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## Cool-Therm rolls-out Cloud-based remote monitoring and diagnosis for Turbomiser chillers

Cool-Therm Ltd, a pioneer in the development of the ultra-efficient Turbomiser chiller, is now able to monitor and diagnose chiller performance via the Cloud and GSM, with major potential benefits for engineers and end users.

Turbomiser chillers are now equipped with specialist communications hardware and software, enabling them to remotely transmit and receive data. The system can connect to a local cellular GSM network, or be accessed via Ethernet.



Connection requires the end user's permission, but once authorisation is given enables engineers to monitor plant performance remotely, and diagnose potential problems prior to – or overcoming the need for - a site visit.

Alex Strong, Cool-Therm's technical director, says: "There are obvious benefits in terms of time saving and reducing carbon emissions by cutting vehicle miles. It enables engineers to remotely check on alarms and make permitted adjustments to operating parameters without attending site. It also allows us to brief the customer on chiller problems without incurring an engineer site visit charge."

Timestamp	Alarm Type	Alarm ID	Section	Description
2014-12-01 11:05:55	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 11:02:42	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 10:59:16	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 10:55:50	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 10:52:24	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 10:48:57	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 10:45:31	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 10:42:31	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 10:42:26	0	152	MASTER	LOW EVAP#1 DROP
2014-12-01 01:13:20	0	0	MASTER	POWER OFF
2014-12-01 01:06:18	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 01:03:04	0	5	MASTER	NO WATER CIRCULATION
2014-12-01 00:59:38	0	5	MASTER	NO WATER CIRCULATION

He added: "Importantly, the system is completely secure and can only be activated and accessed with the explicit authorisation of the equipment owner."

There are a number of ways of accessing information. Engineers can connect to the chiller via Ethernet, and Turbomisers are equipped with a data SIM which can connect with the GSM network. While in GSM mode, data is not streamed constantly, but channels are opened if an exceptional event occurs, such as an alarm / fault or parameter change, and the data is automatically transmitted.

Such exceptional events are recorded on a Cloud-based archive on the manufacturer's web portal, which in turn is able to email plant supervisors and end users with notifications.

Although the system is managed through Geoclima's Web Portal, Cool-Therm has its own dedicated software enabling direct connection with its chillers in the field for which access has been permitted by end users.

The system is highly flexible and enables chiller data to be routed to a third party BMS or control system. This normally requires a small additional piece of hardware on the chiller to provide a data protocol exchange, so information can be transferred in a format that most BMS can read.

Anything recorded by the chiller controls can be viewed remotely. This includes trends and any change in parameters, such as temperatures, pressures and power use, and alarm history. It is also possible to interrogate data on a remote terminal for more detailed analysis and historical trending.

Alex says: "It is obvious, but it should be borne in mind that the data is only useful if the person reviewing it is able to understand and correctly interpret it. This is where the services of an experienced Cool-Therm engineer - operating under a premium maintenance contract - come into their own."

As an additional service, chillers can be equipped with an energy meter and resultant data linked into the chiller controller and the internet monitoring system, or via a local BMS. This can enable end users to meet the requirements of Part L of the Building Regulations and the Energy Performance of Buildings Directive (EPBD).

The system has proved to be highly effective in helping Cool-Therm engineers remotely diagnose plant problems. "We have been able to diagnose many faults

remotely using the system. A typical example is a chiller with a water flow alarm, which may indicate a genuine lack of water flow, but also possibly a faulty sensor. In these and many other cases, the problem can be bypassed remotely and other protection used, until a physical repair can be made on site.”

The remote monitoring service is offered by Cool-Therm as part of a Turbomiser chiller’s standard two year warranty, with the option to extend it beyond the warranty period. Under the company’s premium service contract, it actively monitors and responds to alarms.

Alex: “We believe the potential for reducing site visits is very substantial, cutting pollution and reducing costs for customers. It also gives us the ability to gather information on chiller performance over time, and produce an informative quarterly report under our premium service – helping clients optimise performance, extend equipment life, reduce energy use and the overall cost of ownership.”

“We have only just begun to tap the potential, but there is no doubt it opens up exciting possibilities for new approaches to servicing in the future.”

**ENDS**

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