Infantry Target Cluster

Mounted Maneuver Ranges

RANGE AND TRAINING LAND PROGRAM – MANDATORY CENTER OF EXPERTISE
U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE
HUNTSVILLE, ALABAMA
256-895-1534
EMAIL RTLP

General

This section primarily covers the infantry target clusters used on mounted maneuver ranges. The clusters consist of six Stationary Infantry Targets (SIT) and one Moving Infantry Target (MIT) or seven SITs. Use this section in conjunction with the general SIT and MIT sections.

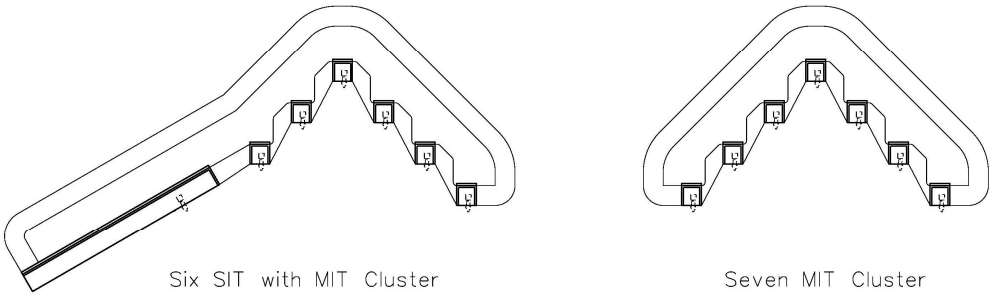
Range designers should refer to the Inspection Checklists provided in the RDG to ensure that all required items are included in the design.

Civil/Siting

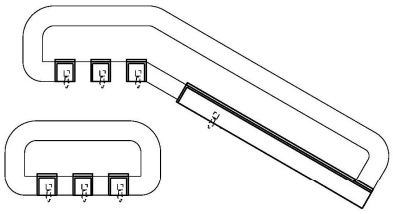
Refer to the SIT and MIT sections for specific requirements regarding emplacement size, construction type, Line of Sight, etc. This section includes additional information and requirements when these emplacements placed in clusters.

Cluster Configuration

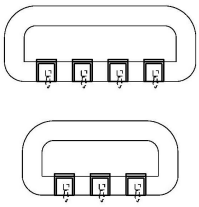
There are two primary configurations used for Infantry Clusters. The targets are placed in two rows or in a V-shaped configuration. The MIT is placed at one side of the SITs. The MIT can be either 15M or 40M long depending on the range's gunnery requirements. The lateral target spacing should be 10 feet to 15 feet (3M to 5M); depth spacing should be 5 feet to 15 feet (2M to 5M). Depth spacing on the two-row configuration depends on the thickness of the berm. Place the second row as close as possible while still allowing proper drainage. Coordinate with the installation to determine which configuration is preferred. The configurations can be adjusted to fit the terrain with the approval of the installation training staff.



V-Shaped SIT CLUSTER



Six SIT with MIT Cluster



Seven MIT Cluster

Note: The Two Row configuration using common front wall (see picture below) rather than individual SITs is often a more economical solution.

Two Row SIT Cluster

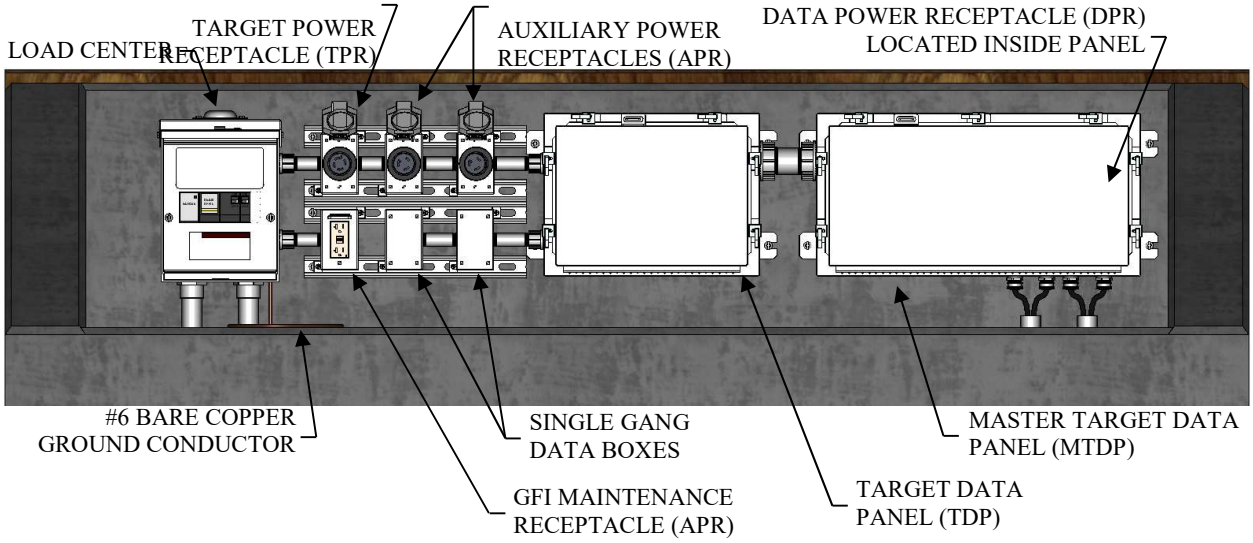
Electrical/Communications

Refer to the SIT and MIT section for additional information and requirements for the individual target types. Refer to the Downrange Distribution Section of the RDG for additional information including downrange power, communication, transformers, trenching requirements, etc.

The power and data serving the 7-man clusters do not have to serve each emplacement separately. Power and data may feed the targets in the cluster in a master-slave type relationship. All power and data equipment will be installed in the master emplacements. Each slave emplacement will not be required to house all of the equipment required in a master emplacement. This will reduce the cost of construction and the cost for the target network communications devices. This will improve the network performance on the range as there will be fewer redundant switches through the SIT emplacements. This concept is permissible because one load center may provide power for up to three additional SIT emplacements, and the networking equipment may distribute data to three additional SIT emplacements.

Infantry Target Cluster Master Emplacements

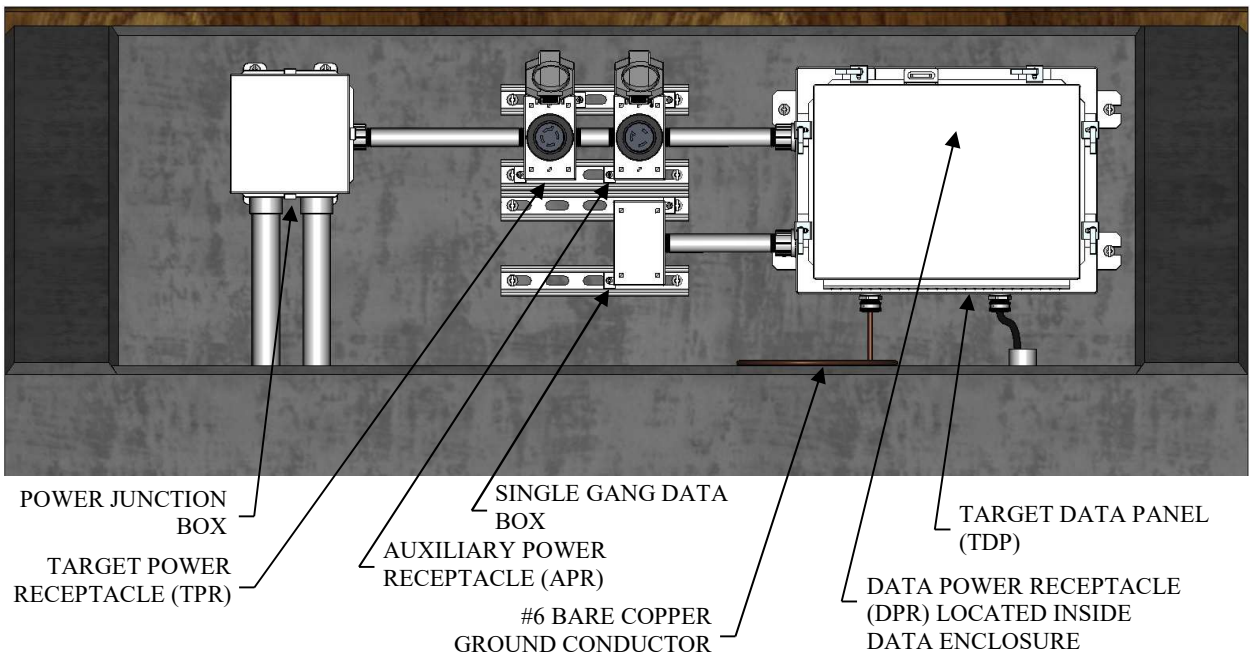
The Infantry Target Cluster master emplacement will house all of the power and data equipment to serve up to 4 SIT mechanisms. The master emplacement will either be located in a MIT emplacement or a widened SIT emplacement (80” wide emplacement). The master emplacement will be provided with a load center for power. The load center will serve power to the local SIT mechanism and up to three additional SIT mechanisms located in slave emplacements. The master emplacement will be provided with two data enclosures. One data enclosure will be a 24” x 12” Master Target Data Panel (MTDP) and the other will be a 16” x 12” Target Data Panel (TDP). These enclosures will house the network switch for up to four target mechanisms and will provide a patch panel for the data cables serving the slave emplacements. The figure below shows a typical elevation for a Master Emplacement. The master emplacement will be provided with an additional L5 outlet and data outlet box to serve a battle effects simulator. Each cluster will receive one battle effects simulator that will be installed in one of the master emplacements.



INFANTRY TARGET CLUSTER MASTER EMPLACEMENT (ME)

Infantry Target Cluster Slave Emplacements

The slave emplacement within a 7-man cluster is an emplacement that receives power and data from another emplacement within the cluster. Because the slave emplacement is dependent upon another emplacement, a power or data failure in another emplacement will disable the slave emplacement. See the elevation below for a slave emplacement to both power and data.



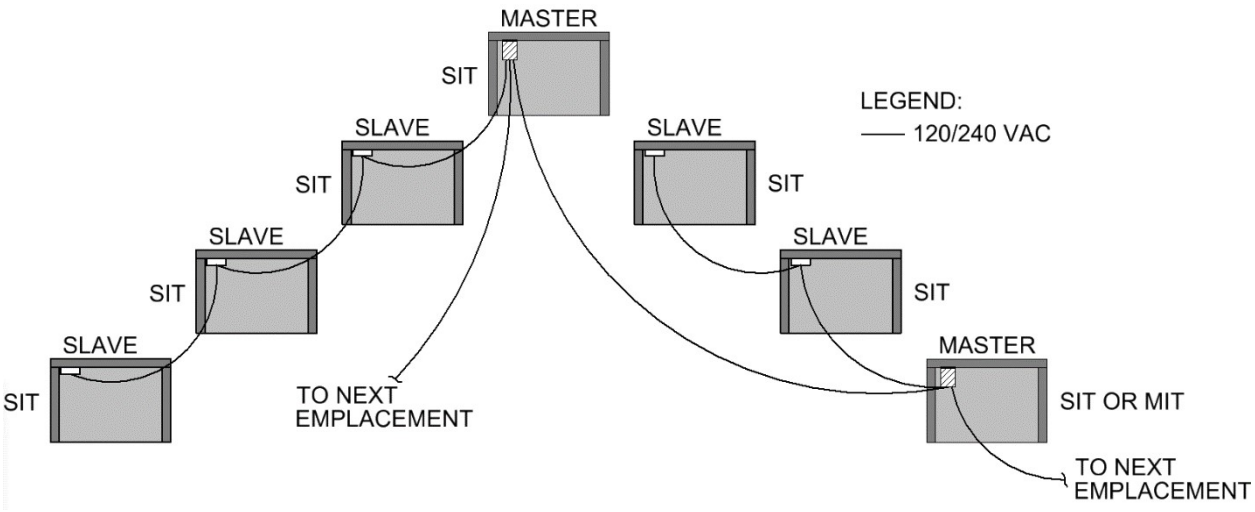
INFANTRY TARGET CLUSTER SLAVE EMPLACEMENT (SE)

Infantry Target Cluster Power Requirements

The arrangement of the 7-man clusters shall be set up so that power feeds two separate load centers located in two separate master emplacements within the Infantry Target cluster. The master emplacement will be provided with a load center that serves power to the target mechanisms within the local target emplacement and target mechanisms located in three additional emplacements.

The load center that is installed in each Master Power emplacement shall be provided with a 240V, 2-pole, 20 amp circuit breaker that serves the target power outlet for the target mechanism in the master power emplacement and it shall provide power to the target mechanisms installed in the slave emplacements. The slave emplacements will not have a local circuit breaker for the target mechanisms in those emplacements. A junction box will be used to splice power wiring in each slave emplacement to feed the slave emplacement power outlets and to continue the power branch circuit to the next slave emplacement. Under no circumstance should a target mechanisms within a SIT cluster be provided power through a feed thru insert in the load center within the SIT cluster. All mechanisms shall be provided power via a 20 amp, 2-pole circuit breaker located within the SIT cluster where the mechanism is installed.

The following diagram shows how the power shall be routed for a typical 7-man cluster.

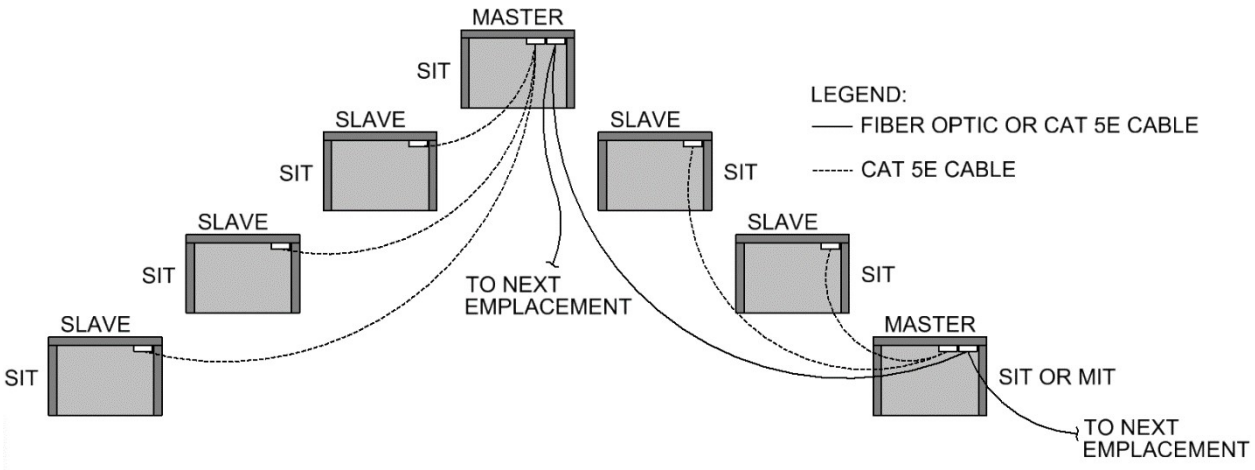


INFANTRY TARGET CLUSTER POWER WIRING DIAGRAM

Infantry Target Cluster Data Requirements

Communications shall be distributed to the 7-man clusters in a similar manner to the way power is distributed to the cluster emplacements. Data will serve one of two master emplacements. The data cables will be distributed out of the master data emplacements. Each master emplacement will serve up to three slave emplacements.

The master emplacement is provided with two data enclosures to accommodate all of the electronics required to distribute data to the target mechanisms. This allows enough room to terminate the CAT 5E data cables routed to the target mechanisms in the cluster, to terminate the fiber optic or CAT 5E data cables routing data to and from the Cluster to other emplacements on the range, and to provide enough space for the installation of data cable surge protectors for all CAT 5E cables. The data cables are distributed from the data enclosures installed inside the master emplacements to data enclosure installed in each slave emplacement. The following diagram shows how the data shall be routed for a typical 7-man cluster.



INFANTRY TARGET CLUSTER DATA WIRING DIAGRAM