TRANSMAX







STREAMS Device IO

Product Description

The STREAMS Device IO is a ladder logic IO Gateway that provides an interface between most field sensors and control devices to the STREAMS Application Server using a PLC running the Modbus protocol.

F4 54 33 AF 99 5

STREAMS Device IO is suitable for a wide range of inputs and outputs and can therefore be used in a significant number of scenarios for monitoring and control of simple devices.

TRANSMAX

Types of field sensors may include:

Overheight detection systems

Heavy vehicle detection systems

Presence and approach vehicle detectors

Flood monitoring systems

Structural health monitoring systems

Control devices may include:

Wig-wags

Changeable message signs (CMS)

Traffic signals via STREAMS or external inputs

Variable message signs (VMS) via STREAMS response plans

Tunnel plant management devices

How it works

Simple device integration with STREAMS Device IO

STREAMS Device IO provides:

Integrated features that support a standard interface via the MODBUS RTU & MODBUS TCP, SNMP and HTTP protocols (or other protocols in the future), so software development is not required.

Information can then be used in the STREAMS list view, map view and schematics.

The advanced features of STREAMS such as Strategy Manager and Response Plans can be utilised to respond to conditions detected by the simple device inputs. Outputs from a simple device are used to control other ITS equipment not normally connected to STREAMS.

To visualise the data XAML (Extensible Application Markup Language) can be used to turn data into graphical representations. XAML is a format created by Microsoft[®], based on XML.

What does this mean for customers? What this means is that by using STREAMS Device IO a wide range of devices can be monitored and potentially controlled via STREAMS without needing to write new device drivers.

This allows STREAMS customers to use the numerous features of STREAMS to monitor, visualise and control their device through the STREAMS Workstation. In addition, STREAMS trend and reporting information will be useful for planning and maintenance.

(TRANSMAX

O streams[®] device io

Customers using STREAMS Device IO can expect to benefit through:

- Reduced operational costs by removing the need for costly custom software development for new drivers
- Ability to monitor value road assets such as bridges and improve maintenance response for situations such as bridge integrity checks
- Enhanced safety on roads
- Ability to leverage existing features of STREAMS
- Trend and reporting information will be useful for planning and maintenance.

STREAMS DEVICE 10 USE CASE Overheight vehicle detector

In this scenario, no software changes are required to STREAMS as STREAMS Device IO is used to interface to the STREAMS Application Server. The system provides a warning by way of flashing beacons or illuminated signage to the approaching vehicles when it breaks the sensor beams. The system provides this alert to traffic management centre (TMC) operators so they can redirect CCTV to the location or respond to an incident.

For deployments to a location that has no cable infrastructure between the sensor and warning sites, an optional wireless IO Gateway can be deployed that provides the communications and IO pass-through between the two locations. For remote sites, a 3G/4G modem can be used to provide the communications to the TMC.

System function

While the high-level operation of the system works by receiving a signal from an overheight detector and initiating a flasher sequence at the controlled site and informing the TMC operator that a detection has occurred, there are other functions happening simultaneously when a detection occurs.



The system operation on detection of approaching overheight vehicle:

Additional functions

Other usage scenarios

- Detects both an upstream detection and a downstream detection from the sensors and reports these to STREAMS
- Determines the direction of travel from the above
- Where the direction of travel is away from the underpass no further action is taken and system resets
- · Where the direction of travel is towards the underpass
- Initiates and timer sequence to run the beacons
- Sends a warning to the TMC operator that an overheight vehicle is approaching the underpass
- · Informs the operator the (beacon) output is running
- Re-arms the system to detect a second detection during the flasher cycle in the event of a second passing
- Resets at the end of the currently operating cycle once running timers have expired.
- Continuously monitors the communications between the two sites
- Provides the operator an override to run the beacons using a timer cycle
- · Continuously run the beacons until the override is removed
- Alter the timer cycle period (default is 25 seconds)
- Disable the system
- Provides site maintenance personnel inputs to locally run the beacons using a timer cycle
- Provides site maintenance personnel inputs to locally disable the system.

As described above, there are multiple scenarios for the use of STREAMS Device IO to integrate with simple devices, such as flood monitoring and heavy vehicle detection systems. More information can be found in the STREAMS Device IO information sheets published on the Transmax website or contact Transmax for more information.

Technical specifications

O device io

STREAMS Device IO uses the Micro820 that supports the following off the shelf:

- 24VDC Power Supply input
- 4 x 0-10v Analogue inputs
- 7 x 24VDC Source driven digital inputs
- 12 x 24VDC source driven digital outputs
- Supports Modbus RTU and TCP Modbus

STREAMS Device IO has been developed with this controller but is not limited to using it. Other manufacturers will be offered.

- · Field termination screw terminals
- Surge protection
- Radio gateway between sites
- Field device current sensing



The above specifications are for STREAMS Device IO for an overheight vehicle detection system. STREAMS Device IO supports a range of installations and features based on customer requirements. Contact Transmax for more information.





STREAMS Device IO does not have a SIL rating and is not to be used in safety critical applications other than for monitoring and limited control.

Other information	Name
Interfaces	Ethernet for communications and Modbus TCP protocol Serial for Modbus RTU Digital IO Analogue IO Micro SD Card for firmware and logic updates or backups
Standard package contents	PLC 450 or 900 Mhz wireless IO Gateway where required Timing Relays Surge Protection for mains, IO and RF Fused Field Terminals DC Power supplies
Power supply requirements	240v Mains or 24VDC
Management and communications	Private Radio 3/4G Ethernet
Operational specifications	Operating Temperature range -20 to 65C
STREAMS Support	Supported by all current versions of STREAMS (13.3 onwards).
Warranty	12 months from the date of purchase.
Physical specifications	Dimensions 400W x 250D x 150H DIN Rail mounted equipment; Available pre-assembled ready to install in Field Cabinet, Pole cabinet or using Transmax supplied enclosure; Weight approx. 2.0kg depending on configuration

Specifications will vary based on customer requirements

TRANSMAX

About Transmax

Contact Us

Get in touch with Transmax to find out more about STREAMS Device IO or to place an order.

	07 3355 8700
	varsales@transmax.com.au
א	www.transmax.com.au

Please note: specification details will be confirmed prior to order.

Transmax is the solutions provider of the international award-winning ITS platform STREAMS. We exist to improve people's lives by providing industry-leading transport solutions and help move millions of commuters around Australian road networks every day.

STREAMS was first developed as part of Queensland's Department of Transport and now, as a government-owned entity, Transmax supports other transport departments around Australia and internationally to achieve safer and more reliable road journeys for people in the communities they serve. We place our customers at the centre of everything we do and work collaboratively to ensure our ITS solutions meet their needs. Transmax offers customers systems engineering, software design and development, along with a range of consulting and support services throughout the entire ITS lifecycle.

With 50 years of ITS experience, we help our customers realise the community benefits of optimising transport networks by providing smarter, more sustainable ITS solutions.

TRANSMAX

☐ + 61 7 3355 8700 ■ info@transmax.com.au

Transmax Pty Ltd Level 5 / 143 Coronation Drive Milton QLD 4064, Brisbane Australia

www.transmax.com.au