

SILVERLINE
OVERLOAD LIMITER
FOR OVERLOAD SAFETY OF CRANE



Silverline

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The **SILVERLINE** Crane Overload Limiter is designed for easy installation without disturbing the present crane settings, particularly overhead traversing cranes, container handling equipment and haulages where operators may not know when they have an overload condition.

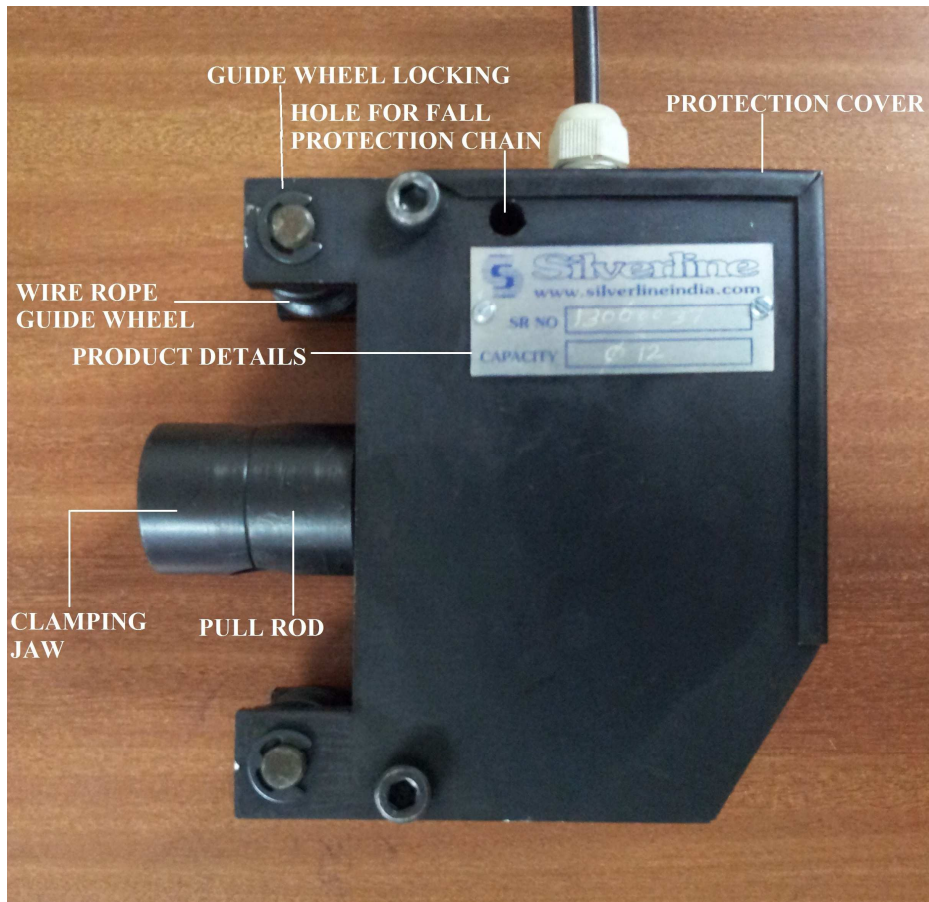
RANGE OF APPLICATION : The **SILVERLINE OVERLOAD LIMITER** is intended for use as an overload guard or as a slack line switch in lifting equipment this function is very vital in Cage lifts where incidences of lift getting stuck in rails due to cross movement of cage. Limiters are available for forces up to 16000 kg in single rope and for max 36 mm rope diameter.

FUNCTION : The **SILVERLINE LOAD LIMITERS** is attached to a stationary Rope line. The rope is deflected through a slight angle between the two wheels and the clamping jaw in the center. When loaded, the rope tends to straighten. This applies a force to the clamping jaw and so directly develops the pull to center pull rod. When the set switch value is reached, the pull rod operates a micro switch and a close/open circuit is made. The spring element of the load cell is preloaded; reducing pull rod movement to the last 25% of full load. For the best possible accuracy the **SILVERLINE LOAD LIMITER** is equipped with case-hardened wheels with carefully designed rope grooves. To ensure correct fitting on the rope diameter, the wheels and the clamping jaws are provided with line tracks at intervals of 4 mm. The wheels should not be regarded as wheels but rather as moving support points, as the peripheral movement on the wheels at full line load is only about 0.6 mm (incl. the extension of the rope).

PROTECTION AGAINST CORROSION : The **SILVERLINE LOAD LIMITER** is fully dust proof. Each instrument is tested for proof load. The **SILVERLINE LIMITER** fully conforms to the international protection specification class IP 52. Externally it is zinc coated and yellow chromated. The wheels are free to rotate on hardened pins. If the **SILVERLINE LOAD LIMITER** is to be used in a very corrosive environment; we recommend polyurethane lacquering for protection.

SAFETY : The overload limiter is not directly included in the rope system and does not affect the construction of the lifting equipment. The limiter can be provided with additional locking device to prevent unauthorized interference with the switch setting. In case of the changes that normally take place on the rope diameter, the **SILVERLINE LIMITER** maintains its set switch value even after fitting to a new rope. As the **SILVERLINE LIMITER** is fully covered, it is well protected against dust, dirt, damp, frost and other atmospheric conditions. The power-absorbing element consists of specially made Belleville washers dimensioned to resist fatigue. The spring washers cannot be overloaded. The **SILVERLINE LIMITER** can be overloaded by 100% without affecting the repeatability.

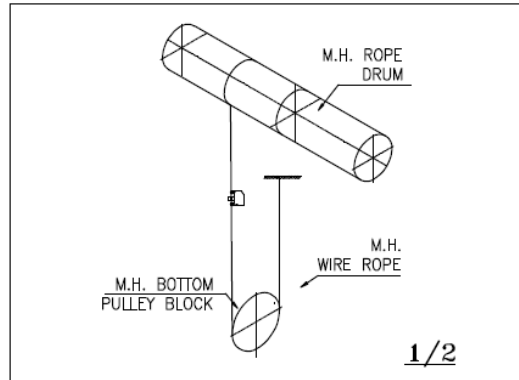
CONTACT FUNCTION : The micro switch has alternative contact functions(The limit switch used is of finest quality. Omron make Japan) When the **SILVERLINE LIMITER** is used as an overload guard, the normally closed function should always be used. The micro switch has self-cleaning, silverplated contacts, suitable also for operation on low current/voltage (under 10 V and/or 60 mA).The difference between contact at rising and falling load is 5-8%. This hysteresis is somewhat reduced at lower loads and increases slightly at higher load values. To avoid"chatter" of the contacts and contactors if the load should start to sway, a time relay can be connected to prolong the reconnection of the hoisting movement.



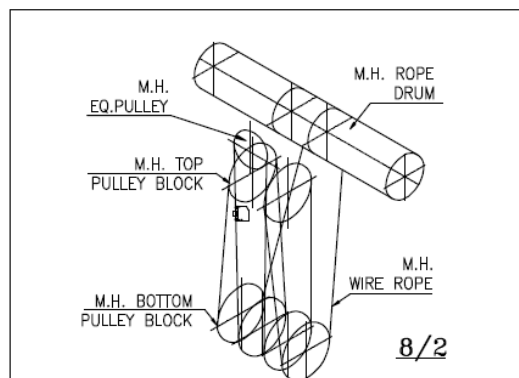
INSTALLATION : Install the **SILVERLINE LIMITER** directly to the static ropeline part close to the anchor point or close to a compensating pulley. The line need not be unloaded. Lift the known load at which you want to cut off the crane and Set the switch value with the spanner/Allen key provided for this purpose. (The **SILVERLINE LIMITER** can be delivered with the switch value set at our Works to trip at the value you require.) Check the switch value with a buzzer or multi meter or similar device. Connect the **SILVERLINE LIMITER** electrically, e.g.to the control circuit of the hoisting movement or the top limit switch. Test-load for control and possible re adjustment. Seal the set value with the locking clamp and close the cover.

This unit has been supplied with a wire rope for preventing accidental fall of equipment Same may be attached/ hooked up to any convenient position on the main hoist

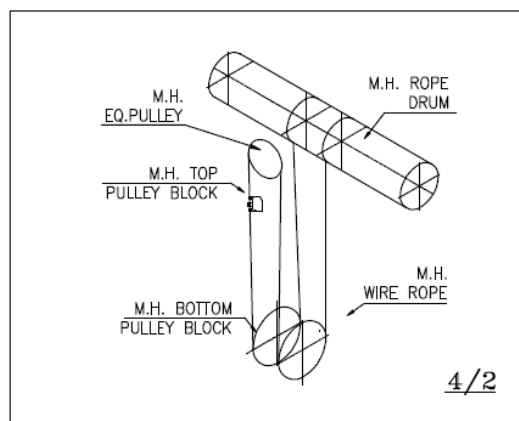
REEVING DIAGRAM AND MOUNTING POSITION FOR LOAD LIMITER



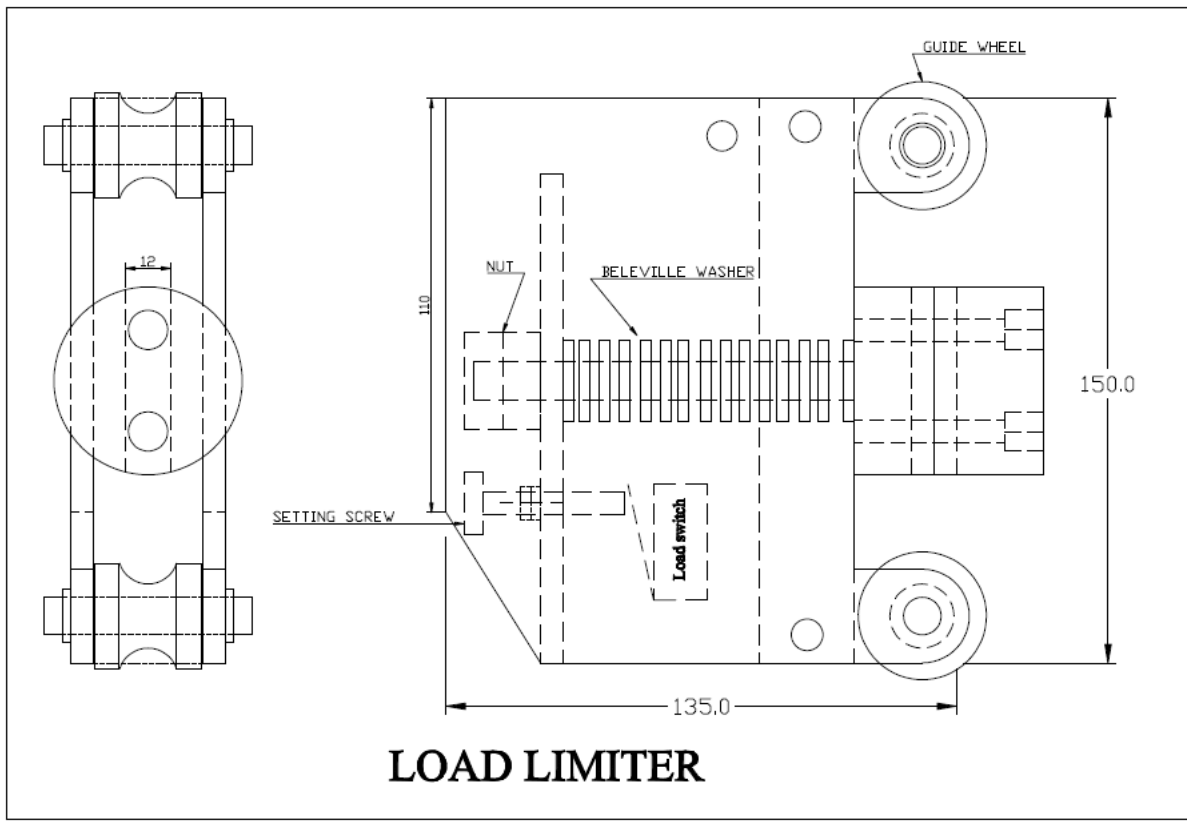
M.H. ROPE REEVING DIAGRAM
2 FALL



M.H. ROPE REEVING DIAGRAM
8 FALL



M.H. ROPE REEVING DIAGRAM
4 FALL



TECHNICAL DATA : MEASUREMENTS See drawing and table.

REPEATABILITY ± 1.5 % of the max. capacity.

MAX CONTACT LOAD 250 V AC, 500 VA, 3 A.

THE MECHANICAL LIFE LENGTH OF THE MICROSWITCH 2 mill. cycles.

WORKING TEMPERATURES Continuous operation up to $+140^{\circ}\text{F}$ ($+60^{\circ}\text{C}$). Specially designed LKVs can be supplied for up to $+400^{\circ}\text{F}$ ($+200^{\circ}\text{C}$).

CABLE 3 mt weather and oil resistant cable (2 x 1.5 mm²).

WIRING DIAGRAM can be provided on request

RANGE OF APPLICATIONS FOR THE SILVERLINE LOAD LIMITERS

To be able to determine the size of the **SILVERLINE LIMITERS** and its adjustment to the right switch value, it is necessary to know:

- The max. capacity of the crane.
- Number of rope parts and the rope diameter.

Adjustment of the switch value can be made by Gigasense or on location. Instructions and tools are included in the delivery. Some typical examples of the use of the **SILVERLINE LIMITER** are illustrated here. This is a typical installation of the **SILVERLINE LIMITER**.

The **SILVERLINE LIMITER** is installed at the anchor point of the hoist rope in a traversing crane and functions either as an overload guard or as a slack line switch. On tower cranes of different types the **SILVERLINE LIMITER** is installed on the backstay and functions here as a moment switch. Due to the high protection class, the **LIMITER** functions in summer or winter with constant reliability.

INSTRUCTION FOR INSTALLATION:

STEP 1:

Remove clamps A and B and attach to dead end of hoist wire rope. The upper (A) set of clamps will grip rope securely and the lower (B) will allow a sliding fit on the rope.

STEP 2:

LIMITER is factory adjusted to the correct rope tension to trip on overload.

ATTEMPTING TO ADJUST UNIT WITHOUT CONTACTING THE MANUFACTURER WILL VOID WARRANTY.

STEP 3:

IMPORTANT. Check to ensure that there is no interference with the hoist upper limit switch and confirm the upper limit functions properly.

ELECTRICAL HOOK-UP:

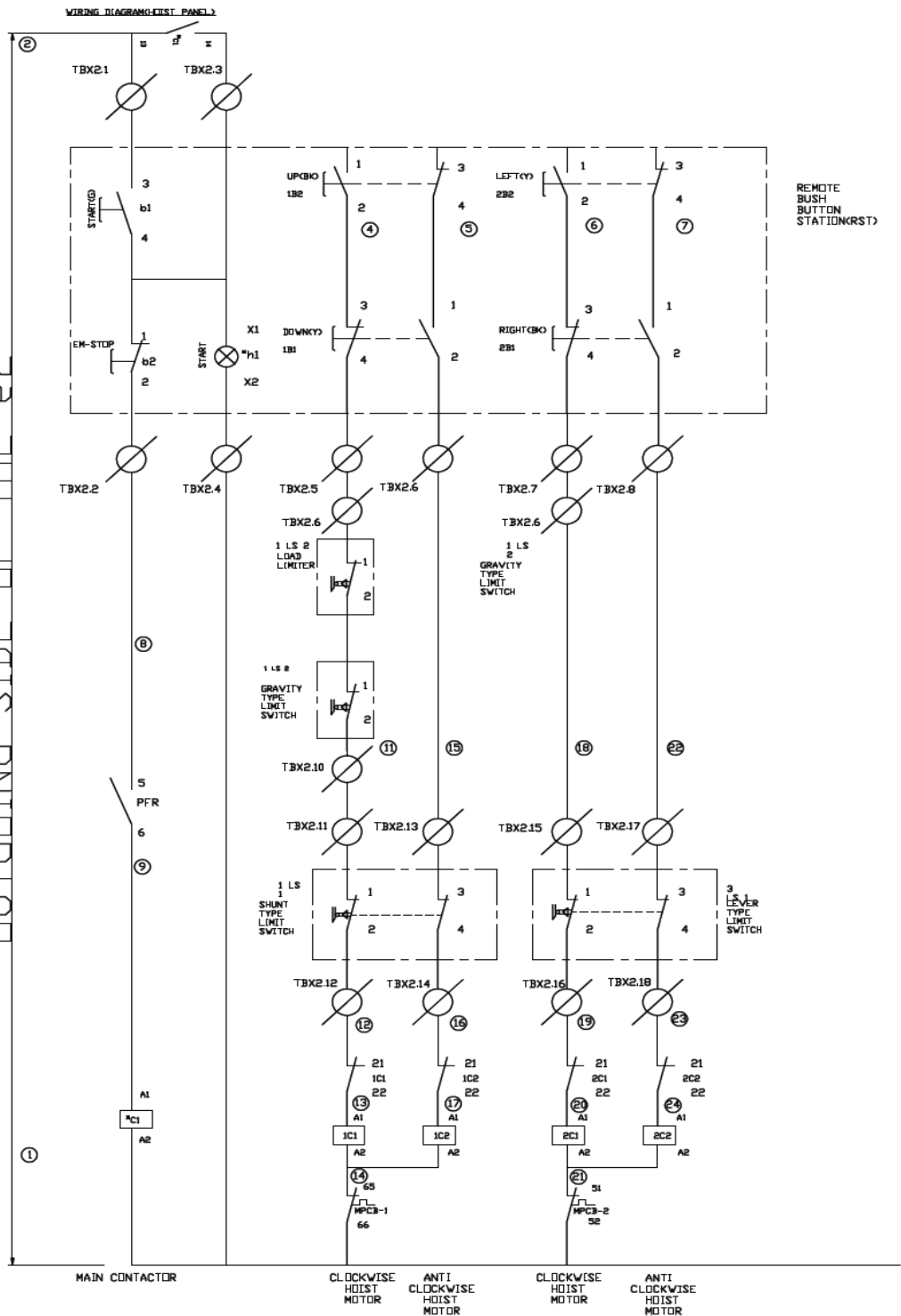
The switch is held closed during normal operation and is released to open contacts when the overload is reached. The normally open contacts of the switch are used and are usually connected in series with the hoist UP contractor coil. Different makes of hoists have variations in the wiring arrangement and the electrical connections must be made by a qualified technician familiar with hoisting equipment. In the case of a 2 speed or variable speed hoist, a relay may be required. If problems develop, consult your supplier for assistance.

DO NOT ADJUST SPRING TENSION BOLT OR SWITCH TRIP SCREW

THE UNIT IS FACTORY CALIBRATED.

110 AC SUPPLY FROM

OUTGOING SIDE OF THE e2



TYPICAL WIRING DIAGRAM FOR MONORAIL HOIST CONTROL

SAILENT FEATURES:

SAFETY.RELIABILITY.ACCURACY

- . Load Limiter for overhead cranes and hoists.**
- . Top Limit switch can be used as service limit switch**
- . Quick and easy installation**
- . Does not require external power**
- . Available for all capacity cranes**
- . Specialized limiters available for heavy duty applications**
- . Can be configured to detect slack rope conditions**
- . Available preset or easily calibrated on site**
- . Automatic reset by reducing the load**
- . Also available with load measuring and display unit as extra feature**
- . Protects against overloading of crane and supporting structure and protects against bottom block over winding and breakage of ropes.**
- . Prevents accidents ensuring safer working conditions and reduces maintenance costs**
- . Available as a combination of above or separately.**
- . Wire rope is provided as an additional safety from preventing fall of load limiter.**
- . Overload limiter can be made available for a unit to be installed on a moving rope on request.**