

# DIN EN 16186-6:2024-12 (E)

## Railway applications - Driver's cab - Part 6: Integration of displays, controls and indicators for tram vehicles

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
Introduction .....		5
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions .....	7
4	Symbols and abbreviations .....	9
5	Displays, controls and warnings for operational functions .....	9
5.1	General .....	9
5.2	Displays for communication, monitoring and control .....	9
5.3	Controls .....	10
5.3.1	Driver's master controller .....	10
5.3.2	Control for driver activity .....	10
5.3.3	Control for running direction selection .....	10
5.3.4	Controls for external lights .....	10
5.3.5	Controls for Intercom .....	10
5.3.6	Controls for passenger doors .....	11
5.3.7	Controls for obstacle detection and pedestrian protection .....	11
5.3.8	Controls for driver's cab temperature .....	11
5.3.9	Controls for passenger area temperature .....	11
5.3.10	Controls for coupled vehicles .....	11
5.3.11	Distress button .....	12
5.3.12	Other controls .....	12
5.3.13	Controls for auxiliary desk .....	12
5.4	Alarms .....	13
5.4.1	General .....	13
5.4.2	Alarm due to a safety system .....	13
5.4.3	Alarm due to brake failure .....	13
5.4.4	Alarm due to emergency opening of one or more external doors .....	13
5.4.5	Driver interface with fire extinguishing system .....	13
6	Characteristics of displays, controls and indicators .....	14
6.1	General .....	14
6.1.1	Design principles .....	14
6.1.2	Resistance to damage from cleaning agents .....	14
6.1.3	Labelling .....	14
6.2	Characteristics of controls .....	14
6.2.1	General principles .....	14
6.2.2	Design criteria .....	15
6.2.3	Characteristics of specific controls .....	15
6.3	Characteristics of indicators - readability .....	16
6.4	Characteristic of warnings .....	16
6.4.1	General .....	16
6.4.2	Hierarchy of audible warnings .....	16
6.4.3	Audibility of driving related acoustic signals .....	16
6.5	Characteristic of loudspeakers .....	16

7	Positioning of displays and controls .....	16
7.1	General rules for arrangements .....	16
7.1.1	Driver's desk design .....	16
7.1.2	Human factors/ergonomic aspects .....	17
7.1.3	Device positioning principle .....	17
7.2	Positioning of displays .....	18
7.2.1	Display location and orientation .....	18
7.2.2	Preferred fields of view .....	18
7.2.3	Positioning speed and ATP signalling information .....	18
7.2.4	Positioning of other equipment .....	18
7.3	Positioning of controls .....	18
7.3.1	Reachability of controls on the driver's desk of tram vehicles .....	18
7.3.2	Reachability of controls on the driver's desk of tram-train vehicles .....	19
7.3.3	Grouping of controls .....	19
7.3.4	Allocation to hands .....	20
7.3.5	Accessibility .....	20
7.3.6	Synchronous operation of elements .....	20
7.3.7	Risk of inadvertent activation .....	20
7.3.8	Position of specific controls .....	20
7.3.9	Controls used while driving, but not located on the driver's desk .....	21
7.3.10	Controls only operated during standstill .....	21
8	Lighting of cab, displays, controls and indicators .....	22
8.1	Cab lighting .....	22
8.2	Instruments' lighting .....	22
8.3	Prevent disturbing the driver .....	22
8.4	Reading zone of tram-train vehicles .....	22
9	Symbol and text definition .....	22
9.1	Symbol appearance .....	22
9.2	Harmonized symbols .....	22
9.2.1	General .....	22
9.2.2	Combinations of colours .....	23
9.2.3	Style of symbols .....	23
9.2.4	Location with respect to controls .....	23
9.2.5	Field for symbols .....	23
9.2.6	New symbols .....	23
9.3	Character type .....	23
	Annex A (normative) Reach envelopes and fields of view inside the cab .....	24
	Annex B (informative) Operating elements and integration at the driver's desk .....	26
	Bibliography .....	41