# M0600 Shutdown Unit

The SELCO M0600 Shutdown Unit provides protection for any type of diesel or gas engines.

The unit has inputs for overspeed, low oil pressure and one more user defined parameter, which could be high water temperature or another user defined parameter.

It also has an input to indicate that the engine is running and one to indicate that the engine is stopping.

The monitoring of low oil pressure is only active when the engine is running with a few seconds delay after detection of the running signal. This time delay can be defined via programming switches.

A normally open (NO) output relay can give a closing signal which can be used to stop the engine via it's stop coil, and a normally closed (NC) relay can open in order to stop the engine via the fuel valve. The length of the relay activation time can be defined via programming switches.

The unit works as a stand-alone protection unit, and is for DIN-rail mounting. Alternatively it can be mounted directly on the back of the SELCO M2000 Engine Controller.

The SELCO M0600 Shutdown Unit provides protection for any type of diesel or gas engines.

The SELCO M2000 Engine Controller is an advanced engine controller with many features.

In some situations an extra back-up protection device is wanted for safety reasons, in addition to the protection provided by the M2000, and in such situations an ideal combination is the M2000 with the M0600 Shutdown Unit mounted on the back.

In normal situations the M2000 will take care of the protection. However, if

for some reason the M2000 fails to shut down the engine the M0600 will take care of the shutdown function.

Two different power supplies can be used for the two units, providing an extra safety function.

The M0600 Shutdown Unit also provides space for containing the SELCO M0700-50 Universal PC Board. The M0700-50 is for use with the SELCO M1000 Alarm Annunciator, the SELCO M2000 Engine Controller and the SELCO M2100 Emergency Controller.

The M0700-50 is a stand-alone as well as an auxiliary printed circuit board for easy soldering of resistors, diodes or other circuitry to be used on both inputs and outputs on the above mentioned units.

The board includes a number of resistors of 3.3 KW, which can be used on the inputs of the M2000 Engine Controller and the M2100 Emergency Controller to form a pre-warning input through a normally closed contact (see separate description of the controllers).

## Input terminals

**Terminal:**

| | | |
|---|---|---|
| 1 | OVS | Overspeed |
| 2 | SPA | Spare |
| 3 | LOP | Low Oil Pressure |
| 4 | RUN | Running (Crank Disconnect) |
| 5 | STP | Stop (Engine Stop) |
| 6 | + 24V | Supply Voltage (+) |
| 7 | - | Supply Voltage (-) |
| 8 | - | Supply Voltage (-) |

# SELCO

## Description

1. **OVS/Overspeed**
   NO contact to minus (delay: 40 msec.).
   If OVS is closed (connected to minus) the stop sequence will be activated.

2. **SPA/Spare**
   NO contact to minus (delay: 100 msec.).
   For programming pin 8 off:
   If SPA is closed and terminal 5 (STP) not closed (by another controller as the SELCO Engine Controller M2000) the stop sequence will be activated.
   For programming pin 8 on:
   If SPA is closed the stop sequence will be activated.

3. **LOP/Low Oil Pressure**
   NO contact to minus (delay: 500 msec). Oil pressure is only monitored after terminal 4 (RUN) has been closed and a time delay T1 has expired.
   T1 is defined by programming pins 1-3. If LOP is closed in such a situation the stop sequence will be activated.

4. **RUN/Running (Crank Disconnect)**
   NO contact to minus. When closed indicates that engine is running. It could be a "crank disconnect" signal at reaching 33 % of nominal speed.

5. **STP/Stop (Engine Stop)**
   NO contact to minus. When closed indicates that engine is stopping. It could be output 27 (Stop Solenoid) from the Engine Controller M2000. This is an input. This is not the shut down output.

## Shutdown relay
**Terminal**
1   NO   Normally open contact
2   COM   Common
3   NC   Normally closed contact

## Stop sequence
The relay will be activated for a period of T2 seconds. T2 is defined by programming pins 5-7. RUN must have been de-activated (indicating machine not running) before a new stop sequence can be activated.

## Programming switches

pin 1
pin 2   Definition of T1 in seconds, time before supervision of LOP (Low Oil Pressure)
pin 3
pin 4   Not defined
pin 5
pin 6   Definition of T2 in seconds, time period for the relay to be activated during stop
pin 7
pin 8   Coding of SPA (Spare)

## Definition of times T1 and T2 in seconds:

| pin 1 | pin 2 | pin 3 | T1 | pin 5 | pin6 | pin7 | T2 |
|-------|-------|-------|----|-------|------|------|-----|
| off | off | off | 0 secs. | off | off | off | 0 secs. |
| on | off | off | 4 secs. | on | off | off | 20 secs. |
| off | on | off | 6 secs. | off | on | off | 35 secs. |
| on | on | off | 8 secs. | on | on | off | 50 secs. |
| off | off | on | 10 secs. | off | off | on | 63 secs. |
| on | off | on | 12 secs. | on | off | on | 75 secs. |
| off | on | on | 13 secs. | off | on | on | 84 secs. |
| on | on | on | 14 secs. | on | on | on | 93 secs. |



Figure 1. The M0600 mounted on the rear side of the M2000 Engine Controller.

# Example of connection to the M2000

| M0600 | M2000 |
|---|---|
| 1 OVS | 10 Overspeed |
| 2 SPA | 14 High Water Temperature |
| 3 LOP | 13 Low Oil Pressure |
| 4 RUN | 9 Crank Disconnect |
| 5 STP | 27 Stop Solenoid |

| Relay: Fuel-valve | COM-NC in series with output 19 |
|---|---|
| Stop Coil | COM-NO in parallel with output 27 |
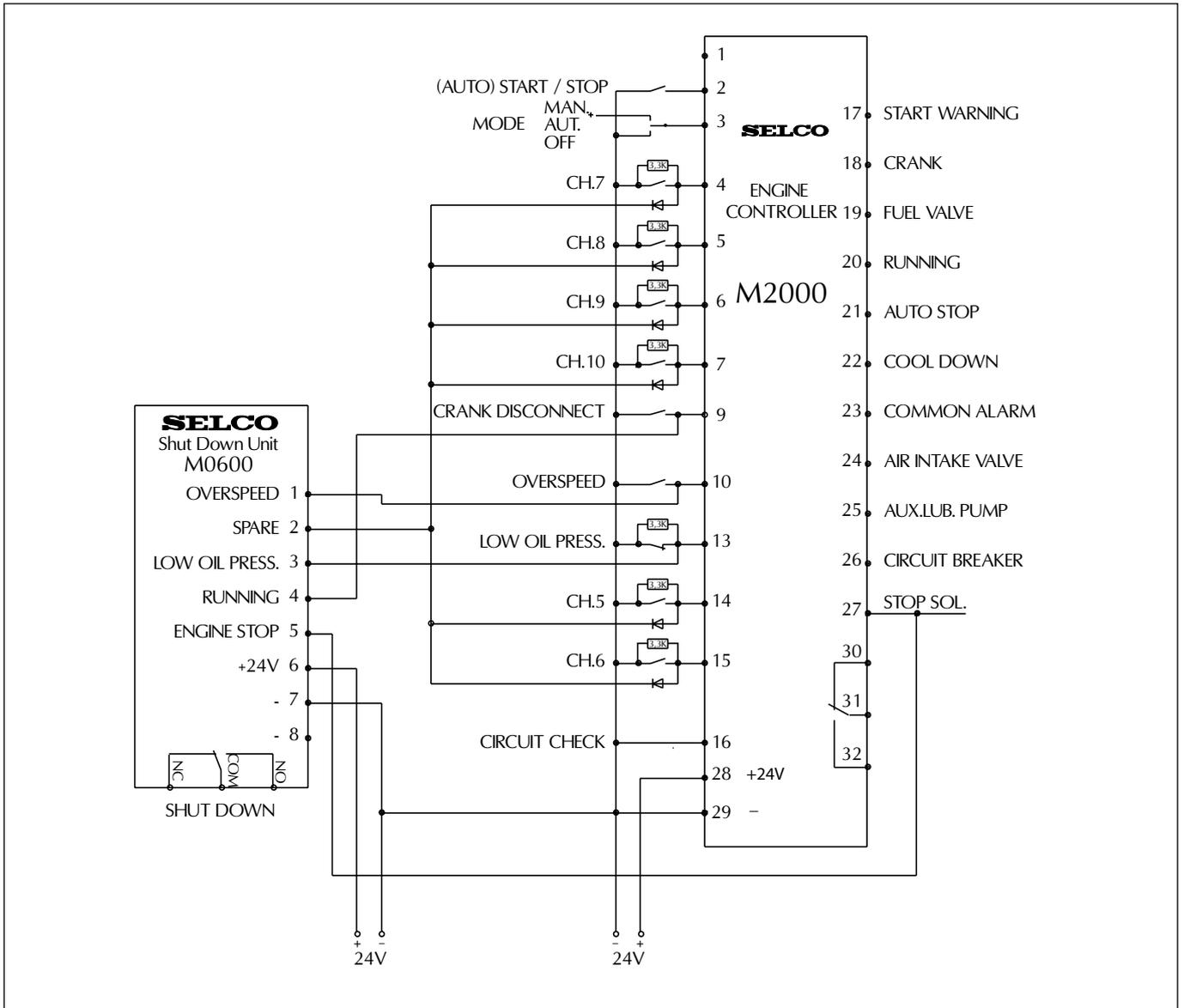


Figure 2.

**SELCO**

# Specifications
## M0600 Shutdown Unit

### SELCO Worldwide

| | |
|---|---|
| Argentina | Korea |
| Australia | Malaysia |
| Austria | Mexico |
| Brazil | Netherlands |
| Belgium | New Zealand |
| Bulgaria | Norway |
| Chile | Pakistan |
| China | Philippines |
| Croatia | Poland |
| Czech Republic | Portugal |
| Egypt | Romania |
| Finland | Russia |
| France | Singapore |
| Germany | South Africa |
| Greece | Spain |
| Hong Kong | Sweden |
| Iceland | Taiwan |
| India | Thailand |
| Indonesia | Turkey |
| Iran | Ukraine |
| Italy | United Kingdom |
| Japan | U.S.A. |

### Type selection

| | | |
|---|---|---|
| M0600.0010 | Delay for SPA: 100 msec. | Delay for LOP: 500 msec. |
| M0600.0020 | Delay for SPA: 1.5 sec. | Delay for LOP: 1.5 sec. |
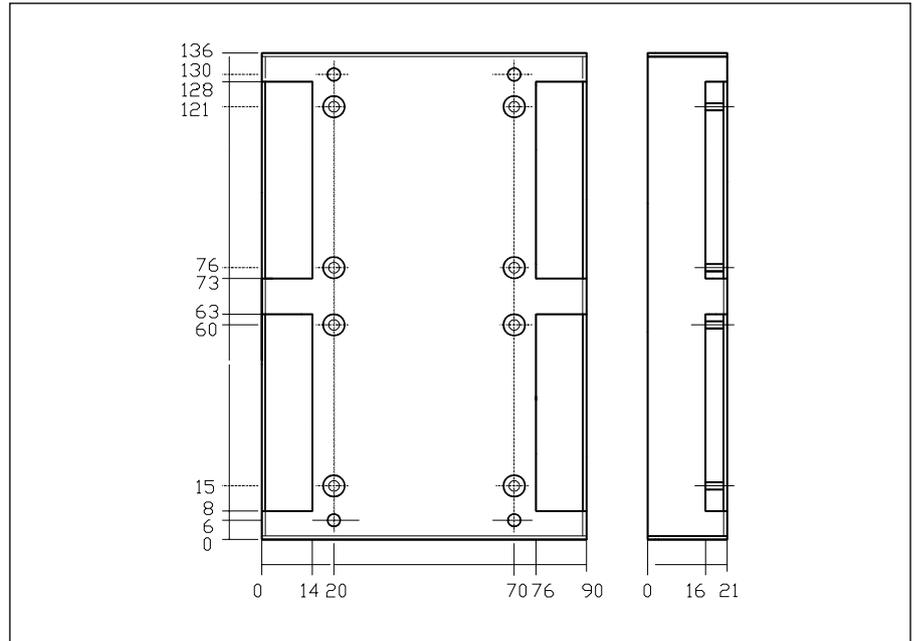


Figure 3. Dimensions.

Main office:
SELCO A/S
Betonvej 10
DK-4000 Roskilde
Denmark
Phone:   + 45 7026 1122
Fax:       + 45 7026 2522
e-mail:   selco.dk@selco.com
www.selco.com