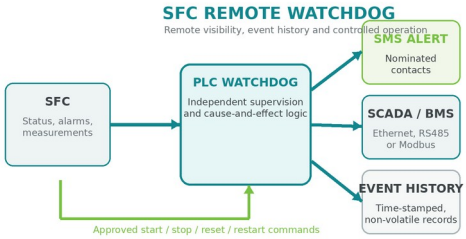
# SFC Remote Watchdog Monitoring

## PLC-based supervision for Static Frequency Converters

The PX Electronics SFC Remote Watchdog provides independent PLC-based supervision for Static Frequency Converters installed in remote, unattended or operationally important locations.

It monitors selected electrical and operating signals, records time-stamped events and can send fault notifications to nominated personnel. Project-approved functions may also include remote status, start, stop, acknowledgement, reset and controlled automatic restart.




*Independent PLC supervision with remote alarms, event history and approved control functions.*

### Where this product fits

Typically specified for SFCs above 50kVA, remote installations and critical-load systems. It can also be applied to smaller converters where site access is difficult or early fault visibility is important.

### Remote and unattended sites

Provides earlier visibility of warnings, trips and communications loss where no engineer is routinely present.

### Critical operational loads

Supports production, aviation, marine, defence, rail, utility and infrastructure applications.

### New or existing SFCs

Supplied with a new PX converter or considered as a retrofit where suitable signals and control access are available.

**Independent supervision**
Industrial PLC or project-specific controller

**Remote notification**
SMS and network-based options

**Event history**
Time-stamped non-volatile records

**Controlled restart**
Permissives, delay, retries and lockout

### Selection starting point

Confirm the SFC model and rating, available monitoring signals, required alarms and recipients, remote-command permissions, restart policy, site connectivity, enclosure arrangement and project documentation.

# Monitoring and alarm configuration

**A project-specific signal list and cause-and-effect response for the connected SFC**

**1. SFC signals**
Electrical values, operating states and protective devices

**2. Alarm response**
Warning, trip, notification, reset or lockout

**3. Connectivity**
SMS, Ethernet, RS485, Modbus or contacts

**4. Restart policy**
Permissives, delay, attempts and manual-reset faults

## Typical monitored signals

| Monitoring group | Typical signals | Monitoring group | Typical signals |
|---|---|---|---|
| **SFC operating state** | Available, ready, running, stopped, warning, fault and emergency-stop status | **Input supply** | Input available, voltage condition, phase status, phase loss and protective-device state |
| **Output supply** | Output voltage, current, frequency, power, phase condition and output-available status | **Converter conditions** | Overtemperature, overload, overvoltage, undervoltage, short circuit and internal fault |
| **Cooling system** | Fan operation, cooling warning, airflow condition and enclosure temperature where sensors are fitted | **Switchgear and interlocks** | Breaker position, contactor state, door interlock, external permissive and emergency-stop circuit |
| **Communications** | SFC communication health, watchdog heartbeat, network availability and remote-connection status | **Additional inputs** | External temperature, airflow, room alarms, door switches and customer-defined interlocks |

### Alarm and event handling

Warnings identify conditions requiring attention without necessarily stopping the converter. Faults or trips indicate shutdown or a condition where operation should not continue. Communication loss can be treated as a separate alarm. Records may include date and time, operating state, measured values, acknowledgement, commands, reset attempts and restart attempts.

### Real-time notification

SMS and other remote alerts can be routed to nominated contacts, subject to the selected hardware and site connection.

### Remote status and operation

Authorised users may view status and, where approved, issue start, stop, acknowledge or reset commands.

### Non-volatile event history

Operating changes, alarms, trips, communications loss and command activity are retained for fault investigation.

### Independent monitoring inputs

Additional analogue and digital signals can be included for sensors, switchgear and site interlocks.

### Automatic restart logic

Automatic restart is optional and project-specific. A typical sequence verifies stable input supply, healthy safety interlocks, absence of manual-reset faults, permission for the connected load to restart, expiry of the configured delay and the permitted retry count. Repeated failure can place the system in lockout pending inspection.

# Technical specification

**Typical watchdog configuration. The final I/O schedule and control philosophy are prepared for the individual SFC and site.**

| 1. Application and controller | | 2. Monitoring and notification | |
|---|---|---|---|
| **Application** | Independent supervisory monitoring of PX Static Frequency Converter systems | **Typical status** | Available, ready, run, warning, fault, phase loss, overtemperature, breaker state and communications health |
| **Recommended use** | Typically SFCs above 50kVA, remote installations and critical-load applications | **Event history** | Time-stamped non-volatile alarm, fault, command, reset and restart records |
| **Controller** | Industrial PLC or project-specific monitoring controller | **Remote notification** | SMS as a common option, with network-based notification according to the selected platform |
| **Monitoring inputs** | Digital, analogue and communication-derived signals according to the project I/O schedule | **Alarm classification** | Warning, fault, trip and communications-loss handling according to the agreed alarm matrix |
| **Typical measurements** | Voltage, current, frequency and power where suitable signals are available | **Measured-value records** | Electrical values may be stored with events where the selected SFC signals are available |
| **Compatibility** | New PX SFC systems or retrofit applications subject to signal availability and technical review | **Alarm escalation** | Different recipients or outputs may be assigned to warning, fault and communications-loss conditions |
| **3. Remote operation and restart** | | **4. Interfaces and installation** | |
| **Remote commands** | Start, stop, acknowledge and reset where permitted by the agreed control philosophy and interlocks | **Communication options** | RS485, Ethernet, Modbus RTU, Modbus TCP, volt-free contacts and project-specific interfaces |
| **Automatic restart** | Optional, with configurable permissives, delay, retry limit and lockout logic | **Local interface** | Status indication or optional HMI, depending on the selected system |
| **Restart exclusions** | Emergency stop, short circuit, repeated overload, abnormal temperature and manual-reset faults normally require inspection | **Installation** | Integrated into the SFC or supplied as a separate monitoring enclosure |
| **Local safeguards** | Local protection, interlocks and emergency controls remain effective during remote operation | **Enclosure** | Selected for the installation, with IP22, IP32 and IP54 arrangements available |
| **Communications loss** | Local SFC and watchdog logic continue; loss of remote visibility can be recorded as an alarm | **Auxiliary supply** | Independent or customer-backed control supply available where monitoring must remain active during SFC input loss |
| **Control permissions** | Status-only or command-enabled access is agreed for each project | **Documentation** | Signal schedule, alarm matrix, cause-and-effect logic, drawings, control description and test records as agreed |

| System role | Retrofit basis | Safety status |
|---|---|---|
| The watchdog supports the SFC's existing protection and operating controls. It does not replace circuit protection, internal trips, emergency stops or site safety controls. | Retrofit suitability depends on available signals, panel space, communications access and whether remote commands can be incorporated safely. | The standard system is supervisory monitoring and control. It must not be described as SIL-rated or safety-certified unless the complete project architecture has been assessed and certified. |

# Options, project support and quotation information

**The final system is configured around the converter, monitored signals, site connectivity and required response to each event.**

### Notifications and communications
SMS fault alerts, Ethernet access, RS485, Modbus RTU, Modbus TCP, volt-free alarm contacts and alarm escalation arrangements.

### HMI and monitoring inputs
Local or remote HMI, additional analogue and digital inputs, external temperature sensors, airflow switches, breaker contacts and site interlocks.

### Enclosure and control supply
Integrated or separate panels, IP32 or IP54 construction, dedicated auxiliary supply, cable entry and retrofit arrangements.

### Testing and site support
Alarm-matrix demonstration during FAT, signal verification, message testing, controlled restart checks and site commissioning.

## Project support

**I/O schedule**
Defined monitoring points and signal source

**Alarm matrix**
Warning, trip, notification and reset response

**Factory testing**
Signal simulation and message verification

**Commissioning**
Site communications and controlled restart checks

## Information required to prepare a quotation

### SFC details
Model, capacity, input, output and phase arrangement

### Monitoring points
Electrical values, states, faults and external sensors

### Alarm response
Notification, shutdown, acknowledgement and reset policy

### Remote commands
Status-only or start, stop, acknowledge and reset access

### Restart policy
Permissives, delay, attempts, lockout and manual-reset faults

### Connectivity
Mobile coverage, SIM, Ethernet, firewall, VPN and protocols

### Project engineering and documentation
The watchdog is supplied against an agreed signal list and control philosophy. Documentation can include the I/O schedule, alarm matrix, cause-and-effect logic, communications details, drawings, operating instructions, FAT records and commissioning support.

### Discuss your requirement
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