshooting, the controller shall have LED indicators depicting the status of the control outputs, alarm output and controller operational status.

The Controller shall have "raise-lower" level simulation capability and shall allow the manual creation of a simulated level. The level measurement shall automatically return to normal mode to eliminate the possibility of leaving the station in a "non-automatic" condition.

The Controller shall include abnormal level alarm annunciation circuitry with a front accessible alarm silence pushbutton and rear terminal block connection for an external audible alarm and silence pushbutton.

Upon power-up, the Controller shall go through a timing routing which allows the analog signal and display to stabilize before any control or alarm outputs are enabled. After the stabilization period, the control circuits of the Controller shall be sequentially enabled on a timed-step arrangement, providing staggered starting of the pumps.

The Controller shall provide a multi-mode pump sequencing capability allowing for a minimum of 32 different alternation/control sequences to establish pump control sequencing requirements allowing for maintenance and system wear determination. Selected alternation sequence indication and operator adjustments shall be possible from the front of the controller. The Controller shall support the following modes of operation as a minimum: Fixed, Auto/Rotary, First-On/First-Off (FOFO), Utilize One/Favor Others (UOFO) and Variable Level Control (VLC) sequences.

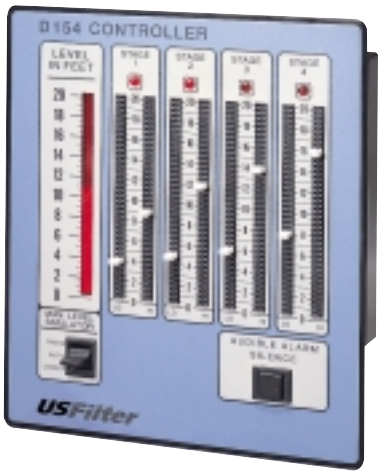
UOFO operating sequences utilize the selected lead pump up to its maximum allowable starts per hour as established (4 to 18 starts per hour) by operator adjustment. When the lead UOFO pump is called for operation before its allowable time, the control system shall use the remaining pumps on an automatically alternated basis to avoid excessive use of the selected lead pump. The UOFO alternator shall place each of the non-lead pumps in the lead position approximately once every twenty-four hours to keep the pumps "fresh." Upon excessive use of the selected lead UOFO pump the Controller shall flash the Stage 1 indicating LED to show such unintended operation.

VLC operating sequences shall be used in conjunction with the standard Fixed, Auto/Rotary or FOFO alternation schemes and shall provide a variable (rather than fixed) point at which pump operation begins.

The Controller shall provide utility input circuits at job connection terminals for external advance of the pump operating sequence, for inhibiting automatic pump operation and for acknowledging the audible alarm driving circuitry.

It is the specific intention of this specification that the control system offer simplicity and reliability without the need of specialized tools or programming knowledge. Systems utilizing controllers that do not allow viewing of all specified operational parameters or generic programmable logic controllers with custom software are specifically precluded by this specification and will not be acceptable.

The Controller shall be a USFilter Control Systems Model D153U Triplex Pump Controller.



D154 Features In Brief

- *Independent setpoint operation*
  - *Active on rise*
  - *Active on fall*
- *Four control points*

The D154 controller is simple, reliable and functional. The controller's basic function is to monitor a 1-5 volt DC or 4-20 mADC level-proportional signal, as provided by an external sensor, and compare this value to four full-range, differential setpoints and provide output for activation of interposing 12 VDC relays that can be used to activate pumps, valves or alarms.

Each differential setpoint can be configured for active on fall (pump up/low level) or active on rise (pump down/high level) mode operation. Outputs used for high or low level alarm can be input to the controller alarm circuitry for activation of alarm horn output that can be acknowledged with the front-panel-mounted audible silence pushbutton.

The arrangement of the level display and setpoint adjustment pins allows easy setting and viewing of all control adjustments. The simple-to-use interface allows the operator to easily change operating sequences and test setpoint adjustment via an integral simulation switch.

The operator-friendly D154 controller makes it a great choice for applications that require up to 4 points of control from one analog variable, as is often required in a typical small water distribution system.

An example application is a small water system or a remote water distribution zone that controls the level of a reservoir via a water source (well pump(s) or valve) that is called into service to fill the reservoir. The controller would also provide high and low level alarm outputs for activation of an alarm horn/system and a fourth output that would be used to provide cutout/restore functions to a booster or high service pump system that is drawing water from the reservoir.

The D154 controller accepts unpowered input contacts to inhibit automatic pump control from remote devices that detect and produce outputs representing power failure, low level/suction pressure and high pressure lockouts, to name a few.

A 10.5-15 VDC off-board power supply powers the D154 controller. All wiring terminations are located on the back of the controller. Terminal blocks are compression-type, capable of securing two or fewer 12 AWG wires. The controller is suitable for use in panels that require UL 508 or 913 industrial control panel label.

Consult factory for suggested specifications.

D154 Product Specifications:

Power Supply Input: 10.5-15 VDC @ 400 mA

Power Supply Output: 13.8 VDC @ 300 mA

Analog Input: 4-20 mA (250 ohm load), 1-5 VDC (0.5-6 VDC)

Calibration Adj: 15-100% of analog input range for full scale display; 0-85% of analog suppression/offset

Quelling: 0-90 second full range input excursion

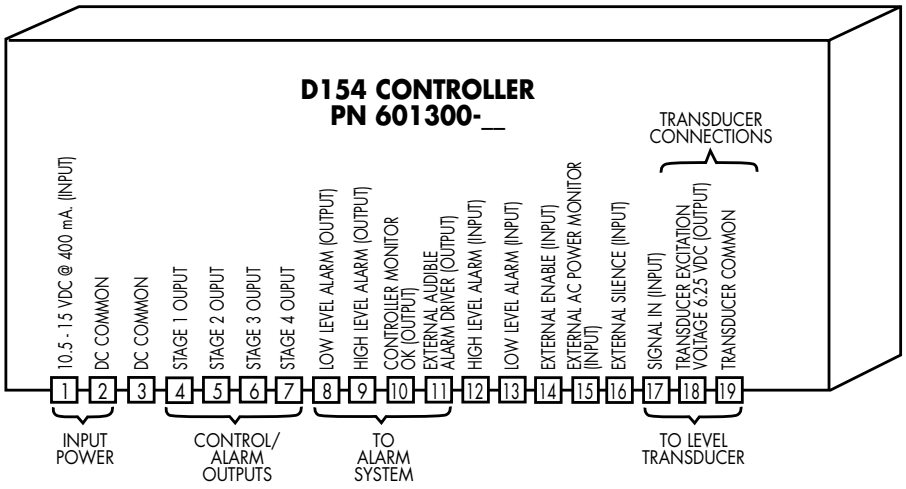
Control Inputs: Active low w/Passive Pull-up (Return to input common)

Outputs: Open collector 30 VDC @ 250 mA

Dimensions: 8 1/2'' high x 7 1/2'' wide x 3'' deep

Environmental: Operating temperature 0 to 165° F

Humidity: 10-95% non-condensing



D158 Features In Brief

- *Independent setpoint operation*
  - *Active on rise*
  - *Active on fall*
- *Eight control points*
- *High and Low Level Alarm Indicators*
- *External AC power and enable status indicators*

D158 Product Specifications:

Power Supply Input: 10.5-15 VDC @ 400 mA

Power Supply Output: 13.8 VDC @ 300 mA

Analog Input: 4-20 mA (250 ohm load), 1-5 VDC (0.5-6 VDC)

Calibration Adj: 15-100% of analog input range for full scale display; 0-85% of analog suppression/offset

Quelling: 0-90 second full range input excursion

Control Inputs: Active low w/Passive Pull-up (Return to input common)

Outputs: Open collector 30 VDC @ 250 mA

Dimensions: 8 1/2" high x 12" wide x 3" deep

Environmental: Operating temperature 0 to 165° F

Humidity: 10-95% non-condensing

The D158 expands the possibilities without compromising simplicity. The controller's basic function is to monitor a 1-5 volt DC or 4-20 mADC level-proportional signal, as provided by an external sensor, and compare this value to eight full-range, differential setpoints and provide output for activation of interposing 12 VDC relays that can be used to activate pumps, valves or alarms.

Like the D154, each differential setpoint can be configured for active on fall (pump up/low level) or active on rise (pump down/ high level) mode operation. Outputs used for level alarm can be input to the controller alarm circuitry for activation of low alarm horn output acknowledged from the front-panel-mounted audible silence pushbutton. Complementing the alarm circuitry logic are front-panel-mounted LED indicators for High and Low Level Alarm.

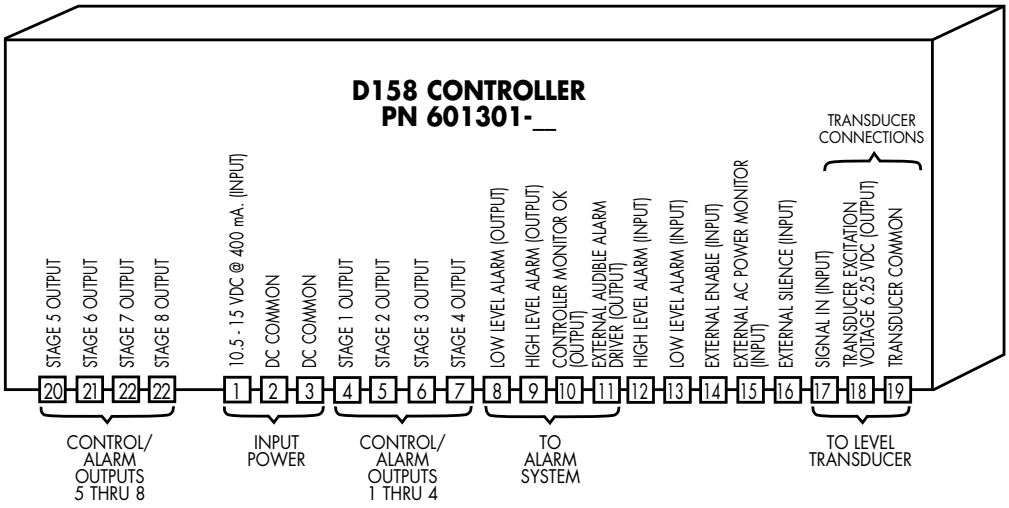
The arrangement of the level display and setpoint adjustment pins allows easy setting and viewing of all control adjustments. The simple-to-use interface allows the operator to easily change operating sequences and test setpoint adjustment via the integral simulation switch.

The expanded functionality of the D158 controller makes it a great choice for applications that require up to 8 points of control from one analog variable.

An AC power sense input is provided with a front-panel-indicating LED that can work with an optional external power-monitoring device. The activation of this input will illuminate the light and disable the controlled equipment. When AC power is restored, the controller goes through a power up routine and reenables the controlled equipment in a predetermined adjustable time step-sequencing manner to eliminate simultaneous starting of equipment.

The D158 controller has an enable input that permits remote inhibit/ deactivation of the control outputs. A dedicated, built-in LED indicator is provided to indicate the status of the enable input.

A 10.5-15 VDC off-board power supply powers the D158 controller. All wiring terminations are located on the back of the controller. Terminal blocks are compression-type, capable of securing two or fewer 12 AWG wires. The controller is suitable for use in panels that require a UL 508 or 913 industrial control panel label.



To assist you in locating the controller best suited for your application, use the following table.

Controller Model	Max # of Pumps	Pump Down	Pump Up	Built-In Alternator	Separate High & Low Level Alarm Outputs	Common Water & Wastewater Applications
D152	2	Yes	No	Yes	No (Common only)	Lift or transfer pump stations
D153	2-3	Yes	No	Yes–2 pumps	Yes–2 pump mode	Lift or transfer pump stations
D153U	3	Yes	Yes	Yes	Yes	Lift or transfer pump stations Booster pump stations Well field or raw water pump stations
D154	2-4	Yes	Yes	No*	Yes – when 2 or fewer pumps controlled	Booster pump stations & small water dist. systems Well field or raw water pump stations
D158	6-8	Yes	Yes	No*	Yes – when 6 or fewer pumps controlled	Large booster pump stations Large well field or raw water pump stations Small water distribution system

** If alternation is required, the D154 or D158 controller can utilize USFilter Control Systems alternators Model CB2D, CB23, CB234, and CB345 for alternation of up to 5 pumps.*

DESCRIPTION	PART NUMBER
D152 level display/setpoint control/alternator; 2 pumps, 0-10' display, pump down	601273-21
D152 level display/setpoint control/alternator; 2 pumps, 0-20' display, pump down	601273-22
D152 (10') in NEMA 1 enclosure w/A1000 GSCL transducer (20' cable)	601419-01
D152 (10') in NEMA 1 enclosure w/A1000 GSCL transducer (20' cable) and ISI-3	601419-03
D152 (20') in NEMA 1 enclosure w/A1000 GSCL transducer (30' cable)	601419-09
D152 (10') in NEMA 4X fiberglass encl w/window, A1000 GSCL (20' cable)	601419-25
D152 (20') in NEMA 4X fiberglass encl w/window, A1000 GSCL (30' cable)	601419-33
D152 (10') in NEMA 4X w/window, 2 H-O-A, A1000 GSCL (20' cable)	601419-24
D153 level display/setpoint control/alternator; 2 pumps, 0-10' display, pump down	601304-11
D153 level display/setpoint control/alternator; 2 pumps, 0-20' display, pump down	601304-12
D153U display/setpoint control/alt; 2/3 pumps, 0-10' display, pump up/down	601394-10
D153U display/setpoint control/alt; 2/3 pumps, 0-20' display, pump up/down	601394-20
D153U display/setpoint control/alt; 2/3 pumps, 0-40' display, pump up/down	601394-40
D153U (10') in NEMA 1 enclosure, A1000 GSCL transducer (20' cable)	601421-01
D153U (20') in NEMA 1 enclosure, A1000 GSCL transducer (30' cable)	601421-09
D153U (10') in NEMA 4X fiberglass encl w/window, A1000 GSCL (20' cable)	601419-17
D153U (20') in NEMA 4X fiberglass encl w/window, A1000 GSCL (30' cable)	601419-25
D15x controller programming pins (quantity twelve (12))	801789-01
D154 level display/setpoint controller; 0-10' display	601300-11
D154 level display/setpoint controller; 0-20' display	601300-12
D154 level display/setpoint controller; 0-40' display	601300-14
D158 level display/setpoint controller; 0-10' display	601301-11
D158 level display/setpoint controller; 0-20' display	601301-12
D158 level display/setpoint controller; 0-40' display	601301-14

COMPLETE CONTROL CAPABILITIES

USFilter Control Systems offers a single, high-quality source for everything from simple level sensors to telemetry systems to complex system control engineering and software. Based in St. Paul, MN, USFilter Control Systems is part of United States Filter Corporation, the leading global provider of industrial, municipal and residential water and wastewater treatment systems, products and services.

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- I/O boards, modems and power supplies
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- Controllers and controller/alternators
- Tank pump control systems
- Pressure/level controllers
- Pump flow and performance monitoring
- Flow switches and float switches
- Intrinsic safety barriers
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- Pressure transducers

To find out more about how to put USFilter to work for you, contact us at

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CS-VG-BR-0101