

Process Alarm Solutions

Reliable Supervision and Control



SELCO Flexible alarm panels for supervision and control



With more than 60000 panels installed, the M1000 alarm monitor is a very popular panel. Thus over ½ mio. critical alarm points are covered by SELCO.

The unit is installed in marine vessels world-wide, offshore and other applications from chemical or power plants to supermarkets.

SELCO provides efficient and reliable solutions for alarm monitoring of electrical installations where it is vital for the process control.

The SELCO product range includes advanced alarm monitors as well as simple indicator panels. All are very flexible units for use in numerous process applications, for instance suited for monitoring of critical processes in marine and off-shore, as well as in on-site power and process industries.

The SELCO alarm and indicator panels are widely used for both local or remote indication of alarms and contact signals. All units provide a modular approach for building large scale alarm systems as well as a simple single solution.

Whether for new installations or for retrofit projects SELCO alarm panels are used all over the world.

General Features

- Compact modules
- Flexible solutions for continuous monitoring of industrial processes
- Several units can be interconnected forming large scale alarm systems
- The alarm monitors can be configured manually or via a PC
- Certified with regards to vibration levels, heat, cold, humidity, salt, mist etc.
- Approved and certified by all major marine classification societies
- Wellproven high and lasting quality

Benefits

- Modular and flexible
- Easy adaptable text for each alarm
- Fronts are easy to keep clean
- Designed and tested for use in harsh environments
- Long term durability
- Assistance and service provided world-wide

Select SELCO

For individual product data sheets please see www.selco.com

The alarm panels are used for a number of different applications e.g. as shown below: power plants, offshore, marine generators.



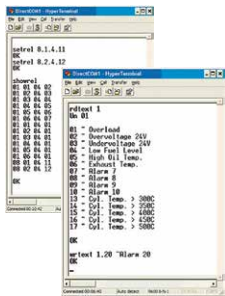


M1000 Alarm Monitor



The M1000 Alarm Monitor is a highly flexible unit.

- Digital
- 10 alarm inputs
- 10 outputs
- Siren output
- Delays & reset



M1000 is an alarm panel with 10 digital inputs. An input from a dry contact (normally open NO or normally closed NC) will cause a corresponding LED to flash. Simultaneously a common alarm output and a siren output will be activated as well as an individual output.

The M1000 offers many strong features. The unit has separate indications of first alarm, following alarms and acknowledged alarms. It also has dedicated inputs for remote reset and blocking. The latter being convenient during start-up of a process or in service situations.

The unit can furthermore be configured for cable monitoring and monitoring of its own supply and insulation level.

Scalable System

Multiple M1000 units can be interconnected to form a large scale alarm system. In this situation functions are available for synchronizing the flashing of the LEDs and enabling global indication of first alarm for all connected units.

Alarm related parameters like time delays, reset functions and other features can be configured through 18 programming switches.

Configuration by PC

The M1000 can also be configured via the RS232 interface. A standard ANSI/VT100 terminal is used

as programming tool (e.g. Windows *HyperTerminal*). PC configuration via the RS232 interface greatly expands the configuration options. It provides individually adjustable delays for each alarm, extra reset functions, and many other features not available through the programming switches. A detailed description of how to configure the M1000 by PC can be downloaded from the SELCO website at www.selco.com.

MODBUS-RTU Protocol

The M1000 is equipped with a 2-wire RS485 interface supporting MODBUS-RTU communication. A MODBUS master e.g. PC or PLC can write and read information to and from any M1000 unit connected to the bus.

Resetting the siren and common alarm relays and all LEDs is also possible from the MODBUS. A LED test can be performed, the LEDs can be dimmed from 0 to 100 %. The master can also individually block and unblock each channel, as well as resetting channels individually.

It is also possible to set a "virtual input" on the M1000 via the RS485 interface providing the exact same function as a corresponding physical input. This enables the MODBUS master to repeat one or more alarm outputs from one M1000 to an input on another M1000.

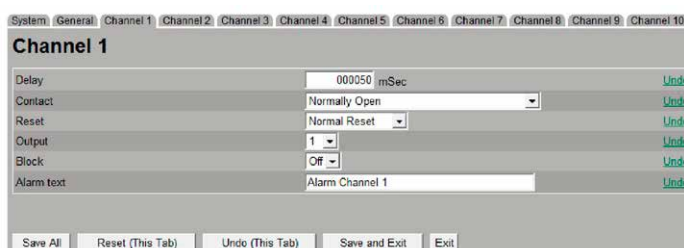
M1000 Plus Alarm Monitor

The M1000 Plus version offers all the features available in the standard M1000 version and is fully compatible. Additionally the M1000 Plus version includes Ethernet (Modbus TCP) communication, an embedded web server and built-in alarm log. Connection to the PC is done through a USB interface.

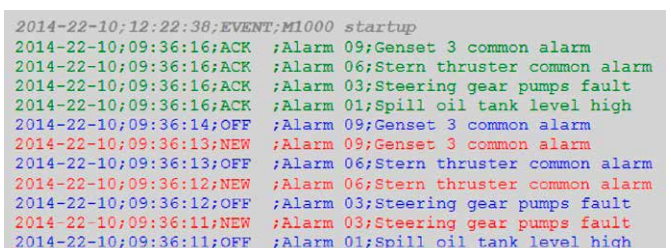
The configuration is easily done with the preload configuration program. Simply connect the unit

to the PC via the USB interface, make the required modifications in the configuration, save, unplug and ready. No further installation of configuration or log software on the PC is necessary.

The M1000 Plus is very suitable for local alarm monitoring with easy integration into larger HMI and SCADA based systems.



Easy to configure



Built-in alarm log

M3000 Analogue Alarm Monitor



The M3000 Analogue Alarm Monitor can monitor both potential dry contacts and analogue levels such as current, temperature or pressure (through transmitters such as the SELCO M1500).

- Analogue or digital
- 48 alarms
- 24 alarm inputs
- 14 outputs

M3000 is a versatile alarm panel with 24 inputs. The inputs can be configured individually for dry contact (NO or NC) inputs or analogue inputs. Analogue inputs can read measurements from i.e. temperature sensors TC or PT100, pressure sensors, flow sensors, etc., through 4-20 mA or 0-10 V DC transmitters. Up to 48 alarms can be configured with individual reference to any of the 24 inputs.

An alarm is activated when the input value exceeds a preset critical low or high level and is indicated on the display.

The alarm can be related to any of the 24 LEDs on the front panel and any of the 14 outputs. Several alarms may activate the same LED and/or output. The M3000 also has a common alarm output, a siren output, as well as dedicated inputs for remote reset and blocking.

The unit configuration is done via the front panel or from a PC through the built-in RS232 interface. The M3000 is also equipped with an RS485 interface supporting MODBUS-RTU.

User friendly PC Configuration

A user friendly configuration software is delivered with the M3000. It features a "spreadsheet-like" graphical interface enabling easy and flexible configuration of all the parameters in the unit. It is also possible to import/export all parameters into Excel.

Merlux order 30541 panel1 m3g - Selco M3092 Programmer

Alarms	InputRef	DynRef	Opz	SetPoint	LCD Text	Delay (s)	LED	Output	Flags	InputType	LCDU	InputLo	LCDLo	InputUp	LCDUp	Misc.
1 (A11)	IN 11	OFF	>	500	EXH.CYL1	2	1	1	---	20 mA	C	4	0	20	600	0
2 (A12)	IN 11	LOG1	±	70	DEV.CYL1	2	1	1	---	20 mA	C	4	0	20	600	0
3 (A13)	IN 12	OFF	>	500	EXH.CYL2	2	2	1	---	20 mA	C	4	0	20	600	0
4 (A14)	IN 12	LOG1	±	70	DEV.CYL2	2	2	1	---	20 mA	C	4	0	20	600	0
5 (A15)	IN 13	OFF	>	500	EXH.CYL3	2	3	1	---	20 mA	C	4	0	20	600	0
6 (A16)	IN 13	LOG1	±	70	DEV.CYL3	2	3	1	---	20 mA	C	4	0	20	600	0
7 (A21)	IN 21	OFF	>	500	EXH.CYL4	2	4	1	---	20 mA	C	4	0	20	600	0
8 (A22)	IN 21	LOG1	±	70	DEV.CYL4	2	4	1	---	20 mA	C	4	0	20	600	0
9 (A23)	IN 22	OFF	>	500	EXH.CYL5	2	5	1	---	20 mA	C	4	0	20	600	0
10 (A24)	IN 22	LOG1	±	70	DEV.CYL5	2	5	1	---	20 mA	C	4	0	20	600	0
11 (A25)	IN 23	OFF	>	500	EXH.CYL6	2	6	1	---	20 mA	C	4	0	20	600	0
12 (A26)	IN 23	LOG1	±	70	DEV.CYL6	2	6	1	---	20 mA	C	4	0	20	600	0
13 (A31)	IN 31	OFF	>	500	EXH.A.TC	2	7	1	---	20 mA	C	4	0	20	600	0
14 (A32)	IN 32	OFF	>	0.5	TACH/POW	2	8	1	---	24 V		0	0	24	1	0
15 (A33)	IN 33	OFF	>	0.5	CONT.AIR.P	2	9	1	---	24 V		0	0	24	1	0
20 (A42)	IN 52	OFF	<	2.0	HT PRESS	2	14	1	B	20 mA	bar	4	0.0	20	6.0	0
21 (A43)	IN 53	OFF	<	4.0	FO PRESS	2	15	1	B	20 mA	bar	4	0.0	20	16.0	0
22 (A44)	IN 61	OFF	<	8.0	ST.A PRESS	30	16	1	---	20 mA	bar	4	0.0	20	16.0	0
23 (A45)	IN 62	OFF	<	3.0	LO PRESS	2	17	1	---	20 mA	bar	4	0.0	20	10.0	0

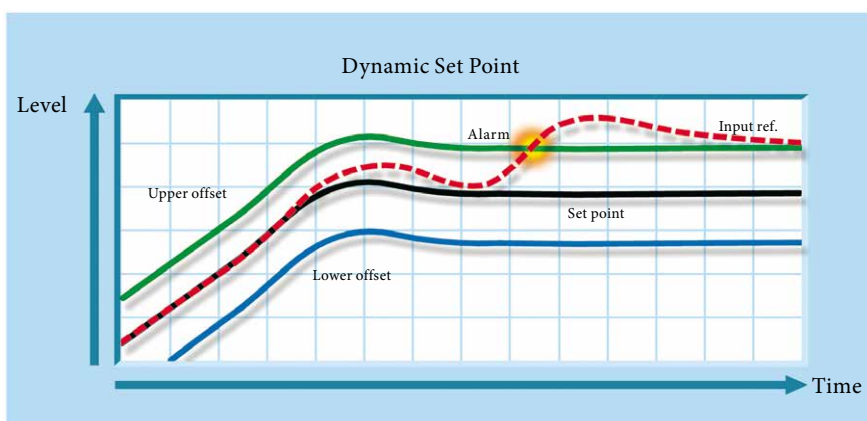
General Physical Input Logical Input Alarm

Ready

M3092 M-Programmer

Average Calculations

The M3000 additionally offers possible configuration of average deviation alarms. This is a very powerful feature in connection to monitoring of the exhaust gas temperatures of diesel or gas engines. The average temperature from a number of cylinders is calculated. If the temperature valve of one of the cylinders deviates from the average of the remaining cylinders by more than a preset \pm offset, a deviation alarm will be activated.



M4200 Alarm Monitor



The M4200 Alarm Monitor is an 8-channel digital unit for use with potential free contacts.

- 8 inputs
- 4 outputs

M4200 is a compact, programmable, 8-channel digital alarm panel. The inputs will be activated by any combination of normally open or normally closed contacts. This will cause the corresponding LEDs to flash and simultaneously it will activate the common siren relay. The LEDs are multicolour and can be configured for red, yellow or green indications.

Each input can be configured individually to activate one or both of two alarm relays for group alarm outputs.

The M4200 features a wide range of parameters which can easily be configured via the rotary- and the DIP switches. Alternatively, the M4200 can be configured by a PC through the built-in RS232 interface using Windows *HyperTerminal*.

M4500, M4600, M4700 Indicator Panels



The M4500, M4600 and M4700 Indicator Panels are intended for status indication of any process providing on/off outputs. The panels contain 6, 8 or 20 channels, respectively.

An input through a potential free dry contact will cause flashing of a corresponding LED. These panels are an ideal solution for local or

remote indication of the output signals from e.g. a PLC or from alarm monitors such as M1000.

The 20 channel M4700 is available in a version with built-in alarm and siren relays.

M4780 MODBUS Indicator



M4780 is a versatile 20 channel indicator panel which can be used for monitoring of potential free dry contacts and signal states transmitted through a common 2-wire RS485 communication bus using the MODBUS-RTU protocol.

This unit is a combination of a traditional indicator panel with dry contact inputs and a MODBUS indicator panel.

M4780 can also work as an alarm monitor using two internal relays for group alarms and control of an external siren. An internal siren for local use is built-in. Via the MODBUS-RTU a PLC can read the state of the LEDs and the inputs on the M4780. This feature makes the M4780 a cost effective 20 channel digital input device with indications in PLC systems.

H5000 HMI Operator Panels



The SELCO product range includes SCADA HMI display panels.

The product may be used for applications like engine control and supervision systems, power management systems and can be integrated with e.g. SELCO M2500, Engine Controller and FlexGen Generator Controllers.

The marine approved touch screen is designed for stationary installation. The clear high-reso-

lution screen provides a high level of details on images, charts, meters and alarms.

The SELCO HMI solutions support a broad variety of communication buses, MODBUS-RTU, and can work as gateways between different bus protocols e.g. Ethernet to MODBUS.

The operator panel is configured with a software tool.

Variants: 4,3", 7", 10,1", 12,1", 15,4"

M1500 PT100 Transmitter



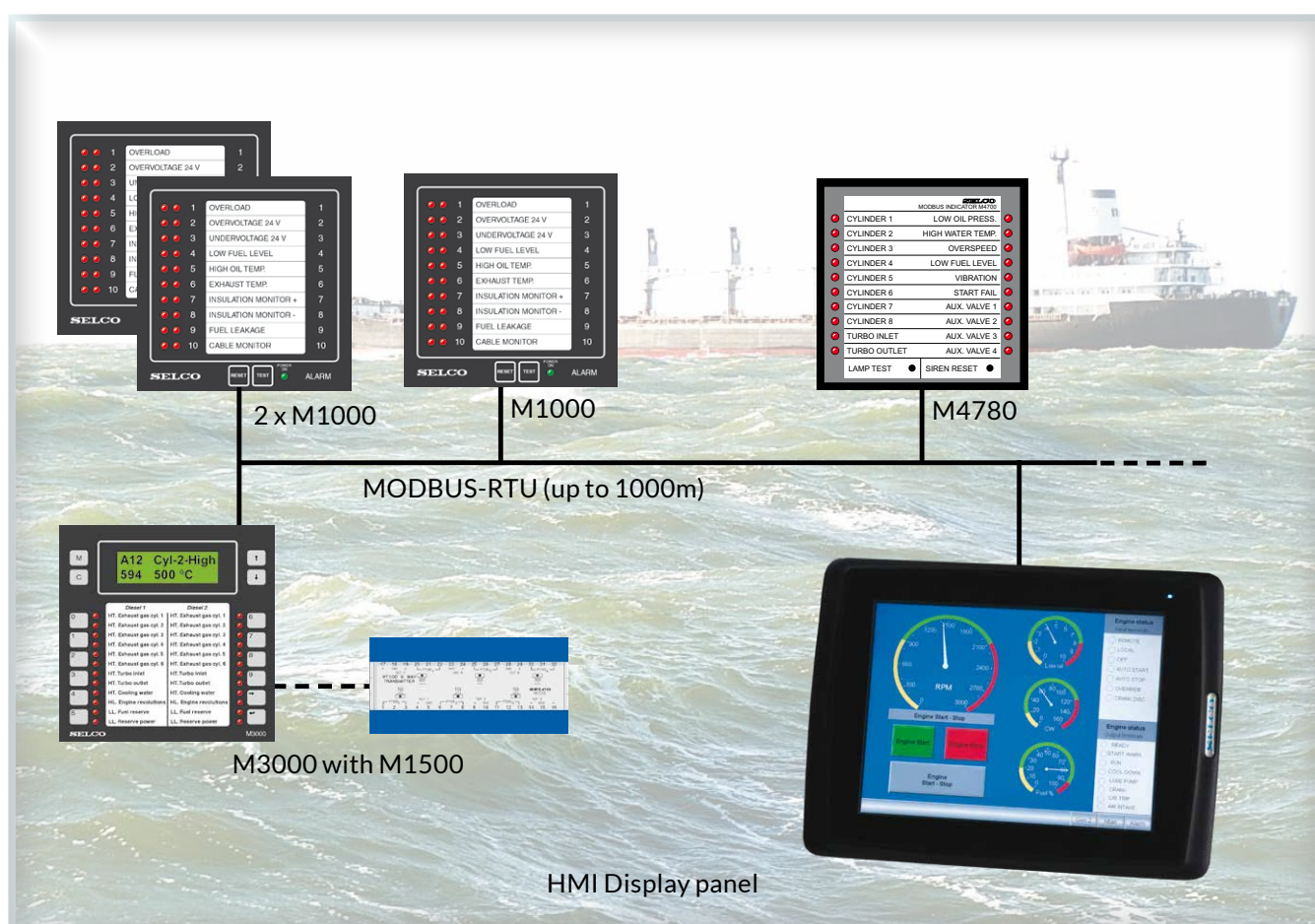
M1500 contains six signal transmitters 4-20mA for two- or three wire PT100 temperature sensors integrated in one box for DIN rail mount. The outputs can be fed into e.g. analogue alarm monitors as the SELCO M3000.

On the front, each of the six inputs can individually be set to three different temperature ranges: 0-160 °C, 0-300 °C or 0-600 °C.

Scalable Alarm System Solutions

Multiple SELCO alarm units can be interconnected together with HMI panels to form a larger integrated alarm system. Additional functionality and monitoring possibilities can be added, such as alarm event logging.

A SELCO alarm solution is easy to scale and customize to specific customer requirements whether it is a new or retrofit project. Please contact SELCO for more details.



Alarm system configuration

Example as the possibilities are numerous.

Specifications

	M1000	M1000 PLUS	M3000	M4200	M4500	M4600	M4700	M4780
Alarm panel	x	x	x	x				
Indicator panel	x	x	x	x	x	x	x	x
No. of inputs	10	10	24	8	6	8	20	20
Input type; analogue or digital	digital	digital	both	digital	digital	digital	digital	digital
No. of open collector outputs	10	10	14	4				
Common Alarm Output								
oc: open collector, dryc: dry contact, *: optional	1 oc	1 oc	1 oc	2 dryc			1 dryc*	1 dryc
Siren Output	1 dryc	1 dryc	1 oc	1 dryc			1 dryc*	1 dryc*
Configuration from PC /via USB	x	x/x	x	x				
Configuration from DIP switches/jumper	x	x		x			x	x
Configuration from front panel			x					
MODBUS-RTU (RS485)/ETHERNET (MODBUS TCP)	x	x/x	x					x
Embedded webserver		x						
Event Alarm log		x						
LED Dimming	x	x	x	x				
LED synchronizing	x	x		x				
Panel linking	x	x						
Blocking of alarms	1 input	1 input	2 inputs	2 inputs				
Remote reset	x	x	x	x				
Sensor monitoring	x	x	x	x				
Insulation monitoring of supply voltage	x	x		x				
Monitoring of supply voltage	x	x		x				
Front panel protection	IP54	IP54	IP54	IP54	IP31	IP31	IP31	IP31
Dimensions (mm x mm x mm)	144x144x35	144x144x35	144x144x70	96x96x20	96x96x67	96x96x67	144x144x67	144x144x67

About SELCO

For more than three decades, SELCO has been a market leader in providing electrical control, monitoring and protection equipment for power generation applications worldwide.

With headquarter and manufacturing mainly in Denmark, our product portfolio is known to be of high quality, extremely reliable and easy to use. Our partners and distributor network worldwide are vital, in supporting our sales to more than 60 countries.

Every day, SELCO products are on a mission, in operation, around the world, to help control, protect and enhance the safety of electrical equipment, engine and generator applications, within markets like marine, oil & gas, power generation, and general industry.

Our scope of supply and expertise is within the following areas;

- Generator Control and Power Management Systems
- Engine Control, Protection & Monitoring
- Protection and Control Relays
- Alarm Panels and Monitoring Systems



Approvals & Certificates

SELCO products are certified and in accordance with all significant international standards

For more information about the individual certificates, please visit selco.com



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