

APPLICATION NOTES

Series 20 Heavy-Duty Level Switches

INSTALLATION & MOUNTING

Series 20 switches share a common part set and assembly style. Complementary snap-and-screw ERECTA SWITCH® components make length, switch position, mounting, and electrical interface a matter of choice. Disciplined assemblies and precision parts make field repairs practical.

Mounting Methods

20s are available as standard devices with a variety of ways to attach the device to a tank structure. Threads, flanges, and jam nut hardware provide a stock selection of adaptation choices.

- **1 NPT thread mount** — direct into drilled-and-tapped bulkhead
- **Flange mount** — 20-700-FS flange nut with O-ring seal
- **Jam nut** — for thin-wall or non-threaded mounting surfaces
- **Extended stem assemblies** — cut-to-length at assembly for multi-station or deep-tank service

Nothing Special

20s consider virtually any switch position or stem length as being standard.

That's because we don't use a threaded attachment to connect an extended stem/float assembly to the housing. Instead, we use an assembly with an O-ring.

This permits the customer to cut the stem to the length required, at the assembly site.

2-Station Assembly — Exploded



20-202-EX — control head, stem, dual floats, O-ring seal

Spare Parts Are Meaningful

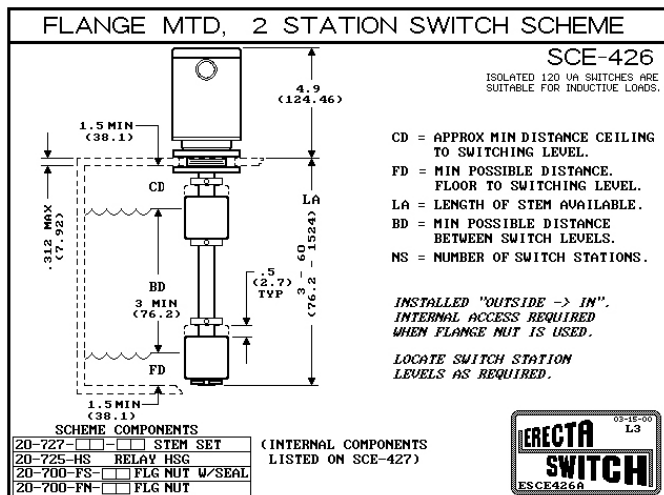
No other product of the 20s class is designed with field assembly, disassembly, or repair in mind. Custom 20s can be assembled in five or ten minutes. Part replacement repairs are equally fast.

PUMP CONTROL SCHEMES

2-Station Pump Control

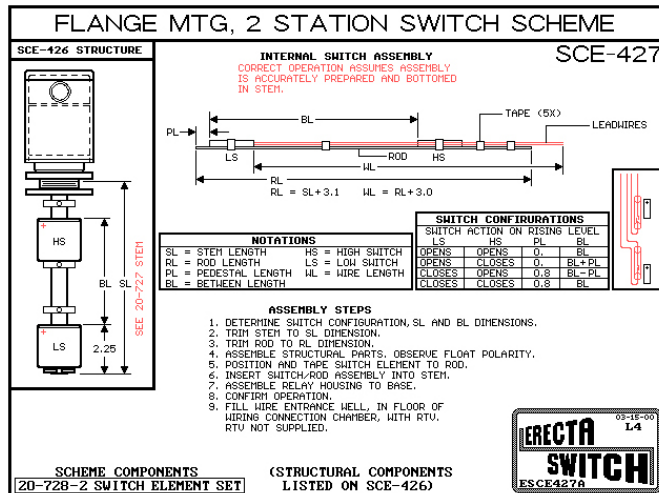
The most common Series 20 application is wide-differential pump control. A 2-station assembly places two switch elements at fixed vertical separation on a shared stem. The upper element starts the pump; the lower element stops it. The 20-725 Control Head latches the pump ON between events, eliminating short-cycling.

Typical service: sump pumps, chemical batching, tank transfer, cooling tower makeup, bilge pumping.



SCE-426 — Flange-mounted 2-station switch scheme (dimensions)

Internal Switch Assembly



SCE-427 — 2-station internal assembly + switch action logic

Assembly Steps (Summary)

1. Determine switch configuration, SL and BL dimensions.
2. Trim stem to SL dimension.
3. Trim rod to RL dimension.
4. Assemble structural parts. Observe float polarity.
5. Position and tape switch element to rod.
6. Insert switch/rod assembly into stem.
7. Assemble relay housing to base.
8. Confirm operation.
9. Fill wire entrance well with RTV (not supplied).

Series 20 configurations are documented in the ERECTA SWITCH scheme library (SCE-400 series). Each scheme specifies dimensions, internal assembly, bill of materials, and switch action logic for a particular mounting and station-count combination. Representative schemes are shown in this document. The complete scheme library is available from Compac Engineering upon request.

FLANGE MTD, ONE STATION SWITCH SCHEME

The diagram illustrates the vertical assembly of the SCE-425 switch. At the top is a rectangular control head with a circular indicator. Below it is a mounting bracket. The distance from the ceiling to the top of the bracket is labeled 'CD' (Control Distance) with a dimension of 1.5 MIN (38.1). The distance from the floor to the bottom of the bracket is labeled 'FD' (Floor Distance) with a dimension of 1.5 MIN (38.1). The total height of the assembly is labeled 'LA' (Length of Stem Available) with a dimension of 4.9 (124.46). The distance from the ceiling to the bottom of the bracket is labeled '31.2 MAX (7.92)'. The distance from the floor to the top of the bracket is labeled '3 - 60 (76.2 - 1524)'. The distance from the floor to the bottom of the bracket is labeled '1.5 MIN (38.1)'. The distance from the floor to the top of the bracket is labeled '1.5 MIN (38.1)'. The distance from the floor to the bottom of the bracket is labeled '1.5 MIN (38.1)'.

SCE-425

20 AMP RELAY IN CONTROL HEAD RATED FOR MOTOR CONTROL.

CD = APPROX MIN DISTANCE CEILING TO SWITCHING LEVEL.

FD = MIN POSSIBLE DISTANCE FLOOR TO SWITCHING LEVEL.

LA = LENGTH OF STEM AVAILABLE.

INSTALLED "OUTSIDE -> IN". INTERNAL ACCESS REQUIRED WHEN FLANGE NUT IS USED. LOCATE SWITCH STATION LEVEL AS REQUIRED.

SCHEME COMPONENTS

20-726		STEM SET
20-725		CONTROL HEAD
20-700-PS		FLG NUT W/SEAL
20-700-FN		FLG NUT

(INTERNAL COMPONENTS LISTED ON SCE-431)

06-05-01
L3

- **SCE-425 / SCE-433:** 1-station flange-mounted
- **SCE-426 / SCE-427:** 2-station flange-mounted
- Additional schemes for jam nut, bulkhead, and extended-stem configurations
- Custom schemes on request with engineering consultation

- 1. High-HP pump control.** 20-202 with 20-725 control head switches 1-1/2 HP pump motors directly at 240 VAC without intermediate contactor.
- 2. Electroplating rinse tank.** 20-611-KR maintains rinse level with resistance to acid fumes and chemistry that would degrade PP.
- 3. Semiconductor process water.** 20-202-KR provides wide-differential high/low control without particle shedding into the process stream.
- 4. Diesel day tank.** 20-611-AC handles fuel contact and provides direct solenoid control of fill valve without pilot relay.
- 5. Batching tank.** 20-202-PP start-high/stop-low with 20-725 Control Head provides full cycle control without PLC or timer.
- 6. Cooling tower makeup.** 20-611-PP direct-pilots solenoid valve on makeup water line.
- 7. Sump pumping.** 2-station assembly with 20-725 Control Head latches sump pump between fill events.

The complete scheme library (400-series drawings) is available at no charge from Compac Engineering.

Contact **sales@compac.com** with your application: mounting type, station count, stem length, switch action desired.

Custom schemes are generated within 48 hours for standard configuration combinations.