Balfour Beatty's Minimum Standards for Plant Telematics

The Supplier shall ensure that all plant and equipment supplied to Balfour Beatty meets or exceeds the minimum telematic standards set out in Table 1 (Minimum Plant Telematic Product Group Standard) and as further detailed in Table 1.2 (Elaboration of Product Groups).

Balfour Beatty may, from time to time and upon reasonable notice, update or expand the Minimum Standards set out in Table 1 (Minimum Plant Telematic Product Group Standard) and as further detailed in Table 1.2 (Elaboration of Product Groups) to reflect technological advancements or changing operational requirements.

Table 1 – Minimum Plant Telematic Product Group Standard

Product Group	Minimum ISO 15143 Standard
Excavators < 8 Tons	2010 (AEMP 1.2)
Excavators ≥ 8 Tons	2020 (AEMP 2.0)
Dumpers < 6 Tons	2010 (AEMP 1.2)
Dumpers ≥ 6 Tons	2020 (AEMP 2.0)
Telescopic Handlers < 5 M	2010 (AEMP 1.2)
Telescopic Handlers ≥ 5 M	2020 (AEMP 2.0)
Tractors < 120 HP	2010 (AEMP 1.2)
Tractors ≥ 120 HP	2020 (AEMP 2.0)
Backhoe Loaders	2020 (AEMP 2.0)
Dozers < 6 Tons	2010 (AEMP 1.2)
Dozers ≥ 6 Tons	2020 (AEMP 2.0)
Wheel Loaders	2020 (AEMP 2.0)
Compaction	2010 (AEMP 1.2)
Power Generation	2010 (AEMP 1.2)
Compressors	2010 (AEMP 1.2)
Dump Trucks < 6 Tons	2010 (AEMP 1.2)
Dump Trucks ≥ 6 Tons	2020 (AEMP 2.0)
All-Terrain Vehicle	2010 (AEMP 1.2)
Skid Steer Loaders	2010 (AEMP 1.2)
Motor Graders	2010 (AEMP 1.2)
Aerial Work Platforms	2010 (AEMP 1.2)
Forklift Truck	2020 (AEMP 2.0)
Mobile Welfare Units	2010 (AEMP 1.2)
Mobile Tower Lights	2010 (AEMP 1.2)

Table 1.2 – Elaboration of Product Groups

Product Group	Elaboration
Excavators < 8 Tons	Micro Excavators Mini Excavators Compact Excavators (Electric & Diesel)
Excavators ≥ 8 Tons	Large Excavators Long Reach Excavators Demolition Excavators Wheeled Excavators

	Hybrid Excavators (Electric & Diesel)
Dumpers < 6 Tons	Site Dumpers (Forward Tip) Swivel Tip Dumpers Tracked Dumpers (Electric & Diesel)
Dumpers ≥ 6 Tons	Site Dumpers (Forward Tip) Swivel Tip Dumpers Tracked Dumpers Heavy Site Dumpers Dual View Dumpers High-Capacity Swivel Dumpers (Electric & Diesel)
Telescopic Handlers <5 M	Compact Telehandlers Urban / Low-Profile Telehandlers Electric Telehandlers
Telescopic Handlers ≥ 5 M	Mid-Range Telehandlers Heavy Lift Telehandlers Roto-Telehandlers Electric Telehandlers
Tractors	Utility Tractors Compact Tractors Speciality Tractors Tracked Tractors
Backhoe Loaders	Standard Backhoe Loaders Compact Backhoes Extended Reach Backhoes Loader-Backhoe Combo Units
Dozers < 6 Tons	Mini Dozers Compact Crawler Dozers
Dozers ≥ 6 Tons	Medium Dozers Heavy Dozers
Wheel Loaders	Compact Wheel Loaders Mid-Sized Wheel Loaders Large Wheel Loaders High-Lift Loaders
Compaction	Walk-Behind Rollers Ride on Rollers < 120 HP Ride on Rollers ≥ 120 HP (Single, Tandem, and Triple Drum)
Power Generation	Portable Generators (< 20 kVA) Static Generators inc Hybrid (≥ 20kVA)
Compressors	Air Compressors (< 400 cfm) Air Compressors (≥ 400 cfm)
Dump Trucks < 6 Tons	Articulated Dump Trucks Rigid Dump Trucks
Dump Trucks ≥ 6 Tons	Articulated Dump Trucks Rigid Dump Trucks
All-Terrain Vehicle	Utility ATVs 4x4 Work ATVs Track-Equipped ATVs
Skid Steer Loaders	Wheeled Skid Steers Tracked Skid Steers Compact Track Loaders

	Electric Skid Steers
Motor Graders	Compact Graders Mid-Size Graders Heavy-Duty Graders Tandem Drive Graders Rigid Frame vs Articulated Frame Graders
Aerial Work Platforms	Scissor Lifts (Electric & Diesel) Boom Lifts (Telescopic & Articulating) Spider Lifts (Tracked)
Forklift Truck	Industrial Counterbalance Trucks Rough Terrain Trucks Reach Trucks Side Loaders Heavy Lift Trucks
Mobile Welfare Units	Towable Welfare Units Specialist Eco Welfare Units
Mobile Tower Lights	Solar-Powered Tower Lights Hybrid Solar / Diesel Tower Lights Hybrid Battery / Diesel Tower Lights

The Supplier shall ensure that all equipment supplied to Balfour Beatty complies with the minimum telematic requirements set out in Table 2 (Minimum Plant Telematic Requirement).

The Supplier shall comply with all applicable ISO standards and the requirements of the Association of Equipment Management Professionals (AEMP), including but not limited to those referenced in Table 2. Where Table 2 does not explicitly address a requirement, the Supplier shall adhere to the relevant ISO/AEMP protocols as updated from time to time.

The Supplier shall also comply with any specific requirements notified in writing by Balfour Beatty's hire desk. Any such requirements shall be implemented by the Supplier.

Table 2 – Minimum Plant Telematic Requirement

ISO 15143 (AEMP)	**Minimum Requirement**

2010 (1.2)	"EquipmentHeader": {
	"OEMName"
	"Model"
	"EquipmentID"
	"SerialNumber"
	"PIN"
	},
	"CumulativeOperatingHours": {
	"datetime"
	"Hour"
	},
	"Location": {
	"datetime"
	"Latitude"
	"Longitude"
	"Altitude"
	"AltitudeUnits"
	},
	"FuelUsed": {(**Preferred)**

	"datetime" "FuelUnits" "FuelConsumed" }, "FuelUsedLast24"**(alternative, not preferred)** "datetime" "FuelUnits" "FuelConsumed" }

2020 (2.0)	"EquipmentHeader": {
	"OEMName"
	"Model"
	"EquipmentID"
	"SerialNumber"
	"PIN"
	
	"CumulativeIdleHours": {
	"datetime"
	"Hour"
	},
	"CumulativeOperatingHours": {
	"datetime"
	"Hour"
	},
	"Location": {
	"datetime"
	"Latitude"
	"Longitude"
	"Altitude"
	"AltitudeUnits"
	},
	"FuelUsed": {
	"datetime"
	"FuelUnits"
	"FuelConsumed"
	},
	
	Desirable not currently mandatory:
	"FuelRemaining": {
	"datetime"
	"Percent"
	},
	“CumulativeLoadCount”: {
	“datetime”
	“Count”
	},
	“CumulativePayloadTotals”: {
	“datetime”
	“Payload”
	“PayloadUnits”
	},

The provided example utilises JSON formatting; however, XML-formatted data is also accepted.

Data Transmission Cadence - Transmission Frequency: The Supplier shall ensure that all plant and equipment transmit telematics data to Balfour Beatty at a minimum frequency of every fifteen (15) minutes. If it is not technically feasible for the Supplier to provide data at this frequency, the Supplier shall notify Balfour Beatty in writing prior to commencement of services, and shall provide data at the highest frequency possible, but in any event not less than once daily. All daily data must be date- and time-stamped to reflect the end of the current working day.

Service Level Agreements (SLA) for Plant Telematics

1. Scope

This SLA defines the minimum performance standards and service expectations for the delivery of telematics data and services.

2. Performance Standards

SLA Parameter	Requirement
Data Latency	Real-time or near-real-time data with maximum delay of ≤ 60 seconds.
Data Frequency	Telematics data must be captured and transmitted at a minimum of fifteen (15) minutes intervals. If real-time transmission is not possible, all daily data must be date- and time-stamped to reflect the end of the current working day.
System Availability	Telematics service uptime ≥ 99.5% monthly (excluding scheduled maintenance).

3. Issue Types and Response Time

Issue Type	Example	Response Time (Initial Acknowledgement)	Resolution Time (SLA Target)
Critical Failure	API Failure	Within 30 minutes	≤ 4 hours
High Priority	Fluctuating values, sensor value errors, no data transmission from machine	Within four (4) hours	Two (2) business days
Non-Critical	Incorrect specifications, inaccurate data, GPS outdated	Within one (1) business day	Three (3) business days
Recurring Issues	Delayed data transmission, fleet-wide malfunction, recurring communication loss	Trigger escalation after three (3) occurrences in 15 days	Root cause resolution within five (5) business days